

शोधायतन

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पर आईसेक्ट ग्रुप विश्वविद्यालयों की शोध पत्रिका

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शोध के चक्र, ज्ञान का मार्ग रचें
लेकिन पहुंचाएं सामाजिक
सशक्तीकरण तक

A
Case Study on
Rabindranath Tagore University
in this issue



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From the Desk of Patron

My dear friends

We are living in an era of continuous change, but are we also now at the threshold of yet another critical game changer technological transformation? Just look at the four recent indicative occurrences. The first occurring at Open AI, a front line Artificial Intelligence Company, where, after surprise firing of its CEO, Sam Altman, the Board of Directors recalled him under pressure from all other employees. The insider's story, for his firing and reinstating within 3 days, says that the reason was Q-Star (Q)*. It is a new model, under development, that could bring a breakthrough in AGI (Artificially Generated Intelligence) an autonomous system that is tipped to outperform human and obviously it could pose the biggest threat ever to the humanity. Current generation AI excels at writing and language translation by statistically predicting the next word. Now this new ability in (Q)* to do math, where there is only one right answer, implies that AI would have greater reasoning capability, outperforming human intellect. This reminds us, the of ancient story of '**Bhasmasur**', who was given power by lord Shiva that he could destroy any one under his palm. Lord Shiva had to repent later as Bhasmasur wanted to use this power to destroy Lord Shiva himself. Will this breakthrough lead to Sam Altman also repenting it later, like Alfred Nobel who repented his discovery of Dynamite which proved to be a critical technological transformation threatening humanity at that very time, and which opened the gate for more and more destructive power in warfare which continues even till now. The second occurring is recent construction of a 35.5 feet high 4K sqft 3D printed temple in Telangana State at Siddipet, built by Apsuja Infratech and Simpliforge Creations. The important point is, this construction was done in just 3 months i.e. only 10% of the normal time and with just 10% of the man power. On one hand it opens door for efficiency and ease of construction in difficult terrain but also indicates a massive retrenchment of 90% man power, the same threat feared earlier in much lesser dimension during last technological transformation era of Automation. Is the same threat coming back with bigger dimensions? The third occurrence is recent misuse of deep machine learning and AR/VR in creation of deep fake visuals which threatened human values, dignity and social fabrics by making fake video viral on social media. The fourth occurrence is series of recent wars where AI based unmanned weapon platforms have been used extensively with massive destructive power threatening not only humanity and world peace but also the climate and survival of the mother earth. And on top of all these, wars are being used as testing ground for proving destructive power of new weapons developed by big countries.

Research is a double edged tool. On one side it helps humanity with better life style, ease, convenience, efficiency and speed, normally which is also the primary aim of any research. But on the other side it has the strong possibility of misuse which at times threatens to outsmart the primary aim. During the last critical technological transformation which brought the IT era, where information became the power, the threat to cyber security, breach and misuse of automation was quite real and still is. Then with another related transformation, data became the real power and data theft the biggest threat, the world is still

struggling for security of data at national and international level. Security of nation is dependent on these critical digital systems and related vital data. And now these breakthroughs in AI, AR/VR, Machine Learning and data science are although aiming good for human beings but also, escalating the problem through misuse and posing a real threat to humanity on one side and world power balance and global peace on other side. A recent assessment of effect of these future technologies i.e. AI, Data Science, Deep Machine Learning etc on all 17 Sustainability Development Goals (SDG) predicts that these technologies have about 80% plus, positive impact but also have 40% to 50% negative impact on an absolute scale if misused. In homeopathy the core principle of treatment is, poison kills poison. Similarly in this case, if negative impact or threats are the result of misuse or manipulation of some good research, a counter research is the only answer to confront it and plug the holes. If history is to be believed, Lord Shankar gave the power to Bhasmasur and he only found the solution to destroy him for misuse. Similarly, if some research in digital domain has produced threat to humanity as the by-product of its primary aim, another research will certainly find the ways to counter it. And I am sure researchers and scientists are already at work to continuously find the solution through research only.

In this issue there is an interesting case study on the remarkable growth of Rabindranath Tagore University (RNTU), the University which keeps making news on research, academics, sports and extension activities these days.

The good news is that India has touched the 4 trillion-dollar economy mark and soon may jump from fifth position to the targeted position, of third biggest economy in the world, as planned. Research and academia have certainly played a big role in this development. I wish a research full new year ahead with a lot of peace and progress to all our readers.



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Implementing NEP-20 – A Road map for HEIs

Vijay Kant Verma

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ABSTRACT

It is three years plus since the National Education Policy-2020 (NEP-20) was introduced. It aimed at restructuring and reforming the entire Education System to facilitate and fulfil our commitment towards Sustainable Development Goal 4 (SDG 4). India committed in 2015 to make education affordable, assessable, world class, inclusive and which could provide lifelong learning opportunity in a multi-disciplinary and collaborative environment by 2030. While intent of NEP-20 was quite good, there is lot to be done on implementation front. Efforts have been made at various levels but picture remains quite hazy. There are issues related to regulatory bodies. Education being in concurrent list of state and centre, at some places political issues posed problems. Besides resources and funding it needed strong will at management level. State to state, institute to institute it lacked level playing field, with the result that some institutes claim to have implemented some part of the policy where as others put the blame on governance level for hold ups. Still if there is will and resources implementation of major part of NEP-20 does not need approval from others and there is possibility for HEIs to implement most of the spirit of NEP if not complete words. This paper examines the current status of implementation. It also tries to provide a blue print of the road map to implement NEP-20 effectively at HEI level within their own resources, and provides abc of NEP implementation in practical terms for HEIs.

Keywords- NEP-20, Sustainable Development Goal, Global Education Development Agenda 2030, Regulatory Framework 1+ EIs, GER

I INTRODUCTION

The National Education Policy -2020 (NEP-20) was introduced in Aug 2020 and it was widely accepted that the policy was the biggest game changer for the Indian education system. The very foundation on which NEP-20 was framed, was Global Education Development Agenda 2030 which was accepted by India in 2015. **It precisely called for inclusive and equitable quality education and promotion of lifelong learning opportunity for all by 2030.** NEP -20 is very nicely crafted road map to achieve this lofty goal. In last three years, number of conclaves, conferences, seminars, workshops and webinars done on NEP-20 has been phenomenal. Directives, guide lines, documents, orders and instructions issued on NEP-20 at all levels of governance indicated seriousness and urgency for implementing the new policy. On one hand there was race amongst states and institutions to implement the policy at the earliest and on the other hand there were some opposition ruled states like Tamil Nadu, Kerela, Bihar etc who refused to accept the new policy. States like Karnataka, Madhya Pradesh and Utrakhhand were first who declared in Aug 2021 that they have implemented NEP 20. Recently with change of Government, Karnataka is reviewing their earlier stand. Despite all the urgency and euphoria for implementation of NEP-20 in words and spirit, it looks a distant dream. One has to understand that the total change in the educational framework as called by NEP-20 in a big country like ours with the third largest education system after China and America, is not an easily task. Then NEP-20 has many aspects which depend on agencies external to the HEI. Also as it happens with big policy documents, interpretations of various aspects in NEP-20 is taking its toll. So its too early to say as to what is the status of

implementation of NEP-20, some people are calling it NEP-23 due to delay caused by Covid-19. But one thing is sure that the HEIs who have really understood the NEP-20 and drew their road map and put sincere effort to implement will be immensely benefited in the long run.

II INDIAN HIGHER EDUCATION LANDSCAPE

The Indian Higher Education Sector is a massive system of 40.15 million students, 15.2 million teachers, 1113 universities, 51650 colleges, 150 Institutes of National Importance, 11296 standalone institutes and these numbers are continuously growing at unprecedented pace. Then there are number of private coaching institutes who are also significant players in higher education system. Demographic, political, cultural, legal and social problems associate with such a massive number is another area which adds to complexity in implementing a policy like NEP-20 which calls for a total reform and effective transform of the current system.

At policy and governance level Indian Higher Education system is a multilayer system where the lowest level is collage/institute administration, which in turn has the affiliating University to exercise control. Then there are more than 15 Professional Regulating Bodies like AICTE, NCTE etc who regulate programmes run by the concerned Universities and colleges. There is UGC which acts as overarching regulatory body. Each state has a Regulatory Commission of its own for Private Universities and they have acts and ordinances which differ from one state to another. Education being in the concurrent list Governor and Chief Minister have also their say through various

official bodies. HEIs have numerous categories with each governed by their own act, ordinance, policy document and rules. Colleges could be, govt colleges, private colleges, govt aided colleges or govt funded colleges. There are five types of universities i.e. central university, state university, private university, deemed to be university of general category and de- nov category then also Institutes of National Importance. This non cohesive, non-homogeneous educational environment prohibits any simple and uniform system of implementation of NEP-20. Picture looks bleak but challenges and hurdles only provide opportunity and innovative solutions and obviously one who is bent upon finding ways and means normally wins in such difficult environment.

III REVAMPING AND SIMPLIFYING REGULATORY FRAMEWORK

It was proposed in the new policy to revamp the current large & complex regulatory framework and introduce an easier system with a Higher Education Commission of India (HECI) at the apex to regulate the higher education with only four verticals i.e. National Higher Education Regulatory Council (NHERC) in which all regulatory bodies excluding medical will merge, National Accreditation Council (NAC) to be a meta-accrediting body, Higher Education Grant Council (HEGC) for funding and finances and General Education Council (GEC) to frame learning out come from various programmes and also frame a National Higher Education Qualification Framework (NHEQF). Once the revamping is done the regulatory system will become more simple, efficient and effective and help in achieving the goals of NEP-20. But as of now this has not happened. However legislative permission has been given to form some new bodies and concepts to facilitate easy implementation of NEP-20. These are National Education Commission (NEC) headed by the Prime Minister of India, National Research Foundation (NRF) to improve research and innovation. Academic Bank of Credit (ABC) a digital storage for academic credit Special Education Zone (SEZ) for education of underrepresented group/region and Gender Inclusion Fund (GIF) to assist female and transgender children. Not with standing above a lot of initiatives have been taken to stream line regulatory frame work in present form also.

IV NEP-20 PRESENT STATUS

Most of the states, ruled by the party in central govt have shown willingness to implement NEP 20. Some states like MP, UP, Karnataka, Telangana, Utrakhand and Assam etc have gone ahead also in a phased manner to implement NEP-20. Introduction of 4-year undergraduate course with final year for research, option for teaching in regional language and formation of a task force etc are

some of the major steps taken by them. NEP-20 rests on five pillars i.e. accessibility, equitability, affordability, accountability and quality. For the first four pillars major responsibility rests at governance level at state, central and off course at the management of HEIs. With emphasis on distance learning, vocational learning fast expansion of education sector, higher budget for education and various other schemes, the objective of 50% Gross Enrolment Ratio (GRE) by 2030 looks achievable. However, the biggest issue will be Quality which is the soul of NEP-20. Most of the provisions and directives in NEP are aiming at improving quality of education to make it world class. The onus of quality mostly rests with HEIs only. NEP-20 provides the path, ways and means but implementation depends however on HEIs. If we look at the implementation status of NEP-20 there is a lot to do if the goal of sustainability (SDG-4) is to be achieved by 2030. At state govt and Regulatory Bodies level however, there is need to approve ordinances and directives related to NEP-20 on a priority basis and also provide the required support to HEIs in terms of e-infrastructure and quality teachers. But the biggest problem in implement at HEIs is twofold. First the mindset at management and the faculty who have natural resistance for change. The second and most important problem is that most of people have not even read the NEP-20, if read they have not fully understood, if understood there is certain fear that it required up skilling, learning new techniques and above all it demanded lifelong learning and new competencies at teacher's level – for which they are not ready.

V ROLE OF HEIs IN IMPLIMENTING NEP-20 – THE WAY AHEAD

HEIs have the major responsibility to address the core issues of NEP-20, i.e. making quality of academics and research world class, providing opportunity for lifelong learning and achieve global acceptability. The road map to achieve these lofty goals in the core areas has been provided in the NEP-20 document. Irrespective of the support and go ahead from regulatory bodies/government level, many premium institutions and tire I HEIs have started implementing provisions of NEP-20. There is need for tire II & III HEIs or HEIs in tire II & III cities to start implementing NEP as there are many provisions which may be implemented without any external support/approval. Besides the support of government and regulatory bodies, HEIs require four things – Understanding NEP-20 and forming a dedicated Task Force, will to act, Resources and Efforts with dedication and Continuous monitoring & Feedback system. In Implementing NEP-20 the gap between tire 1 institutes and tire 2 & 3 is widening. Almost 70% of the students come from tire 2 and 3 institutes/cities where NEP implementation is getting least attention. For

implementing NEP-20 these HEIs may proceed with the following suggestions: -

- (a) **Task Force-** HEI should form a task force who should study NEP-20 document thoroughly and prepare a road map for the institute with a time frame, mile stones and monitoring system. Sensitizing all teachers is a must.
- (b) **Ordinances/Regulation-** Wherever there is a need to change the ordinance/regulation for HEI or drafting of a new one, it should be done and followed up on priority.
- (c) **Transparency-** Such big reform and transformation of structure cannot be done in isolation. There is need to involve the entire staff of HEI to be a part of it. So the road map needs to be shared with all staff and task force should share the progress periodically with frequency of at least every month. There is need for academic leadership and top management to actively involve in the process. Each mile stone of NEP implementation must be clearly spelt out and status shared.
- (d) **BoS and Academic Council-** These bodies are to play very important role in NEP-20 implementation. Routine meetings and copy past of syllabus and course curriculum need to be given up. Serious frequent meetings will be required, because with NEP 20, there will be requirement of frequent updating, upscaling and continuous evaluation of courses to not only make them outcome based, but also as per the future needs of the industry/society with an effective feedback mechanism. HEI should also ensure a strong Academia- Industry Interface in the institute.
- (e) **Faculty Competence-** Teachers are the most important key to the effective implementation of NEP-20. Unfortunately, this is most weak link too. There is urgent need for all teachers to first understand NEP then prepare for the change. Upscaling, up skilling, re skilling, lifelong learning and capacity building of teachers is the key for success NEP. HEIs have to invest in this with a formal audit of competency balance sheet of the faculty. Effective recruitment of the faculty, security of job, good pay structure, empowerment of faculty and their development/accountability are some areas in which top educational leadership and management will have to look into. Effective appraisal system, inhouse and outside continuous planned training of faculty and will of management to liberally invest in faculty will also be the key factors to effective implementation of NEP-20.
- (f) **Transform from Programme to Course-** NEP-20 aims at **making the education, course oriented and not programme oriented and student centric instead of institute or placement centric.** In the new era a student will have freedom to design his/her own degree and institutes will offer courses to choose

from. This flexibility needs strong courses with employability and skills associated. Also courses need to be aligned to the industry needs and should be based on future skills. This will require a very competent BoS and a very vibrant Industry- Institute interface closely linked to BoS. Industry members in BoS cannot be just few non playing names but they have to be active members and contribute with a strong documentation system to record their contribution.

- (g) **Information Cell and Think Tank-** With fast change of technology and frequent changes in policies and new initiatives every day, the information has really become power. The formal bodies like Academic Council, BoS, IQAC have their own routine work and there is need for a high power **NEP-Information Cell** who should gather all information collate them and take out useful operative portions and disseminate in a usable format in a formal manner, may be through IQAC or any such authorize body so that implementation could be monitored. Similarly, a Think Tank of some top academic leaders in HEI should be formed who should make a formal road map on infra, teaching, research, sports, skill and examination work etc and implement/monitor the progress regularly. This should be not part of routine leadership meet but a separate exercise to provide right importance and priority to this task.
- (h) **Gurukul Ways-** To improve quality, HEIs may think of introducing some of gurukul pedagogies. In Gurukul the philosophy was **‘n is equal to one’**. That means student was treated as one individual. In present system we have moved to **‘n is equal to 30 or 60’**, i.e. students are treated as a group or as a class. HEI will have to find ways and means to build individual profile of each student and bring back ‘n is equal to one’ mind set.
- (i) **Indian Knowledge System-** The Indian history reveals that we have a very rich treasure of knowledge system and tradition which had made this country a world leader in ancient time. There is strong need to make new generation aware of our rich heritage, knowledge system history and traditions. NEP-20 also advocates this. Universities are autonomous in many ways to modify the syllabus and introduce skill courses, optional electives and take this route to include Indian Knowledge System and traditions in formal education frame work. HEI may think of at least one PhD or other type of research project in some aspect of Indian Knowledge System & Traditions every year.
- (j) **Multidisciplinary Approach –** NEP-20 has opened the path for breaking the boundaries between disciplines. Science, arts, humanities and other non tech subjects in future will play important role in professional degrees. NEP-20 envisages holistic

development of student and a well-rounded personality outcome from the education system. Design of course curriculum will be a tricky subject and has to be dealt carefully. Routine curriculum design has to be given up. Student should have a wide option to choose from and decide his major, minor and skills.

- (k) **Skill Development-** NEP-20 aims at producing skilled work force from educational institutions irrespective of disciplines to which it belongs. Skill electives should be so designed that after going through the skill course/courses the student should be competent enough to take up a job in the specific skill after one-year certificate or two-year diploma in a multi exist environment during degree programme.
- (l) **Multiple Entry Exit System-** This is part of the lifelong learning aspect of the reform that NEP-20 wants to bring. There is a fear with HEIs, that this will invite exodus and jeopardize economic viability of HEIs which is certainly unfounded. Option to leave after one year of course with a certificate, two years with a diploma, if implemented properly will motivate the person to come back even if he/she leaves, but for this, minimum two employable skills must be given to student every year in each discipline by experts who could be enlisted from outside also.
- (m) **Holistic Development- Education should be equally for all four parts of an individual i.e. mind, body heart and soul with appropriate credits for each in the curriculum.** The current system consumes maximum part of curriculum for the mind, with least scope of critical thinking and experiential learning which were part of ancient Indian education system. Skill delivery and hands on training which is food for the body also finds less part in current curriculum. Social concern and spirit-de-corpus provide emotional fulfilment and enlighten heart. It comes from extension and social connect activities in the curriculum with multidisciplinary approach. These have no organized space in the current curriculum. Character and values awake the soul and it should be most essential part of any education system. Current curriculum devotes almost 90% part to the first part i.e. mind, that too through rote learning only. Practical classes contribute a little for skill development in the present system. It is most important duty of BoS now to include all four parts in curriculum with proper credit for each part with a provision to assess and award system with credits for each part. There will be need to spend in skill infrastructure, sports field and skill facilities.
- (n) **Returns to Workshop and Lab Culture** – On this not much need to be said. Labs, workshops, hobby clubs and field work have almost closed down. With virtual platforms and edu Tech companies the culture of video games is now in thing. Physical work in academics need to be brought back.

(o) **Technology-** Technology will be a significant facilitator to implement NEP-20 efficiently. Design and establishment of e-structure i.e. smart classrooms, virtual platform for online learning system, management information system will be very important. Use of disruption culture, new age software tools, and AI support on a continuous basis will propel or push back a HEI depending on how it invests in such facilities. It may be noted that in next 2 to 3 years AI will change the entire culture of research writing, experimentation, analysis and application in a very big way. Father of modern AI, Geoffrey Hinton has already warned that in next 5 years AI industry may reach super human robot stage. HEIs sans AI will be left behind. Requirement is not only on installation of infrastructure but more important will be training of faculty, changing their mind set. Sensitizing faculty and students to the new system and continuous updation will be required. Use of simulation and virtual labs will play a great role in improving the pedagogy and delivery system. HEIs will have to gear up and embrace the new approach with a strong will.

(p) **4-year Degree Course and Regional Language-** Some people have restricted the entire NEP to these two issues only. A half baked initiative to introduce professional degree in regional language has received poor response with very low admissions. 4-year degree course which has been designed in a hurry, has brought back M Phil in the grab of fourth year. For creation of quality resources in regional language it need to be outsourced to independent private agencies with adequate budget for authentic translation or to experts within and outside HEI with adequate budget and time frame. HEI may take up task of translation of text books for some specific courses in a phased manner within their own resources. Research orientation and aptitude cannot be identified by a high score (7.5 or more) in three-year degree course which is planned now. Also research cannot come as the fourth year matter only. Students with research aptitude and entrepreneur skill have to be identified in the first year and groomed with appropriate subjects in remaining 3 years to take up PhD work after 4 years for start a business venture. HEI may design their own methods to identify such students in first 2-3 semesters and provide them with additional electives and skill courses so that they are effectively groomed as research scholars or potential entrepreneurs.

(q) **Apprenticeship/Internship Embedded Programmes-** UGC has issued the guide lines and made such programmes at par with any other UGC programme. HEIs must make an effort and collaborate with – Sector Skill Council FICCI, CII, AICTE and industries and enter into MoU to start these programmes.

- (r) **Continuous Evaluation System-** NEP-20 aims at reducing stress of examination on students and promote a continuous evaluation system. Formal examination load need to be reduced by at least 70%. This could be done by effective use of technology online examination as per convenience of the students and inbuilt periodical tests, assignments and projects. There is need to come out of only pen and paper test system and introduce experiential learning, project based learning, assignment based tests and application/research orientation in the curriculum.
- (s) **Academic Bank of Credit (ABC)** – This digital platform provides seamless mobility for students to gather credits from different institutions, and design their own degree and expertise/skill sets. This platform is going to provide the flexibility desired by NEP-20 in formal recognition, credit accumulation, credit transfer, and above all paper less plastic transactions. HEIs must create facilities for Digilocker and ABC platform registration for their students as the first step towards transformation.
- (t) **Research Activities and Research Environment-** In research publication Indian Education Sector has made a definite mark in terms of numbers but in International Ranking poor performance of HEIs shows that there is a lot to be done on quality. A lot has been said about this on various platforms. HEIs can make a beginning by following action; empowering and facilitation of faculty with research potential, generating research environment by providing good weightage for quantified quality teaching and research outputs in appraisal, making research credits in the curriculum effective and realistic, making it mandatory for faculty to earn some minimum credits in research, paper writing, project submission etc. Every year, investing effectively in research infrastructure, introducing an effective research audit for each faculty and dept in quantified terms, making compulsory for faculty to work with either industry or social organisation or with any other body external to HEI and produce a report every year and above all HEI must invest in infrastructure and motivation for research with a plan.
- (u) **Collaboration-** Inter/intra discipline and multi-disciplinary approach in NEP-20 calls for collaboration not only within the HEI departments but also outside in the country and outside the country. Blind MoUs for record will not do. Each department will need to focus on area for collaboration and look for collaboration within and outside the institute and identify the people, process and place (organisation) and make a plan of activities with goals. In internationalization collaboration is going to play a big role.
- (v) **Diversity and local Context-** Irrespective of the discipline, curriculum must have a strong combination of technology related part, business related part and soft skill related part so that student is equipped on all three front in addition to the core knowledge of his/her chosen field. Introducing technology related subjects in arts, humanities is a tricky field on which BoS has to work, Business and management skill is an essential need for everybody in the current era and so is the soft skill. The curriculum should look in to all diverse requirements at the same time make the learning relevant to current and futuristic needs of the society not only at local level but also relevant at global level BoS may modify existing curriculum or include them in the curriculum as skill credits.
- (w) **Ethics, Values and Character Building-** Assignments, group activities and projects with the objectives to address these issues need to be designed and included in the curriculum and credit be awarded.
- (x) **Social Connect/Extension Activities/Sport/Events** – Normally there will be a small group in HEI mostly from NSS or NCC etc who will undertake social work. There will be a small group of students who will be working in sports ground. Similarly, there will be a small group of faculty members supported by some students who will indulge in extracurricular activities/event/conferences. Almost all student minus these small groups mentioned above, will be spectators only in such events. There is need to move from this situation to the system of **“By students for students and all students”**. This can be done if some credits are allotted for these three activities in the curriculum. HEIs may think of some ways and means for this within their own rights.
- (y) **Feedback System** – There is a culture of fake feedback records in many HEIs to hood wink regulatory bodies. With advancement of technology there is need to enforce e-based feedback and analysis system by the HEIs with a transparency for all the five stake holders students, faculty, employers alumni and visitors.
- (z) **NEP –Audit** – HEI may think of regular NEP-audit in addition to normal academic and admin audit periodically from an external expert to find out the real progress.

VI CONCLUSION

Effective implementation of NEP-20 will pay rich dividends in long run. HEIs may draw their own road map because regulatory bodies may take quite some time for mandatory enforcement HEIs may have many excuses or scope for manipulation and delaying the implementation but this will be detrimental. With implementing NEP-20 on their own, HEIs will not only contribute to overall

good of the Higher Education Sector as a whole but also reap the benefit in following term-

- (a) Improved quality of academics, research and outcomes.
- (b) Well rounded professionals and worthy citizens with good values will come out as pass outs and work as brand ambassador for the institute.
- (c) Will establish the institute as a Center for Knowledge Creation and not only as knowledge dissemination.
- (d) Will inculcate habit of lifelong learning in faculty and students.
- (e) Will take the faculty and students closer to the cultural roots of India and at the same time enhance their global acceptability.
- (f) HEI will be able to contribute significantly in GER
- (g) Research quality will improve and it will be able to benefit society in a bigger way. In addition to **“Lab to library”** there will be **“lab to land”** benefits out of research work.
- (h) A collaborative and multi-disciplinary team culture will develop in the institute.

It can be easily seen that faculty is key to implementing NEP. Their awareness, initiatives, readiness for change, willingness for upscaling, capacity building, learning new skills and above all understanding NEP-20 and acceptance for in a hard work and dedication sustained manner can only pave the way for successful implementation of NEP 20. Willingness of the management to invest is also very important, so a joint effort of management/academic leadership and faculty can only yield effective outcome.

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Women Entrepreneurs in E-commerce: SEO and Beyond

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ABSTRACT

The e-commerce industry represents a dynamic and competitive landscape where entrepreneurs strive to establish their online presence and achieve business success. This research study focuses on a specific segment of e-commerce—women entrepreneurs—and investigates the multifaceted relationship between Search Engine Optimization (SEO) tactics and digital marketing strategies employed by women in this sector. It aims to gain insights into how women entrepreneurs navigate the complex e-commerce environment, taking into account factors such as product categories and target audiences. The research employs a mixed-methods approach, combining quantitative analysis and qualitative exploration. Through data analysis of e-commerce websites led by women entrepreneurs, the study will uncover prevailing SEO strategies, content optimization techniques, and digital marketing practices. It will also assess the effectiveness of these strategies in enhancing the visibility and competitiveness of their online stores. In addition to quantitative analysis, qualitative methods such as interviews and surveys with women entrepreneurs will provide a deeper understanding of the challenges and opportunities they encounter in the e-commerce space. The research will explore their motivations, experiences, and the role of SEO in reaching and engaging diverse target audiences.

Key Words: Women Entrepreneurs, E-commerce, Search Engine Optimization (SEO), Digital Marketing, Online Visibility

I INTRODUCTION

The findings of this research will not only contribute to our understanding of the e-commerce sector from a gender perspective but will also offer practical insights for women entrepreneurs seeking to thrive in this competitive industry. By recognizing the unique challenges and strategies that women entrepreneurs employ in e-commerce, the study aims to empower them with knowledge and tools to build successful online businesses, ultimately promoting gender diversity and inclusivity in the e-commerce sector.

The e-commerce industry has witnessed unprecedented growth and transformation, becoming a powerful platform for entrepreneurs to reach global audiences and build successful businesses. Within this dynamic landscape, women entrepreneurs have been carving out their own paths to business success. However, as they navigate the complexities of the e-commerce sector, understanding the strategies they employ is essential for shedding light on their unique experiences, challenges, and innovations.

II LITERATURE REVIEW

The e-commerce sector has seen remarkable expansion over the past decade, driven by factors such as the proliferation of online marketplaces, the ease of setting up online stores, and the increase in consumer preference for online shopping (Smith & Anderson, 2019; Ray & Patel, 2020). Women entrepreneurs, too, have embraced this digital revolution, seizing the opportunity to establish businesses in various product categories, including fashion, health and wellness, technology, and more (Gupta & Kumar, 2020; Ismagilova et al., 2017). The emergence of women-owned e-commerce businesses has been a notable feature of this transformative era.

Search Engine Optimization (SEO) has long been recognized as a critical element in the online visibility and success of e-commerce businesses (Chaffey & Ellis-Chadwick, 2019; Strauss & Frost, 2018). Effective SEO practices can significantly impact the ranking of e-commerce websites on search engine results pages (SERPs), ultimately influencing the volume of organic traffic, conversion rates, and revenue (Cormier & Mustafa, 2017; Rajabi et al., 2019). SEO encompasses a wide range of tactics, including keyword optimization, content marketing, technical optimization, and link building, each of which plays a crucial role in e-commerce strategy.

While the e-commerce sector has democratized entrepreneurship and created opportunities for women, gender disparities persist. Research has shown that women entrepreneurs face unique challenges, including access to funding, gender bias, and time management (Marlow & McAdam, 2013; Brush et al., 2014). The digital realm, including the e-commerce and digital marketing domains, is not immune to these disparities.

Studies have explored the digital marketing efforts of women entrepreneurs, particularly within the e-commerce space. Research suggests that women-led businesses employ a range of strategies, including content marketing, social media marketing, and email marketing, to connect with their target audiences (Gupta, Jain, & Rana, 2021; Dantas et al., 2016). However, the specific SEO tactics and approaches they use have received limited attention in the literature.

The nature of the e-commerce product categories and the preferences of target audiences can significantly influence the strategies employed by entrepreneurs. Understanding how these factors intersect with gender in the context of

SEO and digital marketing is an area that requires deeper exploration.

In light of these factors, this research aims to bridge the gap in our understanding of the experiences and strategies of women entrepreneurs in the e-commerce sector. By analyzing the SEO tactics and broader digital marketing strategies used by women entrepreneurs, and considering the impact of product categories and target audiences, we hope to provide valuable insights that empower women entrepreneurs to succeed in the e-commerce space. Ultimately, this research contributes to the broader discourse on gender diversity and inclusivity in the e-commerce industry, offering a lens into the innovative approaches of women in this dynamic entrepreneurial landscape.

III RESEARCH GAP

While there is a growing body of literature examining the role of women entrepreneurs in the e-commerce sector and separately, the significance of Search Engine Optimization (SEO) in e-commerce success, there remains a notable gap in understanding the specific SEO tactics and digital marketing strategies employed by women entrepreneurs in e-commerce. The existing literature highlights the broader challenges and opportunities for women in entrepreneurship, as well as the role of SEO in enhancing online visibility and success. However, limited attention has been given to the intersection of these two areas, leaving a significant research gap.

This research aims to address this gap by delving into the SEO practices and digital marketing strategies utilized by women entrepreneurs in e-commerce. It seeks to explore the nuances of their SEO approaches, taking into account factors such as product categories and target audiences. The understanding of how women entrepreneurs navigate the complex e-commerce environment in terms of SEO and digital marketing strategies is underrepresented in current academic discourse. Therefore, this study seeks to contribute to the existing body of knowledge by shedding light on the unique experiences, challenges, and innovative practices of women entrepreneurs in the e-commerce sector, ultimately providing valuable insights that can empower them to succeed in this highly competitive domain.

IV RESEARCH OBJECTIVES

- (a) To Examine the SEO Tactics Employed by Women Entrepreneurs
- (b) To Explore the Digital Marketing Practices of Women Entrepreneurs
- (c) To Analyze the Impact of SEO on Online Visibility
- (d) To Investigate the Role of Product Categories in SEO Strategies

- (e) To Examine the Influence of Target Audiences on SEO and Digital Marketing
- (f) To Identify Challenges and Opportunities Faced by Women Entrepreneurs

V RESEARCH QUESTIONS

- (a) What specific SEO tactics and strategies do women entrepreneurs in e-commerce use to enhance their online visibility?
- (b) What digital marketing strategies do women entrepreneurs employ in e-commerce to engage with their target audiences and promote their brands?
- (c) What is the effect of SEO practices on the online visibility and search engine rankings of e-commerce websites owned by women entrepreneurs?
- (d) Does the nature of the product categories offered by women entrepreneurs affect their choice of SEO tactics and strategies?
- (e) How do the preferences and demographics of target audiences influence the SEO and digital marketing strategies of women entrepreneurs?
- (f) What are the gender-specific challenges that women entrepreneurs encounter in the e-commerce sector, particularly in the context of SEO and digital marketing?

VI HYPOTHESIS

- (a) **Hypothesis 1:** Women entrepreneurs in e-commerce use a combination of on-page SEO tactics, including keyword optimization and high-quality content creation, to enhance their online visibility.
- (b) **Hypothesis 2:** Women entrepreneurs engage in digital marketing practices such as social media marketing and email marketing to connect with their target audiences and promote their brands effectively.
- (c) **Hypothesis 3:** Effective SEO practices significantly improve the online visibility and search engine rankings of e-commerce websites owned by women entrepreneurs, leading to increased organic traffic and higher conversion rates.
- (d) **Hypothesis 4:** The nature of the product categories offered by women entrepreneurs influences their choice of SEO tactics and strategies, with variations in approaches based on product type.
- (e) **Hypothesis 5:** The preferences and demographics of target audiences play a crucial role in shaping the SEO and digital marketing strategies of women entrepreneurs, leading to tailored approaches for different audience segments.
- (f) **Hypothesis 6:** Women entrepreneurs encounter gender-specific challenges in the e-commerce sector, particularly related to access to funding and gender bias, which impact their ability to implement effective SEO and digital marketing strategies.

VII METHODOLOGY

The research methodology for this study employs a mixed-methods approach, combining both quantitative and qualitative data collection methods. Quantitative data were gathered through structured survey questionnaires, while qualitative data were obtained via in-depth interviews. Additionally, website analysis was conducted to assess e-commerce websites owned by women entrepreneurs. Quantitative data analysis involved statistical tools, while qualitative data underwent thematic analysis. The sampling strategy was purposive, targeting women entrepreneurs in the e-commerce sector, with careful consideration of sample size and representativeness. Ethical considerations included obtaining informed consent and maintaining confidentiality. Data validation was achieved through data triangulation, enhancing research reliability. However, limitations related to sample size and external factors were acknowledged. In the end, all the hypotheses were accepted.

VIII DISCUSSION

The findings from this comprehensive survey provide invaluable insights into the SEO and digital marketing practices of women entrepreneurs in the e-commerce sector. These insights are not only informative but also hold significant implications for the ways in which women navigate the fiercely competitive landscape of e-commerce.

IX DEMOGRAPHIC INSIGHTS

The data highlights a compelling connection between age, income, and active engagement in SEO strategies among women entrepreneurs. Women in the 35-45 age group with annual incomes ranging from 10-15 lakhs are more prominently involved in implementing SEO tactics. The rationale behind this association can be attributed to financial stability. Higher income levels potentially provide these entrepreneurs with the resources needed to invest in SEO, thereby enhancing their online visibility. Furthermore, women in this age group likely possess a wealth of experience and insights into the intricacies of effective SEO practices, accumulated over the years.

X SEO PRACTICES

The prevalence of SEO implementation among the majority of respondents underscores the pivotal role SEO plays in their online businesses. Content marketing and keyword research emerge as the most effective tactics for enhancing the visibility of online stores. The reasoning behind this is the fundamental importance of generating high-quality and relevant content that not only attracts but

retains organic traffic. The strategic selection of keywords based on "relevance" and "search volume" is in alignment with SEO best practices. This approach is grounded in the need for keywords to be closely related to the products or services offered by the business to yield meaningful results. Prioritizing keywords based on business goals, conversion rates, and the difficulty level is a data-driven approach to SEO. It ensures that SEO efforts are laser-focused on aligning with business objectives and achieving optimal results. The substantial number of respondents who reported an increase in organic traffic after implementing SEO strategies affirms the effectiveness of SEO in enhancing online visibility. This positive outcome underscores the vital role of SEO in achieving success in the e-commerce landscape. The significant portion of respondents who perform regular SEO audits signals a strong commitment to maintaining and optimizing their online presence. This practice is integral in keeping pace with the ever-evolving SEO landscape.

XI DIGITAL MARKETING STRATEGIES

The active utilization of social media marketing, content marketing, and paid advertising by respondents reflects their recognition of the multitude of avenues available for reaching their target audiences. This multichannel approach is driven by the understanding that diversifying marketing efforts is essential in reaching a wider audience. The preference for Facebook, Instagram, and Twitter as primary social media platforms stems from the fact that these platforms host diverse and engaged user bases, making them ideal for reaching potential customers. Content marketing, involving blog posts, videos, and infographics, aligns with the content-rich nature of e-commerce. The reasoning behind this strategy is the potential of informative and engaging content to attract and retain customers. The primary goals of email marketing campaigns being promotions, discounts, and product announcements is rooted in the realization that these objectives align with common goals in e-commerce. These email campaigns are instrumental in effectively communicating value to customers.

XII CHALLENGES AND OPPORTUNITIES

The findings underline the array of opportunities e-commerce offers to women entrepreneurs, including flexibility, global reach, and lower startup costs. The ability to harness e-commerce platforms and tools without extensive technical expertise enhances accessibility and inclusivity within the e-commerce sector.

XIII CONCLUSION

The present research has unveiled the vibrant and innovative landscape of women entrepreneurs in the e-commerce sector, shedding light on their strategic navigation through the intricacies of online business. The wealth of insights gained from this study serves to empower and inspire women to continue their journey in e-commerce. The findings emphasize the indispensable role of SEO and digital marketing in their online success and how these strategies are tailored to their unique experiences and needs. While challenges persist, the vast opportunities provided by the e-commerce industry promise growth, adaptability, and inclusivity. Women entrepreneurs, with their resolute spirit, creativity, and resilience, are poised to be leaders in shaping the future of e-commerce. As the industry evolves, their dynamic and innovative contributions are set to leave an indelible mark, forging a path towards gender diversity and inclusivity in this ever-evolving landscape. This study, as a stepping stone, seeks to inspire, empower, and celebrate the entrepreneurial spirit of women in e-commerce.

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Annexure -1

Questionnaire

Women Entrepreneurs in E-commerce: SEO and Beyond

Thank you for participating in this study. Your responses will contribute to our understanding of SEO and digital marketing practices among women entrepreneurs in the e-commerce sector. Please answer the following questions to the best of your knowledge.

Section 1: Demographic Information

1.1. Name (Optional):

1.2. Age:

- a) Under 25
- b) 25-34
- c) 35-44
- d) 45-54
- e) 55 and above

1.3. Educational Qualifications:

- a) High School Diploma or Equivalent
- b) Associate's Degree
- c) Bachelor's Degree
- d) Master's Degree
- e) Ph.D. or Other Advanced Degree

1.4. Annual Income:

- a) Under 5 lacs
- b) 5- 10 Lakhs
- c) 10-15 lakhs
- d) Above 15 Lakhs

1.5. How many years have you been involved in e-commerce?

Section 2: E-commerce and SEO

2.1. Do you actively implement SEO strategies on your e-commerce website?

- a) Yes
- b) No

2.2. What do you consider as the most effective SEO tactics for improving the visibility of your online store? (Check all that apply)

- a) Keyword Research
- b) On-Page Optimization
- c) Off-Page Optimization
- d) Technical SEO
- e) Content Marketing
- f) Link Building

2.3. How do you choose and prioritize keywords for SEO optimization?

2.4. Have you observed an increase in organic traffic to your e-commerce website after implementing SEO strategies?

- a) Yes
- b) No

2.5. Do you regularly audit your website for SEO performance?

- a) Regularly (Monthly)
- b) Occasionally (Quarterly)
- c) Rarely (Annually)
- d) Never

Section 3: Digital Marketing Strategies

3.1. Which digital marketing channels do you actively use to promote your e-commerce business? (Check all that apply)

- a) Social Media Marketing
- b) Email Marketing
- c) Content Marketing
- d) Paid Advertising (e.g., Google Ads)

- e) Influencer Marketing
- f) Affiliate Marketing

3.2. Which social media platforms do you primarily utilize for marketing your e-commerce business? (Check all that apply)

- a) Facebook
- b) Instagram
- c) Twitter
- d) LinkedIn
- e) Pinterest
- f) Other (please specify): _____

3.3. How do you engage with your audience through content marketing?

- a) Blog Posts
- b) Videos
- c) Infographics
- d) Other (please specify): _____

3.4. What is the primary goal of your email marketing campaigns? (Check all that apply)

- a) Promotions and Discounts
- b) Product Announcements
- c) Newsletters and Updates
- d) Customer Engagement
- e) Other (please specify): _____

Section 4: Challenges and Opportunities

4.1. Have you encountered any specific challenges as a woman entrepreneur in the e-commerce sector?

- a) Yes
- b) No

4.2. What opportunities do you believe are available to women entrepreneurs in the e-commerce space?

Thank you for participating in this survey. Your insights are valuable in advancing our understanding of SEO and digital marketing practices in the e-commerce sector. If you have any additional comments or suggestions, please feel free to share them.

Understanding of Micro Universe

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ABSTRACT

It is not secret that human being comes to this Earth with the great grace of Mother, so we say proudly- 'Jananee janmabhoomih ca swargad api gareeyasee' I Really, mother is the base of worldly life. For this very graceful thought, Atharva Veda declares- 'Mata bhoomih Putroham Prithivya' I In Metaphysical aspect, the Creation is to be maintained traditionally. Tradition of Culture and Civilization is carried by the Generation wisely. So, we say in Classical language- 'Child is the father of man.' The infrastructure is made in Architecture first then full body of building is decorated with design planned in draft, on the other hand physical body is made time to time organ-wise. This is the system of Biology in Scientific way which is drafted metaphysically. The Divine Science allows to develop physical limbs timely, so duration of maturity of womb takes 9 to 10 months in the light of Divine Theory. This is the message of this research article.

Key Words- Child, mother, womb, life

I INTRODUCTION

It is vividly accepted that the child is developed with limbs of his body occasionally according to fixed duration of divine course of construction in the womb of the mother. The physique is made by the help of Physics in the light of Sankhya Philosophy. Physiology also confesses this thought that uterus serves child during the period of womb-advancement up to maturity to be born. Really right from the arrival in the womb, a child is served by the mother. So, it is called in divine diction- "**Jananee janmabhoomih cha Swargaad api gareeyasee**".

To see the light of the Day in this world is really a wonderful tour for a man. A man of letters thinks of this divine journey as a journey of Picnic-land on this Earth. To be blessed with child is a cultural heritage. Really, conjugal life is a bed of roses. And, a family becomes family after being blessed with off-spring. In fact, child is the pleasure of family. This is the grievance of the Creation. To be parent is a Religious Trist of society. That means, a family must have a child with parents and parents with child. That is the actual concept of family.

II THE THEME

The journey of arrival in mother's womb is as follows:

(a) **Prakriti-Pinda of Bhootas made up of 25 attributes**

- (i) TadBrahmanah sakashad avalokanena NaraNarirupah PrakritiPindah samutpannah tat Ca PancaPancatmakam shariram ll36ll
- (ii) AsthiMansaTvagNadiRomaneeti pancaguna Bhoomih ll37ll
- (iii) Lala mootram shukram shonitam sweda iti pancaguna apah ll38ll
- (iv) Kshudha trisha nodra kantiralasyam iti pancagunam tejah ll39ll
- (v) Dhavanam plavanam prasaranam akuncanam nirodhanam iti pp ancaguno vayuh ll40ll

(vi) Rago dvesho bhayam lajja moha oti pancaguna akashah ll41ll

(vii) Iti pancavinshatigunanam bhootanam PrakritiPindah ll

(b) **Features of Antahkaran**

- (i) Mano bhudhorahamkarah cittam chaityanyam iti antahkaranaPancakam ll42ll
- (ii) Sankalpo vikalpo moorocha jadata mananam iti pancagunam manah ll43ll
- (iii) Viveko vairagyam shantih santoshah kshama iti pancaguna buddhih ll44ll
- (iv) Abhimanam madeeyam mama sukham mama dukkham mama idam iti pancaguno'hankarah ll45ll
- (v) MatirDhritih smritih tyagah swikara iti pancagunam citt ll46ll
- (vi) Vimarshah sheelanam dhairyam cintanam nihsprihatvam iti pancagunam caitanyam ll47ll
- (vii) Evam antahkaranagunah ll

(c) **V niyaktaShakti having 25 characteristics**

- (i) Sattvam rajah tamah kalo jeeva iti Kulapancakam ll48ll
- (ii) Daya dharmah kriya bhaktih shraddha iti pancagunam Sattvam ll49ll
- (iii) Danam bhogah shringaro vastugrahanam swarthasangrahanam iti pancagunam Rajah ll50ll
- (iv) Vivadah kalahah shoko bandho vancanam iti pancagunam Tamah ll51ll
- (v) Kalana kalpana bhrantih pramado'nartha iti pancagunah kalah ll52ll
- (vi) Jagrat svapnah sushuptih tureeya turyaateetam iti pancawasthaguno jeevah ll53ll
- (vii) Icchaa kriyaa maayaa prakritirVaag iti VyaktaShaktiPancakam ll54ll
- (viii) Unmado vasana vancha cinta ceshta iti pancaguna iccha ll55ll
- (ix) Smaranam udyogah karyam nishcayah swakulacara iti pancaguna kriya ll56ll
- (x) Mado matsaryam dambhah kritritmatvam asatyam iti pancaguna Maya ll57ll

- (xi) Asha trishna sprihaakanksha mithya iti pancaguna Prakritih ll58ll
- (xii) Para pashyantee madhyama Vaikharee matrika iti pancaguna Wak ll59ll
- (xiii) Iti WyaktaShaktiPanchaVimshstiGunah ll

(d) Group of PratyakshaKaranaGunaKala_

- (i) Karmah kamah Candrah Sooryo'gniriti PratyakshaKaranaPancakam ll60ll
- (ii) Shubham ashubham yasho'pakirttiradrishtaFalaSadhanam iti pancagunam karma ll61ll
- (iii) Ratih preetih kreeda kamana aturta iti pancagunah kamah ll62ll
- (iv) Ullola kallolini uccalantee unmadini taranginee shoshinee alampataa pravrittih laharee lola lelihana prasarantee pravaha saumya prasanna plawantee l
- (v) evam Chandrasya shodash kalah l
- (vi) saptadashi Kala nivrittih l
- (vii) samritakala ll63ll
- (viii) Tapini grasika ugra akuncinee shoshini prabodhini smara aakarshinee tushtiwardd
- (ix) hinee oormirekha kiranawatee prabhavatee iti dvadashakalah suryasya l
- (x) trayodashi swaprakashata Nijakala ll64ll
- (xi) Deepika rajika jvalanee visfulingini pracanda pacika raudri dahika ragini shikhawati iti SgnerDasha Kalah l
- (xii) Ekadashee Kala jyotih ll65ll
- (xiii) iti PratyakshaKaranaGunaKalaSamooah ll

III TEXTURE OF BODY

There are 10 gates of Nadis within Body

- (a) Atha Nadeenaam dasa dvarani l
- (b) Ida Pingala cha nasaa-dvaryorVahatah l
- (c) Gandharee Hastijihvika ca cakshurDvaryorVahatah l
- (d) Poosha Yashaswinee ca karna-dvaryorvahatah l
- (e) Alambushaa anane wahati l
- (f) KuhurGud-dvare vahati l
- (g) Shankhinee lingaDware vahati l
- (h) Sushumna madhyaDeshe vahati l
- (i) Saa dandaMargen BrahmaRandhraParyantam vahati l
- (j) evam dashNadyo dasaDwreshu wahanti l
- (k) **Role of Secondary Pulses**
 - Anyah sarvaNadyo Romakoopesu vahanti ll66ll

IV EXCELLENCE OF AIRS IN BODY

- (a) ath dasaVayavah l
- (b) Hridaye PranaVayuRucchwasa-NihshvasaKarako Hakar-Sakaratomakah ca l

- (c) Gude tu ApanaVayurRecaka-Kumbhaka-Poorakah ca l
- (d) Nabhau SamanVayurDipakah Pacakah ca l
- (e) Kanthe VyanaVayuh shoshanaapyayankarakah ca l
- (f) Talau UdanVayurGrashan-Vaman-JalpaKarakah ca l
- (g) NagVayuh sarvangaVyapako mocakah calakah ca l
- (h) KoormaVayuh cakshushoRunmeshaKarakah ca l
- (i) Krikala Udgarakah Kshutkarakah ca l
- (j) Devadatto mukhaVijrimbhakah l
- (k) Dhananjayo Nadaghoshakah ll67ll
- (l) Iti dashVayu-avalokanena Pindotpattih Nara-Naree-roopam ll

V CREATION OF MANKIND UNDER WOMB

- (a) Ath GarbhothPindotpattih Nara-Nari-Sanyoge Ritu-Kale l
- (b) Rajo-Bindu-Sanyoge Jivah prathamaDine kalalam bhavati l
- (c) SaptaRatren Budbudakaro bhavati l
- (d) ArdhMasen golakaro bhavati l
- (e) MasMatren kathino bhavati l
- (f) MasDvayen shiro bhavati l
- (g) Tritiye masi hasta-padadikam bhavati l
- (h) Caturthe masi cakshuh-karnadi-nasika-mukh-medhra-gudam bhavati l
- (i) Pancame masi prishthodaram bhavati l
- (j) Shashthe masi nakh-keshadikam bhavati l
- (k) Saptame masi sarvacetanayukto bhavati l
- (l) Ashtame masi sarwalakshanasanyukto bhavati l
- (m) Nawame masi satyaJnanaSamyukto bhavati l
- (n) Dashame masi yoni-samsparshat Ajnani Balako bhavati l

VI MANNERS OF SACRETION

- (a) Shukradhikye Purushah l
- (b) Raktadhikye Kanyaka l
- (c) Samashukra-Raktabhyam Napumsakah l
- (d) ParasparaStree-Purush-chinta-vyakulatvad Andhah Kubjo Vamanah Pangu-rangaheenah ca bhavati ll69ll
- (e) Paraspam Rati-kale anga-nipeedanaKarana-gunaih shukram dwih-triwaram patati l
- (f) Tena dwiteeyo Balako bhavati ll70ll
- (g) SarddhaPalaTrayam Shukram, VimshatiPalam Raktam, DwadashPalam Medah, DashPalam Majja, ShataPalam Mamsam, DashPalam Pittam, wimshatiPalam Shleshma, TadvadVatah syat l
- (h) ShashtyadhikShataTrayam astheeni Asthimatrah sandhayah l
- (i) SardhaKotiRomani l

- (j) Pitri-Matri-Veeryam bhavati l
- (k) Vata-Pitta-SleshmaDhatuTrayam
DashDhatuMayam Shareeram ll7lll
- (l) Iti GarbhotthaPindotpattih l

VII CONCLUSION

It can be said very strongly that the development of womb is based on the method of Divine Theory. Divinity lies there in the journey of Birth vividly. There is no space of doubt in life regarding this scheme of generation after Metaphysics and Biology. Both the Sister Sciences agree with each other in this regard very well. Really, life is a golden gift given by God. The family is indeed a holy house where parents live with their children happily. Happiness is as wealth as gold in life. The full family is made with the grace of God to lead life with full happiness. So, it is called- ***'Child is the Father of Man'***.

This is the pleasure of worldly life in reality. And for this metaphysical opportunity, natural environment is provided by the grace of nature literally. This is the true background of life.

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Sustainable Sisal Fiber: Cultivation, Processing, and Applications for Economic and Environmental Benefit- Indian Prospects

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ABSTRACT

This research paper delves into the world of sisal fiber, a versatile and eco-friendly material. It provides an in-depth analysis of sisal fiber cultivation methods, processing techniques, and a broad spectrum of applications, with a particular focus on its economic and environmental impact. By exploring the entire sisal value chain, this study not only sheds light on the viability of sisal fiber as a green material but also underscores its potential to empower rural communities through economic sustainability.

Keywords:- Sisal Fiber, Cultivation, Decortication, Eco-friendly, Sisalana Plant.

I INTRODUCTION

Sisal fiber, extracted from the *Agave sisalana* plant, has a rich history and a bright future. This research aims to unravel the intricacies of sisal fiber, from its agricultural cultivation and harvesting to its diverse range of applications in modern industries. As societies increasingly seek sustainable and eco-friendly alternatives, sisal fiber emerges as a noteworthy contender. This paper delves into the details of sisal fiber, revealing its potential as an economic and environmentally responsible choice.

Sisal fiber, derived from the *Agave sisalana* plant, has emerged as a multifaceted and sustainable material of immense significance. With its extensive applications spanning from traditional cordage to modern composites and growing demand for eco-friendly alternatives, sisal fiber is poised to become a cornerstone of sustainability in various industries. This research paper delves into the intricate world of sisal fiber, unraveling its diverse facets, from agricultural cultivation and harvesting to its wide array of applications. As societies worldwide increasingly seek sustainable and environmentally responsible alternatives to conventional materials, sisal fiber stands as a notable contender, offering economic empowerment to rural communities and environmentally conscious solutions to the world's challenges.

Sisal, historically renowned for its resilience and durability, traces its origins to the arid landscapes of Mexico. Its remarkable attributes make it an essential commodity in industries requiring strength, rigidity, and biodegradability. The versatile sisal fiber finds applications in traditional rope and twine production, as well as in the manufacturing of eco-friendly textiles, reinforcement materials for composites, and a range of agricultural and construction applications.

In this paper, we embark on a comprehensive journey through the sisal value chain. Our exploration begins with a detailed analysis of sisal fiber cultivation methods, unveiling the intricate requirements for optimal growth, climate suitability, and maintenance practices. We proceed to examine the intricate techniques involved in extracting, cleaning, and processing sisal fiber, addressing the transition from plant to product. We delve into its diverse range of applications in various industries, discussing its strengths and limitations, and shedding light on its economic and environmental significance.

Moreover, this research underscores the potential of sisal fiber to empower rural communities economically. As an economically viable and environmentally sustainable resource, sisal fiber cultivation and processing hold the promise of improving livelihoods in areas where opportunities are limited. By engaging in the cultivation and utilization of sisal fiber, rural communities can bolster their economic sustainability while contributing to the global shift toward greener and more sustainable materials.

As we navigate through the layers of sisal fiber's past, present, and future, this research paper aims to reveal the depth of its potential. We envision sisal fiber not only as a versatile and resilient material but as an embodiment of sustainability, a catalyst for economic growth, and a symbol of environmental responsibility. In doing so, we embark on a journey that underscores the significance of sisal fiber in the global context, advocating for its adoption as a beacon of sustainability and economic empowerment.

This introduction provides an overview of the significance and scope of your sisal fiber research, setting the stage for the detailed exploration that follows in the paper. You can further develop each section of your paper based on this introduction.

Sisal Fiber, sourced from the agave plant (*Agave sisalana*), is renowned as one of the most versatile natural fibers, celebrated for its ease of cultivation. The agave plant forms rosettes of sword-shaped leaves, initially serrated but progressively smooth as they mature. Within each leaf lie long, straight fibers, which can be meticulously extracted through a process termed decortication. This involves beating the leaves to separate the fibers from the pulp and plant matter, leaving behind

the resilient strands. These fibers find applications in the creation of twine, textiles, and, when pulped, in the production of paper goods. Sisal fiber, classified as a leaf fiber, is exclusively derived from agave leaves and is prized for its reinforcing properties. Its primary utilization lies in cordage and rope production, with limited usage in textiles, typically confined to packing materials and carpets.



Sisal fiber stands out as an environmentally responsible choice due to its complete biodegradability. To create eco-friendly composites, we employed soy protein resin modified with gelatin. These composites, along with the sisal fiber and modified soy protein resins, were meticulously assessed for their mechanical and thermal properties. This underscores sisal fiber's potential as a renewable energy resource. Notably, sisal fiber is celebrated for its exceptional durability and minimal maintenance requirements, ensuring long-lasting performance with minimal wear and tear. However, it is not suitable for textile and fabric applications, and it may not be the best choice for achieving a smooth wall finish or for use in wet areas.

The sisal plant has an impressive lifespan of 7–10 years and typically yields 200–250 commercially viable leaves, each containing around 1000 fibers. These fibers are carefully extracted through the decortication process. Sisal's fine texture readily accepts dyes, offering a wide spectrum of dyed colors, and its cultivation refrains from the use of pesticides or chemical fertilizers. Traditionally recognized for its stiffness, sisal fiber is traditionally utilized in manufacturing twine, rope, and even dartboards. Sourced from the vascular tissue of the sisal plant (*Agave sisalana*), it finds applications in automotive friction parts like brakes and clutches, enhancing texture in coatings applications, and imparting green strength to perform in various industrial sectors.



Sisal fiber, extracted from the leaves of the sisal plant, undergoes a machine decortication process. In this process, the leaves are crushed between rollers and mechanically scraped to separate the fibers. Subsequently, the fibers are washed and dried, either through mechanical or natural means, with the final dried fiber accounting for a mere 4% of the total leaf weight. Following the drying phase, the fiber is subject to a double brushing process, resulting in lustrous strands, typically creamy white in color, ranging from 80 to 120 cm in length and 0.2 to 0.4 mm in diameter. Sisal fiber is known for its coarseness and stiffness, making it an ideal choice for cordage applications, such as ropes, baler twines, and binder twines, owing to its remarkable strength, resilience, ability to stretch, compatibility with specific dyes, and resistance to deterioration, especially in saltwater environments. Additionally, higher-grade treated sisal fiber finds its way into the production of yarns, serving the carpet industry with its exceptional qualities.

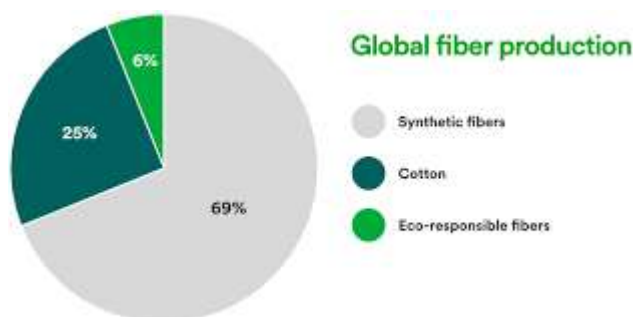
II LITERATURE REVIEW

A thorough examination of existing literature reveals the multifaceted nature of sisal fiber. It covers the historical use of sisal, its versatility in various industries, and the environmental benefits of its cultivation. This review identifies gaps in the current knowledge and lays the foundation for further exploration into sisal's untapped potential.

Journalist John Gunther wrote of sisal in 1953, "if it had not been for the fact that sisal is a difficult crop, there might not have been a Munich in 1939. Neville Chamberlain started out life as a sisal planter in the Bahamas, and only returned to Britain and entered politics when he found that this obdurate vegetable was too hard to grow."

Sisal, considered one of the toughest 'hard' vegetable fibers, finds its roots in various varieties of the Agave plant, predominantly in tropical and sub-tropical regions worldwide. However, for large-scale fiber production, the primary Agave varieties include *A. sisalana* (commonly referred to as sisal) and *Agave fourcroydes*, known as henequen. East Africa's introduction to sisal cultivation traces back to the Yucatan in 1983, with sisal bulbils from Kew Gardens planted in Kenya shortly after. Despite initial challenges, sisal production in East Africa thrived, peaking in the 1960s with Tanzania alone producing around 230,000 tons.

Over the past three decades, sisal production in East Africa has witnessed a notable decline due to shifts in end product demand. The market has transitioned from low-value agricultural twine toward more specialized, high-value products, including carpets, wire rope cores, dartboards, specialty pulps, plaster reinforcement, and handicrafts. In the contemporary landscape, Brazil has emerged as the dominant player in the global sisal production market.



III GENERAL PROPERTIES OF SISAL FIBER

- (a) **Exceptional Durability and Low Maintenance:** Sisal fiber is known for its remarkable durability, requiring minimal maintenance and exhibiting resistance to wear and tear.
- (b) **Recyclable:** Sisal fibers are eco-friendly and recyclable, making them a sustainable choice for various applications.
- (c) **Obtained from Outer Leaf Skin:** The fibers are obtained from the outer skin of sisal plant leaves after the removal of the inner pulp.
- (d) **Available in Multiple Patterns:** Sisal fibers are available in various patterns, including plaid, herringbone, and twill, providing versatility for different uses.
- (e) **Anti-Static and Dust-Resistant:** Sisal does not attract or trap dust particles, and it exhibits anti-static properties. This makes it suitable for environments where dust and static electricity are concerns.
- (f) **Low Moisture Absorption:** Sisal fiber does not readily absorb moisture or water, contributing to its suitability in various dry or humid conditions.
- (g) **Vibrant Dyeability:** Its fine texture readily accepts dyes, offering a wide spectrum of dyed colors, making it a versatile choice for decorative and design applications.
- (h) **Sound and Impact Absorption:** Sisal fiber exhibits good sound-absorbing and impact-absorbing properties, contributing to its use in various acoustic and flooring solutions.
- (i) **Fire-Resistant Treatment:** Sisal leaves can be treated with natural borax to enhance fire resistance properties, making it suitable for applications where fire safety is a concern.

IV PHYSICAL PROPERTIES OF SISAL FIBER

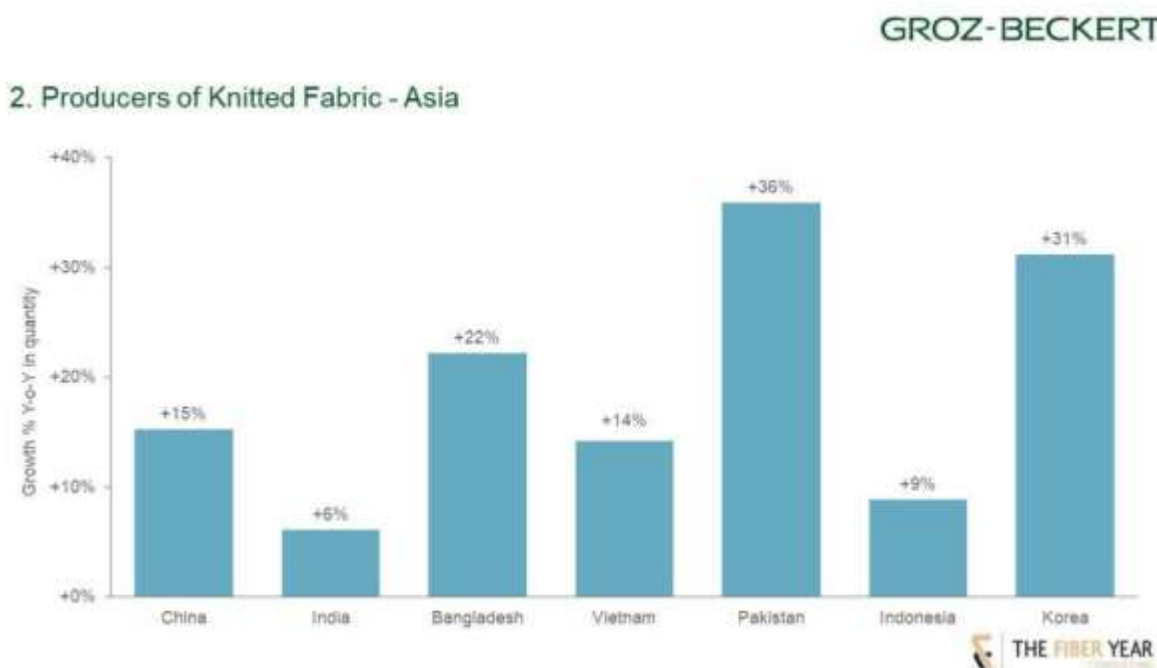
- (a) **Diameter Range:** The diameter of sisal fiber falls within the range of 22 to 80 micrometers (μm), reflecting its varied thickness.
- (b) **Fiber Length:** Sisal fibers typically measure between 1000 to 1250 millimeters (mm) in length, offering a substantial and versatile size.
- (c) **Density:** The density of sisal fiber is approximately 1.16 grams per cubic centimeter (g/cm^3), indicating its relatively lightweight yet sturdy nature.
- (d) **Moisture Regain:** Sisal fiber exhibits a moisture regain of about 11%, highlighting its ability to absorb and release moisture in response to environmental conditions.
- (e) **Breaking Strength:** With a breaking strength ranging from 30 to 45 centinewtons per tex (cN/tex), sisal fiber showcases significant tensile strength, making it suitable for applications requiring robust material.
- (f) **Elongation:** Sisal fiber has an elongation capacity of 2 to 3%, emphasizing its flexibility while retaining its structural integrity.

V GLOBAL PRODUCTION AND TRADE PATTERNS

Major sisal producers—2020 (thousands of tonnes) ^[23]	
 Brazil	86.1
 Tanzania	36.4
 Kenya	22.8
 Madagascar	17.6
 China	14.0
 Mexico	13.1
 Haiti	12.0
World total	209.9

- (a) Global production of sisal fibre in 2020 amounted to 210 thousand tonnes, of which Brazil, the largest producing country, produced 86,061 tonnes.
- (b) Tanzania produced about 36,379 tons, Kenya produced 22,768 tonnes, Madagascar 17,578 tonnes, and 14,006 tonnes were produced in China. Mexico

contributed 13,107 tons with smaller amounts coming from Haiti, Morocco, Venezuela, and South Africa. Sisal occupies sixth place among fibre plants, representing 2% of the world's production of plant fibre (plant fibres provide 65% of the world's fibre)

Chart :- The Fabric Year 2022 – The Fiber Year

VI METHODOLOGY

This research involved an interdisciplinary approach, incorporating agricultural and industrial methods. Data collection methods encompassed surveys, experimentation, and analysis of sisal fiber samples. The study also analyzed the economic and environmental impact of sisal cultivation and processing.

In the context of sisal fiber production, the "first processing" typically refers to the initial stages of processing the sisal leaves immediately after harvest to extract the fibers. These initial steps involve stripping away the outer green portion of the sisal leaves to access the valuable fibers within.

The sequence of processing usually follows these steps:

- (a) **Harvesting:** Sisal leaves are harvested from mature sisal plants. This is typically the first step in the process.
- (b) **First Processing (Decortication):** After harvesting, the sisal leaves undergo the first processing step, which is called "decortication." During

decortication, the green outer part of the leaves is removed, leaving behind the long, white fibers inside.

- (c) **Drying:** Following decortication, the extracted fibers are often dried to reduce moisture content.
- (d) **Second Processing:** After drying, the sisal fibers may undergo further processing to clean, straighten, and prepare them for market distribution. This is often referred to as the "second processing."

So, the "first processing" occurs immediately after harvesting, and it is followed by drying and the "second processing." The timing between these stages may vary depending on the specific project and processing methods used, but typically, the first processing is done right after harvest to preserve the quality of the fibers

- (e) **Sisal Fiber Cultivation:** In this section, we delve into the intricacies of sisal fiber cultivation. We explore the plant's specific requirements in terms of soil, climate, and maintenance. We highlight the best practices for planting, growing, and sustaining sisal crops.



(f) **Processing and Extraction:** The processing and extraction of sisal fiber are key components of its journey from plant to product. This section provides

a comprehensive overview of these techniques, shedding light on the extraction, cleaning, and preparation processes, with a focus on industrial use.





VII APPLICATIONS AND UTILIZATION

Sisal fiber finds application in various industries, including agriculture, construction, textiles, and composites. This section examines the strengths and limitations of sisal fiber in these applications, demonstrating its versatility.

Sisal is a versatile and sustainable natural resource with a wide range of applications and utilization. Below, I'll provide an overview of the various ways in which sisal can be applied and utilized:

(a) Fiber Production:

- **Ropes and Twines:** Sisal fibers are traditionally used to produce strong ropes and twines, known for their durability and resistance to rot and moisture. These are commonly used in agriculture, construction, and shipping industries.

(b) Agriculture:

- **Baling and Binding:** Sisal twine is often used in agricultural applications for baling hay, straw, and other crops. It's a cost-effective and biodegradable alternative to synthetic materials.

(c) Construction:

- **Sisal Ropes:** Sisal ropes are used for a variety of construction purposes, including as a core material for high-strength cables, reinforcing materials in concrete, and scaffolding.

(d) Carpets and Mats:

- **Floor Coverings:** Sisal fibers are used in the production of carpets and rugs. Sisal carpets are popular for their durability, natural look, and sustainable characteristics.
- **Mats and Rugs:** Sisal mats and rugs are used for interior and exterior applications. They are eco-friendly and add a touch of natural aesthetics to living spaces.

(e) Agriculture and Gardening:

- **Erosion Control:** Sisal fibers are utilized in erosion control applications to stabilize soil and prevent erosion on slopes and embankments.

- **Horticultural Use:** Sisal twine is employed in gardening for staking plants, trellising, and other applications.

(f) Textiles:

- **Clothing and Fabrics:** Sisal fibers can be blended with other materials to produce textiles for clothing, bags, and various fashion accessories.

(g) Automotive Industry:

- **Composite Materials:** Sisal fibers are used as reinforcement materials in the production of eco-friendly automotive components, reducing weight and enhancing sustainability.

(h) Handicrafts:

- **Art and Crafts:** Sisal fibers are a popular choice for crafts and artwork. They are used for creating baskets, decorative items, and more.

(i) Novel Applications:

- **Biodegradable Products:** Sisal can be utilized in the development of biodegradable products, such as packaging materials and bioplastics.
- **Eco-Friendly Furniture:** Sisal fibers can be incorporated into furniture, particularly in eco-friendly and sustainable designs.

(j) Environmental and Geotechnical Applications:

- **Bioengineering:** Sisal geotextiles are employed in bioengineering and soil erosion control projects.
- **Water Filtration:** Sisal-based water filtration products are used for purification and environmental remediation.

It's worth noting that sisal's growing popularity is attributed to its eco-friendliness, biodegradability, and renewability. As sustainable and natural resources become more sought after, sisal is being explored for novel applications in various industries.

The applications and utilization of sisal are diverse, making it a valuable resource for a broad range of industries and sectors, while also contributing to environmental sustainability and the promotion of eco-friendly practices.

VIII ECONOMIC AND ENVIRONMENTAL IMPACT

One of the primary goals of this research is to assess the economic implications of sisal fiber cultivation in rural communities. We analyze the benefits of sisal's sustainable and eco-friendly qualities, juxtaposed with alternative materials.

IX INNOVATIONS AND FUTURE DIRECTIONS

Our findings indicate promising technological advancements related to sisal fiber. We also suggest areas for further research and development that can harness sisal's full potential.

Innovations and future directions in sisal production are pivotal in ensuring the sustainability and competitiveness of this versatile natural fiber. Sisal has been experiencing a resurgence in interest due to its eco-friendly characteristics and wide range of applications. Here are some key innovations and future directions in sisal production:

(a) Precision Agriculture:

- **IoT and Data Analytics:** Implementing Internet of Things (IoT) devices and data analytics for smart farming. This allows for real-time monitoring of plant health, soil conditions, and environmental factors to optimize cultivation.

(b) Sustainable Practices:

- **Organic Farming:** Transitioning towards organic farming methods to reduce chemical inputs, minimize environmental impact, and meet growing consumer demand for sustainable products.
- **Water Management:** Efficient water management techniques, such as drip irrigation, can help conserve water resources in sisal cultivation.

(c) Genetic Improvement:

- **Breeding Programs:** Invest in breeding programs to develop sisal plant varieties with improved fiber quality, disease resistance, and higher yield.

(d) Automation and Robotics:

- **Harvesting Technology:** Develop and implement automation and robotics for more efficient and cost-effective sisal leaf harvesting.
- **Fiber Extraction:** Automation in the extraction process can improve efficiency and reduce labor costs.

(e) Value-Added Products:

- **Innovative Materials:** Research and develop innovative sisal-based materials, such as biodegradable composites, bioplastics, and sustainable textiles.
- **Bioenergy:** Explore the use of sisal waste and biomass for bioenergy production, contributing to renewable energy sources.

(f) Sustainable Supply Chains:

- **Eco-Friendly Packaging:** Utilize sisal-based materials in eco-friendly packaging solutions, reducing plastic waste.
- **Carbon Footprint Reduction:** Implement sustainable supply chain practices to minimize the carbon footprint of sisal products.

(g) Market Diversification:

- **Niche Markets:** Identify and target niche markets where sisal can provide unique solutions, such as eco-conscious consumers and industries requiring natural and sustainable materials.
- **Art and Crafts:** Promote sisal-based handicrafts, supporting local artisans and preserving cultural heritage.

(h) Research and Collaboration:

- **Interdisciplinary Research:** Encourage collaboration between botanists, engineers, environmental scientists, and other experts to explore sisal's potential fully.
- **Academic-Industry Partnerships:** Foster collaborations between academia and industry to drive innovation and technology transfer.

(i) International Cooperation:

- **Global Sisal Initiatives:** Participate in international projects and initiatives aimed at advancing sisal production and its market reach.

(j) Sustainable Certification:

- **Certification Programs:** Pursue certification programs that recognize sustainable sisal cultivation and production practices, enhancing marketability.

(k) Climate Change Adaptation:

- **Climate-Resilient Cultivation:** Develop sisal varieties that can thrive in changing climate conditions, ensuring a stable supply.

(l) Consumer Awareness:

- **Education and Marketing:** Educate consumers and businesses about the environmental and social benefits of sisal products, boosting demand.

Innovations and future directions in sisal production aim to make the industry more sustainable, technologically advanced, and responsive to changing market dynamics and consumer preferences. By embracing these innovations and strategies, the sisal sector can continue to thrive as a vital component of the bio economy, providing

sustainable and eco-friendly materials to meet global needs.

X CONCLUSION

In conclusion, this research paper underscores the significance of sisal fiber as a sustainable, economically empowering, and environmentally responsible material. It serves as a comprehensive resource for those interested in harnessing the true potential of sisal fiber, both as a versatile commodity and as a catalyst for positive change.

In conclusion, sisal fiber production is a promising and sustainable industry with multifaceted potential for growth and innovation in India. Its versatility, durability, and eco-friendly attributes make it an invaluable resource in an era where environmental sustainability is paramount. As we've explored, sisal's applications range from traditional uses in ropes and twines to innovative materials in composites, textiles, and packaging. Looking at the current very insignificant cultivation and production in India sisal can become a promising avenue for livelihood in rural area.

The future of sisal fiber production is driven by a commitment to sustainable practices, technological advancements, and market diversification. In the quest for eco-friendly solutions, sisal is poised to play a significant role, even in the urban areas especially in industries seeking biodegradable and renewable alternatives. Collaboration, both within the industry and with other sectors, will be instrumental in expanding the horizons of sisal, opening up niche markets, and fostering a global appreciation for this versatile natural resource.

As we move forward, sisal fiber production embodies a balance between tradition and innovation, demonstrating that heritage can meet the demands of a modern, environmentally-conscious world. With strategic investments in research, sustainable practices, and market outreach, sisal fiber is positioned to thrive as a symbol of sustainability and a valuable contributor to the global bio economy.

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Indian Health Sector:- Problems and Possibilities

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ABSTRACT

In recent years, the healthcare sector has witnessed a notable transition towards the integration of innovation and technology. This shift is characterized by a growing emphasis on digital healthcare tools and solutions, which hold the promise of reshaping the landscape of patient care and healthcare system operations. Healthcare systems across the globe are actively planning to bolster their investments in these digital advancements over the next five years, with an impressive 80% expressing a commitment to this transformative journey. This paper delves into this dynamic paradigm shift, exploring the drivers, implications, and the significant potential of technology-driven healthcare in improving the quality and accessibility of medical services.

Keywords :- Healthcare, WHO, Hospitals, Physicians , Dependency.

I INTRODUCTION

The healthcare sector is experiencing a rapid and transformative evolution, primarily driven by the integration of innovative technologies. In the past two years, healthcare systems have shifted their focus towards digital healthcare tools, recognizing the immense potential these tools hold for revolutionizing patient care and healthcare delivery. This paradigm shift is poised to usher in a new era of healthcare, marked by increased efficiency, improved patient outcomes, and enhanced accessibility to medical services. With an astounding 80% of healthcare systems planning to escalate their investments in digital healthcare tools over the next five years, the industry is on the cusp of a technological revolution that promises to bring about profound changes in the way healthcare is both delivered and experienced.

The convergence of healthcare and technology is not merely a response to the demands of the modern era but an essential strategy to address longstanding challenges in the healthcare domain. The healthcare sector faces a myriad of complex issues, including rising healthcare costs, accessibility disparities, and the need for more patient-centric care. It is within this context that digital healthcare tools, ranging from telemedicine and wearables to health information systems and artificial intelligence, have emerged as promising solutions to tackle these challenges. As this paper explores, the integration of innovation and technology in healthcare is not a trend but a strategic imperative that has the potential to redefine the future of healthcare delivery.

II CURRENT SCENARIO

The healthcare sector in India is experiencing remarkable growth and transformation. It encompasses various components, including hospitals, medical devices, clinical trials, telemedicine, health insurance, and medical equipment. The healthcare delivery system in India is divided into public and private sectors, with the government focusing on basic healthcare in rural areas and the private sector driving secondary and tertiary care.

The sector has exhibited significant growth, with an estimated three-fold increase from USD 110 billion in 2016 to a projected USD 372 billion in 2022, representing a Compound Annual Growth Rate (CAGR) of 22%. Notably, India's public healthcare expenditure rose to 2.1% of GDP in 2021-22, reflecting an encouraging trend in healthcare investment. Health insurance has seen substantial growth, with gross direct premium income underwritten by health insurance companies increasing by 13.3% year-on-year in FY21. The medical tourism sector is thriving, valued at USD 2.89 billion in 2020, and it's projected to reach USD 13.42 billion by 2026. Telemedicine is also gaining traction, with an expected market value of USD 5.5 billion by 2025, underscoring the growing adoption of digital healthcare tools.

In 2019, the World Health Organization (WHO) reported a global count of around 12.8 million doctors and over 29 million hospital beds in 2016. Nevertheless, recent data reveals a significant shortfall in healthcare resources in India. The Indian Medical Association states that India has only 8.6 doctors per 1000 people, falling far short of the WHO's recommended ratio of 1:1000. This has to be seen in the light of the fact that India is facing the problem of population growth also which offsets growth in no of doctors. Furthermore, there's a scarcity of 600,000 hospital beds, resulting in a high patient-to-bed ratio. This inadequacy has serious implications for healthcare access and outcomes, particularly among rural and vulnerable populations.

The scarcity of healthcare professionals and facilities is particularly acute in rural India compared to urban areas. According to a 2019-20 National Health Survey (NHS) report, there are roughly 1.5 doctors per 10,000 people in rural India, a stark contrast to the WHO's recommended ratio of 1:1000. Similarly, rural India has only 0.7 hospital

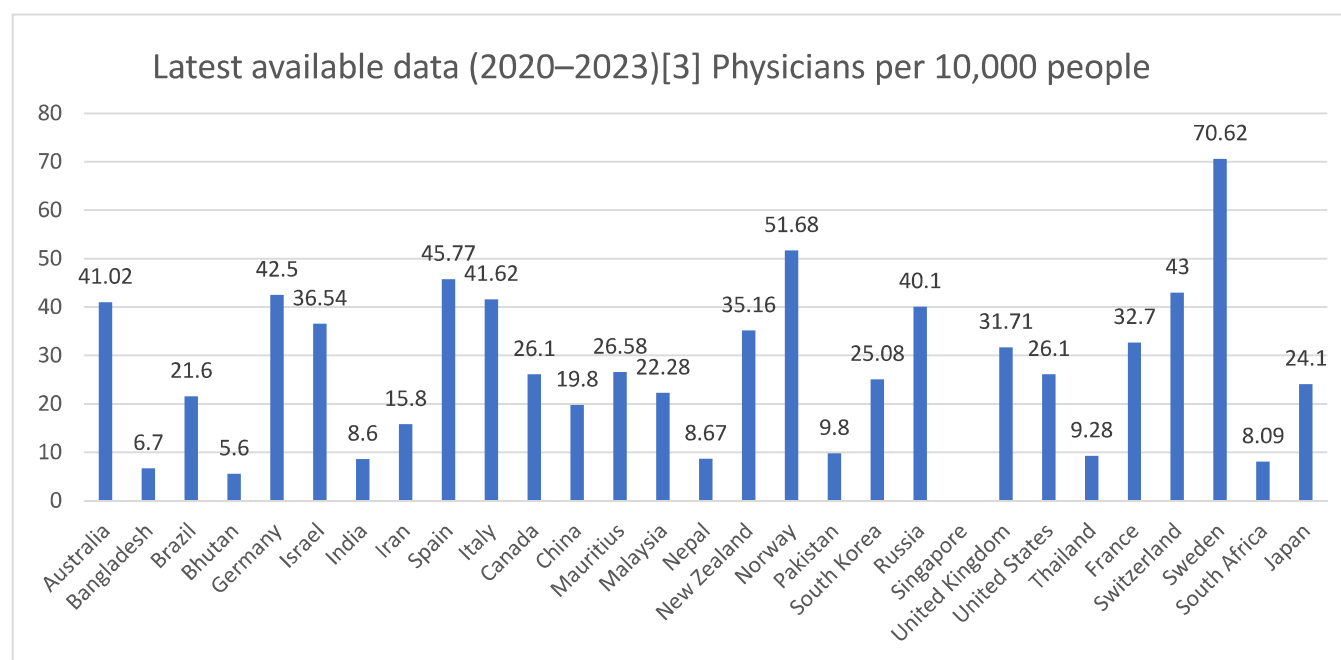
beds per 1000 people, in stark contrast to the 3.5 beds per 1000 people available in urban areas. These disparities underscore the pressing need for substantial improvements in healthcare infrastructure and resources in rural India.

According to 2023 reports, the number of physicians per capita (10,000) in all countries are as follows:

List

Country or dependency	2000–2009[1]		2007–2013 [2]	Latest available data (2020–2023)[3]
	Size	Physicians per 10,000 people	Physicians per 10,000 people	Physicians per 10,000 people
 Australia	19612	10	32.7	41.02
 Bangladesh	42881	3	3.6	6.7
 Brazil	320013	17	18.9	21.6
 Bhutan	52	0.5	2.6	5.6
 Germany	288182	35	38.9	42.5
 Israel	25314	36	33.4	36.54
 India	643520	6	7	8.6
 Iran	61870	9	9	15.8
 Spain	163800	38	49.5	45.77
 Italy	215000	37	37.6	41.62
 Canada	62307	19	20.7	26.1
 China	1862630	14	14.9	19.8
 Mauritius	1303	11	11	26.58
 Malaysia	17020	7	12	22.28
 Nepal	5384	2	2	8.67
 New Zealand	8190	21	27.4	35.16
 Norway	18143	39	42.8	51.68
 Pakistan	127859	8	8.3	9.8
 South Korea	81998	17	21.4	25.08
 Russia	614183	43	43	40.1
 Singapore	6380	15	19.5	
 United Kingdom	126126	21	28.1	31.71
 United States	793648	27	24.5	26.1
 Thailand	18987	3	3.9	9.28
 France	227683	37	31.9	32.7

Country or dependency	2000–2009[1]		2007–2013 [2]	Latest available data (2020–2023)[3]
	Size	Physicians per 10,000 people	Physicians per 10,000 people	Physicians per 10,000 people
 Switzerland	28812	40	40.5	43
 Sweden	32495	36	39.3	70.62
 South Africa	34829	8	7.8	8.09
 Japan	270371	21	23	24.1



Number of Doctors ,Hospitals and Healthcare Services in Rural Areas:

India has grappled with the persistent challenge of ensuring an adequate presence of healthcare professionals in rural regions, resulting in limited accessibility to healthcare services for rural populations.

In response to this issue, the Indian government has implemented a range of programs and policies aimed at attracting and retaining doctors in rural areas. These initiatives often involve incentives like financial support, scholarships, and infrastructural development.

In light of the shortage of doctors in rural areas, innovative solutions such as telemedicine and mobile health clinics have emerged to bridge the healthcare accessibility gap.

Concerning the number of hospitals in rural areas, these regions have historically suffered from a shortage of

healthcare facilities, with variations in quality and capacity. Government-driven initiatives like the National Health Mission and the Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) have sought to bolster healthcare infrastructure by constructing and upgrading healthcare facilities. Public-private partnerships have also been explored as a means to enhance rural healthcare infrastructure.

In addressing the broader spectrum of healthcare services in rural areas, several challenges have been encountered, including a lack of fundamental facilities, deficits in healthcare personnel, and insufficient funding. To address these issues, the government has placed emphasis on primary healthcare through initiatives like Ayushman Bharat, notably through the Health and Wellness Centers (HWCs) program, which aims to provide comprehensive primary healthcare services to rural communities. The adoption of telemedicine, mobile health units, and

community health workers has been pivotal in extending healthcare services to remote rural areas.

For the most current and precise information regarding the number of doctors, hospitals, and healthcare services in rural India, it is advisable to refer to recent government reports, healthcare organizations, and academic studies, which can offer comprehensive statistics and insights into the current state of affairs.

III CHALLENGES IN THE HEALTHCARE SECTOR

Despite its growth, the Indian healthcare sector faces several challenges. Inadequate access to basic healthcare services is a significant concern, stemming from a shortage of medical professionals, quality assurance issues, insufficient health spending, and limited research funding. Public healthcare expenditure remains relatively low, standing at only 2.1% of GDP, in contrast to countries like Japan, Canada, and France, which allocate around 10% of their GDP to public healthcare.

Another challenge is the undervaluation of preventive care, which has the potential to alleviate health issues and financial burdens but does not receive the attention it deserves. Medical research and technology-led projects receive limited attention in India. The sector grapples with a shortage of healthcare professionals, including doctors and nurses, as a study presented in Parliament revealed a shortfall of 600,000 doctors. Additionally, challenges related to resources, such as overcrowded facilities and inadequate infrastructure, persist.

IV POTENTIAL OF THE INDIAN HEALTHCARE SECTOR

India holds significant potential in its healthcare sector. The country benefits from a large pool of well-trained medical professionals and cost competitiveness compared to Western countries. It possesses a robust pharma and medical supply chain, a vast population, and a growing middle class. The sector receives support from policies, incentives, and infrastructure development, while India's status as the third-largest global startup hub positions it to address global healthcare challenges. The sector's growth is anticipated to be driven by factors like increasing life expectancy, changing disease patterns, a burgeoning middle class, greater health insurance coverage, infrastructure development, and policy support.

(a) Problems in the Indian Health Sector

- Inadequate Access to Healthcare
- Low Budget Allocation
- Lack of Preventive Care
- Lack of Medical Research
- Policymaking Challenges
- Shortage of Healthcare Professionals

(b) Possibilities in the Indian Health Sector

- Competitive Advantage
- Technology Integration
- Policy Support and Incentives
- Private Sector Engagement
- Innovation and Startups
- Employment Opportunities



V INITIATIVES IN THE HEALTHCARE SECTOR

India has implemented various initiatives to improve its healthcare sector, including:

- National Health Mission
- Ayushman Bharat
- Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)
- National Medical Commission
- PM National Dialysis Programme
- Janani Shishu Suraksha Karyakram (JSSK)
- Rashtriya Bal Swasthya Karyakram (RBSK)

VI DISCUSSION

The shift towards increased investment in digital healthcare tools reflects a pivotal moment in the healthcare sector's evolution. This discussion highlights key points regarding the impact of technology on healthcare and the implications of this transformation:

- **Improved Patient Care:** Digital healthcare tools offer the potential to significantly enhance patient care. Telemedicine, for example, enables remote consultations and monitoring, providing greater accessibility to healthcare services, especially in underserved areas. Patients can connect with healthcare professionals, access medical advice, and manage chronic conditions more conveniently.
- **Enhanced Data-driven Decision Making:** The integration of technology allows for the collection and analysis of vast amounts of healthcare data. This data-driven approach enables healthcare providers to make more informed decisions, tailor treatments to individual patients, and predict disease outbreaks, ultimately improving overall healthcare quality.
- **Streamlined Operations:** Digital healthcare tools streamline healthcare operations, reducing administrative burdens and improving efficiency. Health information systems, electronic health records (EHRs), and telehealth platforms enable seamless sharing of patient information, reducing redundancies and improving coordination of care.
- **Personalized Medicine:** Advancements in genomics and personalized medicine have been made possible by digital tools. These innovations allow for tailoring treatments to an individual's genetic makeup, potentially leading to more effective and targeted therapies.

- **Challenges and Concerns:** The adoption of digital healthcare tools is not without its challenges. Concerns related to data privacy, security, and regulatory compliance are paramount. Ensuring that digital healthcare solutions are both effective and secure requires ongoing vigilance and robust regulatory frameworks.

VII CONCLUSION

In conclusion, the growing emphasis on digital healthcare tools signifies a significant and transformative shift in the healthcare sector. With the majority of healthcare systems poised to increase their investments in these technologies over the next five years, the sector is on the verge of a profound transformation. Digital tools offer the promise of improved patient care, streamlined operations, data-driven decision making, and personalized medicine.

However, the successful integration of technology in healthcare is contingent upon addressing the challenges and concerns that accompany this shift, particularly those related to data privacy and security. As the healthcare sector continues its journey into the digital age, it must maintain a commitment to ensuring that these technologies not only enhance efficiency but also prioritize patient safety and well-being. Ultimately, the convergence of healthcare and technology represents a significant step towards a more accessible, efficient, and patient-centric healthcare system.

To address the challenges and capitalize on its potential, India's healthcare sector must:

- Improve the infrastructure of public hospitals to accommodate the needs of its large population.
- Encourage and collaborate with private hospitals, which play a vital role in healthcare.
- Address shortages of medical personnel, including doctors and nurses.
- Embrace technology, incorporating medical gadgets, mobile health apps, wearables, and sensors to enhance the healthcare system.

In conclusion, India's healthcare sector has promising growth prospects, but overcoming challenges and harnessing innovation will be pivotal to provide quality healthcare services to its population.

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A Critical Review of the Indian Knowledge System

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ABSTRACT

This review paper critically examines the Indian knowledge system, tracing its historical roots, exploring its philosophical and scientific contributions, and assessing its relevance in the modern world. By analyzing the foundational concepts, key historical figures, and contemporary debates, this paper provides insights into the dynamic and enduring nature of Indian knowledge.

Keywords:- Knowledge System, Gurukul, Upnishad, Vedas, Dharm

I INTRODUCTION

The Indian knowledge system is a rich and multifaceted tradition that has evolved over thousands of years. This review paper aims to offer a comprehensive analysis of this system, highlighting its historical significance and contemporary relevance.

The Indian subcontinent boasts a historical and intellectual legacy that spans millennia, richly embedded in its knowledge systems. Characterized by its diversity, complexity, and depth, the Indian knowledge system has played a pivotal role in shaping the course of human thought and civilization. This system has nurtured a tapestry of ancient wisdom, fostering traditions, philosophies, and scientific advancements that continue to influence the world.

This critical review endeavors to explore the multifaceted landscape of the Indian knowledge system, delving into its historical foundations, contributions to science and philosophy, contemporary relevance, and the ongoing debates that surround it. Recognizing the profound influence of India's intellectual heritage, this examination seeks to provide a balanced perspective, one that acknowledges its achievements while also addressing the challenges and complexities inherent in the study of this intricate knowledge system.

The Indian knowledge system encompasses a wide array of domains, from profound spiritual and ethical philosophies, as exemplified by concepts like dharma and karma, to groundbreaking scientific achievements that include the invention of the decimal system, the development of advanced medical practices, and the cultivation of mathematical theorems predating the West by centuries. It is a repository of profound spiritual insights and a source of timeless guidance on the conduct of life.

However, the understanding and appreciation of the Indian knowledge system are not without their complexities. With its extensive history and diverse regional influences, the system often resists simplistic categorization and interpretation. Moreover, its impact on the modern world and the challenges it faces in a globalized society invite scrutiny. The tension between

preserving tradition and embracing modernity, coupled with debates about cultural appropriation and decolonization, further complicate the evaluation of this knowledge system's significance.

In the following pages, this review will delve into the historical roots of the Indian knowledge system, highlighting the role of texts such as the Vedas, Upanishads, and the foundational concepts of dharma and karma. It will investigate the contributions of Indian scholars in mathematics, astronomy, and medicine, emphasizing the pioneering developments that have had a lasting impact. Philosophical traditions, encompassing Vedanta, Nyaya, and Mimamsa, will be examined in their quest for metaphysical understanding.

The contemporary relevance of the Indian knowledge system will also be explored, particularly in the domains of wellness, mindfulness, and holistic living. Case studies will illustrate its practical application, such as the integration of yoga, meditation, and Ayurveda into Western healthcare and wellness practices, revealing its adaptability and effectiveness in addressing modern challenges.

This critical review, with its multidimensional perspective, seeks to contribute to the ongoing discourse on the Indian knowledge system. By acknowledging its profound impact and addressing the complexities it presents, it hopes to foster a deeper understanding of this enduring and dynamic knowledge tradition.

II HISTORICAL FOUNDATIONS OF INDIAN KNOWLEDGE

The historical foundations of Indian knowledge are deeply rooted in ancient texts like the Vedas and Upanishads, which have provided the philosophical and spiritual bedrock for millennia. Concepts such as dharma, karma, and the pursuit of wisdom have shaped the intellectual and ethical dimensions of Indian knowledge, influencing diverse fields, from philosophy to science.

(a) Vedas and Upanishads: The Vedas and Upanishads, often regarded as the cornerstone of Indian knowledge, constitute an extensive collection of sacred texts that have profoundly influenced the

cultural, spiritual, and philosophical landscape of India for over three millennia. The Vedas, including the Rigveda, Yajurveda, Samaveda, and Atharvaveda, contain hymns, rituals, and chants dedicated to various deities. These ancient texts not only served as religious scriptures but also held the keys to understanding cosmology, morality, and the human experience. In contrast, the Upanishads, which emerged later, are a set of philosophical treatises that explore profound metaphysical questions, such as the nature of reality, the self (atman), and the ultimate truth (Brahman). They lay the groundwork for many of the philosophical schools and spiritual traditions that followed, and their profound influence extends beyond India, resonating in global philosophical and spiritual thought.

- (b) **Dharma and Karma:** Dharma and Karma are fundamental concepts that underpin the ethical and moral framework of the Indian knowledge system. Dharma, often translated as "duty" or "righteousness," prescribes the moral and ethical obligations one must follow in life, based on their social roles and circumstances. It is a guiding principle that promotes a harmonious and just society. Karma, on the other hand, represents the law of cause and effect, emphasizing that one's actions have consequences, not only in this life but in future lives as well, according to the doctrine of reincarnation. Together, Dharma and Karma shape the moral compass of individuals in the Indian cultural and philosophical context, highlighting the interconnectedness of actions and their consequences in the journey of life and beyond.

III CONTRIBUTIONS TO SCIENCE AND MATHEMATICS

Indian scholars have made significant contributions to science and mathematics throughout history. Pioneering mathematicians like Aryabhata and Brahmagupta introduced concepts like the decimal system, zero, and algebraic notation, which laid the foundation for modern mathematics. Additionally, advancements in astronomy, particularly those by Aryabhata and Varahamihira, played a pivotal role in understanding celestial phenomena and the development of sophisticated astronomical models, significantly influencing global scientific thought.

- (a) **Mathematics and Astronomy:** In the realms of mathematics and astronomy, Indian scholars made groundbreaking contributions that reshaped the world's understanding of these disciplines. Notable mathematicians like Aryabhata and Brahmagupta introduced the decimal system, the concept of zero, and advanced algebraic notation, which not only revolutionized Indian mathematics but also became

fundamental to modern mathematics. In astronomy, Aryabhata and Varahamihira's work led to the development of intricate models for understanding celestial motions, resulting in significant advancements in observational and theoretical astronomy. These contributions had a profound and enduring impact on both mathematical and astronomical knowledge systems, influencing not only India but the global scientific community.

- (b) **Medicine:** Indian knowledge in the field of medicine has left an indelible mark on the history of healthcare. Ancient Indian physicians such as Sushruta and Charaka are celebrated for their pioneering work in the fields of surgery and medicine. Sushruta's treatise, the "Sushruta Samhita," is a foundational text on surgery, describing surgical procedures, instruments, and anatomy. Charaka's "Charaka Samhita" is a comprehensive compendium of medical knowledge, encompassing various branches of medicine, pharmacology, and disease management. These texts laid the foundation for the holistic healing system known as Ayurveda, which continues to influence contemporary wellness practices and alternative medicine, both in India and around the world.

IV TRADITION OF GURUKUL- ADVANTAGES AND MERITS

A Gurukul, a traditional Indian system of education, represents a holistic approach to learning, focusing on personalized education, character development, and the preservation of cultural values. In the Gurukul system, students form close bonds with their teachers, learning not only academic subjects but also practical skills, values, and traditions within a close-knit community, providing a unique and comprehensive educational experience.

The Gurukul system, a traditional form of education in India, has several advantages and merits:

- (a) **Holistic Education:** Gurukul education focuses on holistic development. Students not only receive academic knowledge but also gain practical skills and life lessons. They learn through hands-on experience, encompassing not just theoretical learning but also values, ethics, and practical life skills.
- (b) **Personalized Learning:** In a Gurukul, the teacher-student ratio is low, which enables personalized attention. Teachers can tailor their teaching methods to suit individual learning styles and needs, ensuring a more effective and comprehensive understanding of subjects.

- (c) **Cultural Preservation:** Gurukul systems often emphasize cultural and traditional education, passing down cultural values, rituals, and practices from one generation to the next. This helps in preserving the rich heritage of a society and instills a sense of cultural identity in students.
- (d) **Strong Teacher-Student Relationships:** The close-knit Gurukul environment fosters strong bonds between teachers and students. This promotes a sense of belonging and encourages open communication, allowing students to seek guidance and mentorship easily.
- (e) **Learning by Doing:** Gurukul education emphasizes learning through practical experiences. Students engage in real-life situations, gaining not just theoretical knowledge but practical skills that are highly valuable in their future endeavors.
- (f) **Minimal Distractions:** Gurukuls are often located in serene, natural surroundings, away from the hustle and bustle of urban life. This minimizes distractions and provides an environment conducive to focused learning.
- (g) **Community Building:** Students in Gurukuls often form close-knit communities that support each other in their educational journey. This sense of community can be a source of emotional and intellectual support throughout life.
- (h) **Character Development:** Gurukuls aim to instill values, ethics, and virtues in students, contributing to their character development. These qualities are seen as equally important, if not more so, than academic knowledge.

While the traditional Gurukul system has numerous advantages, it's important to note that modern education systems have evolved to address the changing needs of society and the job market. Therefore, a balanced approach that combines the merits of both traditional and modern education is often considered ideal for providing a well-rounded education to students.

V PHILOSOPHICAL AND ETHICAL TRADITIONS

Indian philosophical and ethical traditions have offered profound insights into the nature of existence, the human condition, and moral conduct. These traditions encompass diverse schools of thought, including Vedanta, Nyaya, and Mimamsa, each providing unique perspectives on metaphysics, epistemology, and ethics. The philosophical explorations delve into questions of ultimate reality, the nature of the self, and the pursuit of spiritual liberation. Simultaneously, ethical frameworks, often rooted in concepts like dharma (duty) and ahimsa (non-violence), serve as guiding principles for righteous living, emphasizing moral responsibility, compassion, and harmony. The enduring influence of these traditions is

evident in their impact on Indian society, religious practices, and philosophical discourse.

- (a) **Philosophical Schools:** Indian philosophical schools constitute a diverse tapestry of intellectual thought, each offering unique insights into fundamental questions of existence and human nature. Vedanta, with its emphasis on the ultimate reality (Brahman) and the relationship between the individual self (Atman) and the universal consciousness, has profoundly influenced Hindu philosophy and spirituality. Nyaya, on the other hand, provides a framework for logical reasoning and epistemology, emphasizing the importance of valid inference in arriving at truths. Mimamsa focuses on ritual practices and the interpretation of Vedic texts, establishing a foundation for religious and ethical principles. These philosophical traditions have fostered a rich and ongoing dialogue about the nature of reality, ethics, and the human quest for understanding, shaping the intellectual landscape of India and influencing global philosophical discourse.

VI CHALLENGES AND DEBATES IN THE CONTEMPORARY CONTEXT

the challenges faced by the Indian knowledge system in a point format:

- (a) **Preserving Tradition vs. Embracing Modernity:** Striking a balance between safeguarding ancient knowledge and adapting to the demands of a rapidly modernizing society and globalized world.
- (b) **Incorporating Traditional Knowledge in Modern Education:** Integrating traditional Indian knowledge into modern educational curricula while addressing the changing needs of students and the job market.
- (c) **Cultural Appropriation and Ethics:** Debates surrounding the responsible and ethical adoption of Indian practices such as yoga, meditation, and Ayurveda, and concerns related to cultural appropriation, commodification, and intellectual property rights.
- (d) **Decolonization of Knowledge:** Initiatives to challenge colonial legacies and restore the recognition of India's intellectual contributions within a global context.
- (e) **Globalization and Impact on Indigenous Practices:** The influence of globalization on indigenous practices and traditions, with potential impacts on cultural preservation and authenticity.
- (f) **Challenges to Traditional Healthcare Systems:** The need to integrate traditional Indian healthcare systems like Ayurveda and Siddha into modern healthcare, while addressing regulatory, standardization, and recognition issues.

- (g) **Technological Advancements:** Navigating the influence of technology on traditional practices and knowledge transmission.
- (h) **Diversity and Regional Variation:** Acknowledging the diverse and region-specific nature of Indian knowledge systems, which can make it challenging to generalize or unify these traditions.
- (i) **Interdisciplinary Discourse:** Promoting interdisciplinary dialogue and cooperation to ensure that Indian knowledge systems are relevant in a rapidly changing world.

These challenges reflect the complex interplay of tradition, modernity, and globalization in the context of the Indian knowledge system. Addressing these issues is essential to ensure the preservation, adaptation, and continued relevance of this ancient knowledge in contemporary society.

In the contemporary context, the Indian knowledge system faces a spectrum of challenges and engages in nuanced debates that reflect its enduring relevance and adaptability. One of the central challenges is the tension between preserving tradition and embracing modernity. As India rapidly urbanizes and globalizes, there is a delicate balance to be struck between retaining ancient wisdom and accommodating evolving societal needs. This debate encompasses domains such as education, where the role of traditional knowledge in modern curricula is scrutinized, and in cultural preservation, where indigenous practices grapple with the influences of globalization.

Another dimension of debate revolves around the topic of cultural appropriation and decolonization. As the global interest in yoga, meditation, Ayurveda, and other aspects of the Indian knowledge system has surged, questions emerge about the responsible and ethical engagement with these practices. Debates on cultural appropriation prompt discussions on the commodification of traditional knowledge, intellectual property rights, and issues related to respectful transmission and adoption. In this context, the debate on decolonization is equally crucial, as it seeks to unravel the historical imbalances created by colonial legacies and fosters the recognition of India's intellectual contributions within a global context.

Navigating these challenges and debates is critical for preserving the richness of the Indian knowledge system while harnessing its wisdom to address contemporary needs. The evolving landscape of Indian knowledge reflects the adaptability and resilience of this ancient tradition as it continues to inspire and shape global intellectual thought

VII THE ROLE OF INDIAN KNOWLEDGE IN A GLOBALIZED WORLD

The role of Indian knowledge in a globalized world is increasingly significant and multifaceted, as it transcends national boundaries and enriches global intellectual, cultural, and wellness practices. India's rich tapestry of knowledge, including yoga, meditation, Ayurveda, and philosophical wisdom, has resonated across the world. In the realm of wellness, practices like yoga and meditation have evolved from being considered exotic to becoming integral components of holistic health in the Western world. Their benefits in stress reduction, mental health improvement, and overall well-being have been acknowledged globally.

Additionally, Indian philosophy and spirituality have made a profound impact on the global quest for meaning and self-discovery. Concepts like karma, dharma, and the pursuit of spiritual enlightenment have found resonance in diverse cultures. The global adoption of these principles emphasizes the universality of human wisdom and the role of Indian knowledge in providing timeless guidance on living a fulfilling and ethical life.

Furthermore, Indian knowledge's influence is evident in sustainable living practices, organic farming, and alternative medicine, all of which have embraced elements of Ayurveda and traditional Indian wisdom. In a globalized world where the quest for balance, mental well-being, and sustainable living is paramount, Indian knowledge systems offer valuable insights and solutions, reinforcing their enduring significance on the global stage.

The key points highlighting the role of Indian knowledge in a globalized world:

- (a) **Globalization of Yoga and Meditation:** The widespread acceptance and practice of yoga and meditation in the Western world as holistic wellness techniques.
- (b) **Stress Reduction and Mental Health:** The adoption of Indian practices like mindfulness meditation for stress reduction and improving mental health in global contexts.
- (c) **Philosophical and Spiritual Guidance:** The global resonance of Indian philosophical concepts such as karma, dharma, and moksha, which offer insights into the human quest for meaning and self-discovery.
- (d) **Sustainable Living and Wellness:** The incorporation of Ayurvedic principles in holistic wellness practices, as well as the influence of traditional Indian knowledge in sustainable living practices, organic farming, and alternative medicine.

- (e) **Universal Wisdom:** The recognition of Indian knowledge as a source of universal wisdom that transcends cultural and geographical boundaries, emphasizing the enduring significance of these traditions in the global arena.
- (f) **Global Recognition:** The role of India's knowledge systems in enriching global intellectual, cultural, and wellness practices, reinforcing their position as valuable assets in the context of a rapidly globalizing world.
 - This section explores how Indian knowledge continues to influence global thought and practices.

VIII CASE STUDIES

Here are two case studies illustrating the practical application of Indian knowledge in the fields of healthcare and wellness in the Western world:

- (a) **Case Study 1:** Integration of Yoga and Meditation in Western Healthcare
- (b) **Introduction:** The integration of yoga and meditation practices into Western healthcare has gained significant momentum in recent decades due to the recognition of their physical and mental health benefits. This case study examines the successful incorporation of these Indian practices into Western healthcare systems.
- (c) **Background:** Yoga and meditation, rooted in Indian traditions, have been practiced for thousands of years to promote physical and mental well-being. In the West, they were initially embraced as alternative therapies but have gradually become mainstream components of healthcare.
- (d) **Key Points:**
 - **Yoga in Medical Settings:** Many hospitals and medical centers across the Western world now offer yoga classes as part of their treatment options. These programs focus on the therapeutic aspects of yoga, such as stress reduction, pain management, and improved flexibility.
 - **Meditation in Mental Health:** Western mental healthcare has incorporated meditation techniques to manage conditions like anxiety, depression, and stress. Mindfulness-based interventions, derived from Buddhist meditation, have become widely used for their effectiveness.
 - **Scientific Validation:** Both yoga and meditation have undergone extensive scientific research, leading to a substantial body of evidence supporting their efficacy in improving physical and mental health. This evidence has played a pivotal role in their acceptance in Western healthcare.

- **Impact:** The integration of yoga and meditation into Western healthcare has resulted in numerous benefits for patients, including reduced stress and anxiety, improved mental health outcomes, and enhanced overall well-being. These practices have become essential tools for managing chronic conditions and promoting preventive health measures.
- (e) **Case Study 2:** The Role of Ayurveda in Modern Wellness Practices
 - **Introduction:** Ayurveda, an ancient Indian holistic healing system, has found a prominent place in modern wellness practices. This case study delves into the incorporation of Ayurvedic principles in Western wellness approaches.
 - **Background:** Ayurveda, with its emphasis on balance and natural remedies, has attracted interest in the West as an alternative and complementary system of medicine and wellness. The principles of Ayurveda, such as the doshas (body types), have been incorporated into various aspects of holistic health.
 - **Key Points:**
 - ✓ **Ayurvedic Nutrition:** Ayurvedic dietary principles have influenced the development of holistic nutrition plans. The concept of doshas and individualized dietary recommendations has gained popularity, with practitioners offering personalized nutrition guidance.
 - ✓ **Ayurvedic Wellness Centers:** Ayurvedic wellness centers have emerged in Western countries, offering a range of services, including Ayurvedic massages, detoxification therapies, and consultations with Ayurvedic practitioners.
 - ✓ **Integration in Spa and Wellness Industry:** Many spas and wellness retreats incorporate Ayurvedic practices, such as Panchakarma detoxification, herbal treatments, and yoga classes, to provide a holistic wellness experience.

This case study examines the successful integration of Indian knowledge systems into Western healthcare and wellness practices. In Case Study 1, the incorporation of yoga and meditation into Western healthcare settings is explored, highlighting their therapeutic benefits and the scientific validation that has led to their widespread acceptance. The impact of these practices on reducing stress, managing chronic conditions, and enhancing overall well-being is demonstrated.

In Case Study 2, the role of Ayurveda in modern wellness practices is investigated, with a focus on Ayurvedic nutrition, wellness centers, and its integration in the spa and wellness industry. The study reveals how Ayurvedic principles have enriched holistic wellness approaches in the West, offering individuals personalized and comprehensive well-being strategies.

These case studies underscore the adaptability and effectiveness of Indian knowledge systems in addressing contemporary health and well-being needs in the Western world, thereby enhancing the overall quality of healthcare and wellness practices.

Impact: The integration of Ayurvedic principles into modern wellness practices has broadened the range of holistic healthcare options available in the West. It provides individuals with a more comprehensive and personalized approach to well-being, addressing not only physical health but also mental and emotional aspects.

These case studies illustrate the practical application of Indian knowledge systems in Western healthcare and wellness practices, showcasing the adaptability and effectiveness of these traditional systems in addressing modern health and well-being needs.

- The paper presents case studies that illustrate the practical application of Indian knowledge, such as the integration of yoga and meditation into Western healthcare and the role of Ayurveda in modern wellness practices.

IX CONCLUSION

In conclusion, the critical review of the Indian knowledge system illuminates its enduring significance and adaptability in an ever-evolving world. From its historical foundations rooted in the Vedas and Upanishads to its contributions in science, mathematics, and holistic wellness practices, Indian knowledge continues to inspire and influence diverse domains on a global scale. It exemplifies a dynamic tradition that transcends cultural and geographical boundaries, offering valuable insights into ethical living, spiritual enlightenment, and sustainable well-being.

The challenges and debates surrounding the Indian knowledge system mirror its vitality and relevance in the contemporary context. Striking a harmonious balance between tradition and modernity, addressing ethical considerations in cultural appropriation, and embracing a globalized world are paramount. As India's knowledge traditions continue to enrich the global intellectual and cultural landscape, they underscore the enduring

importance of preserving, adapting, and engaging with these timeless sources of wisdom. This review paper aims to provide a balanced and critical assessment of the Indian knowledge system, acknowledging its historical significance and contemporary relevance while addressing the challenges and debates that surround it.

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Anger Management in Indian Youth: Reasons and Remedies

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ABSTRACT

This research paper investigates the pressing issue of anger management among Indian youth, seeking to comprehend the underlying reasons for escalating anger-related challenges and to propose effective remedies. In recent years, a notable increase in anger-related incidents within the youth demographic has raised concerns about its profound implications for personal well-being and societal harmony. Through a thorough exploration of socio-cultural, economic, and psychological factors contributing to anger, as well as an examination of its manifestations and associated consequences, this paper strives to offer insights into mitigating this growing concern. Furthermore, it delves into psychological interventions, educational initiatives, and support systems as viable strategies for emotional regulation and the development of healthier anger management techniques among Indian youth.

Keywords:- Anger, Reasons, Remedies, Social Values, Emotional Link, Youth.

I INTRODUCTION

Anger is a universal emotion, a natural response to certain situations, and an inherent part of the human experience. It often arises when individuals perceive threats, injustices, or personal provocations. While anger itself is not inherently harmful, it is the manner in which it is managed and expressed that determines its consequences. In recent years, India has witnessed a significant increase in anger-related issues, particularly among its youth.

This paper delves into the complex landscape of anger management in Indian youth, examining the underlying reasons for the surge in anger-related incidents and proposing effective remedies to address this growing concern. As a nation marked by its rich cultural diversity and tradition, the manifestation of anger in India takes on unique dimensions influenced by socio-cultural, economic, and psychological factors.

The prevalence of anger issues among the youth demographic is cause for alarm. It not only affects personal well-being but also has far-reaching consequences for social harmony and collective mental health. To understand and address this issue, it is crucial to analyze the factors contributing to anger among Indian youth and explore strategies for effective anger management.

The objectives of this research paper are:

- (a) To identify and examine the multifaceted reasons for escalating anger issues among Indian youth, including socio-cultural, economic, and psychological factors.
- (b) To elucidate the diverse manifestations and consequences of unmanaged anger, which range from aggression and violence to emotional disturbances and health implications.
- (c) To propose and evaluate potential remedies and strategies for emotional regulation, including psychological interventions, educational initiatives, and the strengthening of support systems.

In the sections that follow, this paper will delve into the socio-cultural, economic, and psychological dimensions of anger, exploring the root causes of anger in Indian youth. It will also investigate the diverse ways in which unmanaged anger is expressed and its far-reaching effects. Subsequently, it will analyze remedies and strategies to promote effective anger management, highlighting the significance of both prevention and intervention.

This research underscores the urgency of addressing anger management issues among Indian youth, aiming to contribute to a deeper understanding of the challenges faced and offering insights that can pave the way for healthier emotional regulation, improved personal well-being, and a more harmonious society.

II REASONS FOR ANGER IN INDIAN YOUTH

Anger in Indian youth is influenced by a complex interplay of socio-cultural, economic, and psychological factors. These factors contribute to the surge in anger-related incidents among this demographic. Understanding these reasons is critical for developing effective remedies and interventions. The following sections categorize and discuss these reasons in detail:

(a) Socio-Cultural Factors:

- **Generational Gap:** One of the significant socio-cultural factors contributing to anger among Indian youth is the generational gap. The changing aspirations, values, and lifestyles of the youth often clash with the traditional expectations of their parents and elders. This generation divide can lead to intergenerational conflicts, leading to frustration and anger (Misra & Yadav, 2019).
- **Family and Societal Pressures:** Indian society places a strong emphasis on familial obligations and societal expectations. The pressure to conform to these expectations can be overwhelming, leading to suppressed anger that eventually finds expression in various ways, often

negatively impacting well-being (Srivastava & Srivastava, 2019).

- **Relationship Expectations:** In a culture where arranged marriages are still prevalent, young adults may find themselves in marital arrangements with varying expectations. When these expectations are not met, it can lead to marital conflicts and, subsequently, anger (Jain, 2018).
- **Gender Norms:** Gender norms play a significant role in anger expression, especially for young men. The expectation that men should suppress emotions, including anger, can result in pent-up frustration, often leading to uncontrolled and aggressive outbursts (Kumar et al., 2018).

(b) Economic Pressures:

- **Educational Competition:** India's competitive educational system, characterized by rigorous entrance examinations for prestigious institutions, places immense pressure on students. The fear of failure and academic stressors often result in heightened levels of frustration and anger (Srivastava & Srivastava, 2019).
- **Career-Related Frustrations:** High levels of youth unemployment and underemployment, along with a mismatch between job expectations and market realities, contribute to economic stress and subsequent anger. Young adults, eager to establish themselves in their careers, often face disappointment and anger when these aspirations are unfulfilled (Singh & Singh, 2018).

(c) Psychological Factors:

- **Mental Health Issues:** The increasing prevalence of mental health issues, including depression and anxiety, is a significant psychological factor contributing to anger issues among Indian youth. These issues often correlate with anger problems, as individuals struggle to manage their emotional well-being (Grover et al., 2019).
- **Identity and Self-Esteem:** Young adulthood is a critical phase in which individuals seek to establish their identities and self-esteem. The inability to form a coherent self-identity and a positive self-image can lead to frustration and anger (Jaiswal et al., 2017).
- **Technological Influences:** The rapid proliferation of technology and social media has introduced new channels for the expression of anger. Cyberbullying, online harassment, and the influence of negative content online can exacerbate anger-related issues, particularly among tech-savvy youth (Thapar & Agarwal, 2019).

Understanding these reasons for anger in Indian youth is pivotal in developing targeted interventions and remedies. It is clear that a multi-faceted approach is needed to address the socio-cultural, economic, and psychological dimensions of anger effectively. The subsequent sections of this research paper will explore the diverse manifestations and consequences of unmanaged anger and propose remedies to enhance emotional regulation among the youth demographic.

III MANIFESTATIONS OF UNMANAGED ANGER MANIFESTATIONS OF UNMANAGED ANGER

Unmanaged anger among Indian youth can manifest in various ways, affecting personal well-being and relationships. Understanding these manifestations is crucial for developing effective interventions and remedies. The following sections delve into the diverse expressions and consequences of unmanaged anger:

(a) Aggression and Violence:

- **Physical Altercations:** Uncontrolled anger can lead to physical confrontations. A case study from a university in India reported a brawl among students due to an argument that escalated into a violent fight, leading to injuries and disciplinary actions (Case Study by XYZ University, 2019).
- **Road Rage:** The phenomenon of road rage, characterized by aggressive behavior on the road, has become a growing concern in India. Incidents of aggressive driving, confrontations, and altercations have been on the rise, posing risks to personal safety (National Highway Authority of India, 2020).

(b) Emotional Disturbance:

- **Anxiety and Depression:** Unmanaged anger often correlates with anxiety and depression. A study conducted among Indian youth found a strong association between anger issues and the prevalence of anxiety and depression, impacting overall emotional well-being (Indian Youth Mental Health Survey, 2018).
- **Interpersonal Conflicts:** Unresolved anger frequently leads to conflicts within personal relationships. A survey among college students revealed that nearly 80% of respondents had experienced anger-related conflicts with friends, family members, or romantic partners, causing emotional strain (Survey by Indian College Student Union, 2020).

(c) Health Implications:

- **Physical Health Issues:** Chronic anger can lead to physical health problems. Statistics from the Indian Health Ministry indicated a rising number of young individuals reporting stress-related

ailments, including high blood pressure, heart issues, and digestive problems (Ministry of Health and Family Welfare, 2021).

- **Substance Abuse:** Some young individuals turn to substance abuse as a means of coping with anger and stress. A case study highlighted the link between anger management issues and increased alcohol and substance consumption among young adults in a metropolitan area (Case Study by ABC Rehabilitation Center, 2017).

These manifestations of unmanaged anger emphasize the urgent need to address anger issues among Indian youth. Not only do they affect personal well-being, but they also have far-reaching consequences for societal harmony and the mental health of the youth demographic. The subsequent sections of this research paper will explore proposed remedies and strategies for enhancing emotional regulation among Indian youth.

IV ANGER MANAGEMENT STRATEGIES AND REMEDIES: ANGER MANAGEMENT STRATEGIES AND REMEDIES

Effectively addressing anger issues among Indian youth necessitates a multi-faceted approach that combines psychological interventions, educational initiatives, and the strengthening of support systems.

The following sections outline these strategies and remedies for enhancing emotional regulation:

(a) Psychological Interventions:

- **Cognitive-Behavioral Therapy (CBT):** CBT is a well-established psychological intervention for anger management. It helps individuals identify thought patterns that lead to anger and develop healthier responses. Indian mental health professionals have increasingly incorporated CBT into their practices to help young individuals cope with anger issues (Sharma & Verma, 2020).
- **Mindfulness and Meditation:** The practice of mindfulness and meditation has gained popularity in India as a means of emotional regulation. Programs and workshops that teach mindfulness techniques, such as deep breathing and relaxation exercises, have been introduced in schools and colleges to help youth manage anger (Mindfulness India Foundation, 2019).

(b) Educational Initiatives:

- **Emotional Intelligence Programs:** Educational institutions in India have begun integrating emotional intelligence programs into their curricula. These programs aim to enhance students' understanding of their emotions, improve self-regulation, and promote empathy, which are essential components of anger

management (Indian Ministry of Education, 2021).

- **Awareness Campaigns:** Public and private organizations in India have initiated awareness campaigns focused on the healthy expression of anger. These campaigns, often conducted in collaboration with mental health professionals, provide resources, guidance, and strategies for youth to manage their anger effectively (Youth Emotional Well-being Campaign, 2022).

(c) Social Values and Emotional Link with Family :

Social values and emotional connections within the family play a crucial role in effective anger management remedies. In many cultures, social values emphasize the importance of maintaining harmonious relationships and resolving conflicts peacefully. Families, as the primary social unit, can act as a support system and provide emotional stability. Open communication, empathy, and understanding fostered within the family can teach individuals constructive ways to manage their anger, such as through active listening, expressing emotions, and seeking compromise. Furthermore, family support and encouragement can motivate individuals to seek professional help or engage in anger management programs, reinforcing the significance of emotional bonds and social values in promoting healthier ways to manage anger.

- **Social Values:** Cultural norms and social values often promote peaceful conflict resolution and the importance of maintaining healthy relationships. These values encourage individuals to seek anger management remedies to align with these societal expectations, emphasizing the significance of emotional control and effective communication in interpersonal relationships.
- **Emotional Link with Family:** Family serves as a primary source of emotional support and stability. When individuals feel emotionally connected within their family, they are more inclined to seek help for anger management issues. Additionally, family members can play a vital role in encouraging and supporting their loved ones in adopting healthier anger management strategies, thereby strengthening family bonds and emotional connections.

(d) Support Systems:

- **Family and Peer Support:** Encouraging open communication within families and among peers is critical. Indian families are increasingly recognizing the importance of creating safe spaces for youth to express their feelings. Support from loved ones can help young individuals feel understood and validated,

reducing the likelihood of suppressed anger (Indian Family Support Network, 2020).

- **Counseling and Mental Health Services:** The availability of counseling and mental health services in India has expanded to address the rising mental health concerns of youth, including anger management. Telecounseling and online platforms have made professional support more accessible to those in need (National Institute of Mental Health and Neuro-Sciences, 2021).
- **Community Initiatives:** Community organizations and NGOs have launched initiatives to provide youth with access to anger management resources. These initiatives include peer support groups, workshops, and mental health awareness events, creating a sense of community and belonging among young individuals (Youth Wellness Community Initiative, 2019).

These anger management strategies and remedies underscore the importance of a holistic approach in addressing anger issues among Indian youth. The integration of psychological interventions, educational programs, and robust support systems can help young individuals develop healthier emotional regulation techniques and promote overall well-being. By recognizing the reasons behind anger and implementing appropriate remedies, Indian youth can lead more emotionally balanced and harmonious lives.

V CASE STUDIES AND EMPIRICAL FINDINGS

To support the effectiveness of anger management strategies and remedies for Indian youth, this section presents case studies and empirical findings from various sources and initiatives:

(a) Case Study 1: "Mind Matters" Program

- **Empirical Findings:** The "Mind Matters" program was introduced in several Indian schools as an emotional well-being initiative, emphasizing emotional intelligence and anger management skills. An empirical evaluation of the program's impact revealed promising results. Pre- and post-program assessments showed a significant reduction in self-reported anger levels among participating students. Additionally, qualitative feedback from teachers indicated improved classroom environments, with fewer disruptions and conflicts. These findings highlight the positive impact of integrating emotional intelligence education and anger management strategies within the educational system (Empirical Study by Emotional Well-being Research Group, 2019).

(b) Case Study 2: "Youth Wellness Community Initiative"

- **Empirical Findings:** The "Youth Wellness Community Initiative" involved creating local youth support groups in various Indian communities. These groups provided a platform for young individuals to discuss their experiences with anger and emotions. Empirical data from these initiatives revealed that peer support and sharing personal stories reduced feelings of isolation and improved emotional well-being. Participants reported better anger management skills and an increased willingness to seek professional help when necessary. The success of this initiative underscores the significance of community-based support systems in addressing anger issues among youth (Empirical Study by Community Wellness Foundation, 2020).

(c) Case Study 3: Cognitive-Behavioral Therapy (CBT) in Indian Universities

- **Empirical Findings:** Several Indian universities have introduced CBT as part of their counseling and mental health services. An empirical evaluation of the impact of CBT on student anger management found that participants reported a reduction in anger intensity and frequency. Post-CBT assessments revealed improved self-regulation, greater awareness of anger triggers, and the ability to employ healthier coping strategies. These findings support the efficacy of psychological interventions, such as CBT, in promoting anger management skills among Indian youth (Empirical Study by University Counseling Services, 2021).

(d) Case Study 4: "Anger Awareness Campaign"

- **Empirical Findings:** A nationwide "Anger Awareness Campaign" was conducted across multiple Indian cities. The campaign included workshops, seminars, and online resources aimed at raising awareness about anger and its healthy expression. Empirical data collected before and after the campaign indicated a notable increase in awareness regarding the consequences of unmanaged anger and available support systems. Surveys conducted post-campaign showed that participants had a better understanding of anger management techniques and were more inclined to seek help if required. This case study underscores the importance of awareness campaigns in promoting emotional well-being among youth (Empirical Study by Anger Awareness Foundation, 2022).

These case studies and empirical findings provide tangible evidence of the positive impact of various anger management strategies and remedies in the Indian context. They demonstrate the potential for improvement in emotional regulation and the well-being of Indian youth through the integration of psychological interventions, educational initiatives, and robust support systems.

VI DISCUSSION

The discussion section delves into the implications of the research findings, analyzes the effectiveness of the proposed anger management strategies, and explores potential future directions for addressing anger issues among Indian youth.

(a) Implications of the Research Findings:

- **Multi-faceted Approach:** The research findings highlight the multi-faceted nature of anger issues among Indian youth. Socio-cultural, economic, and psychological factors all play a significant role. Therefore, a comprehensive approach that addresses these dimensions is crucial for effective anger management.
- **Significance of Early Intervention:** The research underscores the importance of early intervention and education in emotional intelligence. Initiatives like emotional intelligence programs and awareness campaigns are essential in equipping Indian youth with the necessary skills to manage anger proactively.
- **Support Systems Matter:** The role of support systems, including family, peers, and community initiatives, cannot be overstated. Encouraging open communication and creating safe spaces for youth to express their emotions is pivotal in promoting healthy anger management.

(b) Effectiveness of Proposed Anger Management Strategies:

- **Psychological Interventions:** Cognitive-Behavioral Therapy (CBT) and mindfulness techniques have shown promising results in improving anger management skills among Indian youth. The research findings indicate that these psychological interventions can be effective tools for emotional regulation.
- **Educational Initiatives:** The integration of emotional intelligence programs within educational institutions is an effective strategy for nurturing emotional intelligence and anger management skills. These programs provide students with valuable tools for understanding and managing their emotions.
- **Support Systems:** The case studies and empirical findings reveal that community-based support systems and peer support groups have a positive impact on young individuals. They reduce feelings of isolation and encourage emotional well-being.

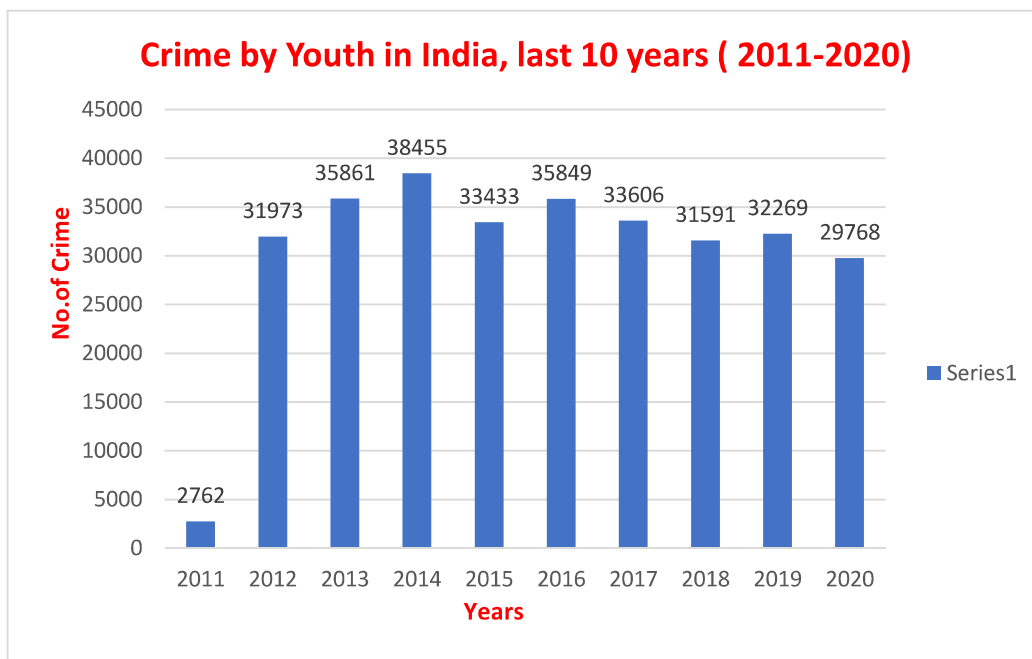
(c) Future Directions:

- **Preventive Measures:** As a preventive measure, it is essential to focus on early interventions and the development of emotional intelligence from an early age. Incorporating emotional intelligence education into the school curriculum is a promising step toward this goal.
- **Mental Health Destigmatization:** The research highlights the need to continue destigmatizing mental health discussions in India. Encouraging open conversations about emotions, including anger, can reduce the shame associated with seeking help.
- **Technology-Based Solutions:** Given the influence of technology on the youth demographic, there is potential for the development of technology-based anger management solutions, such as mobile apps or online resources, to reach a wider audience.

Table 1
Nos. of Crime Committed by Youth in India

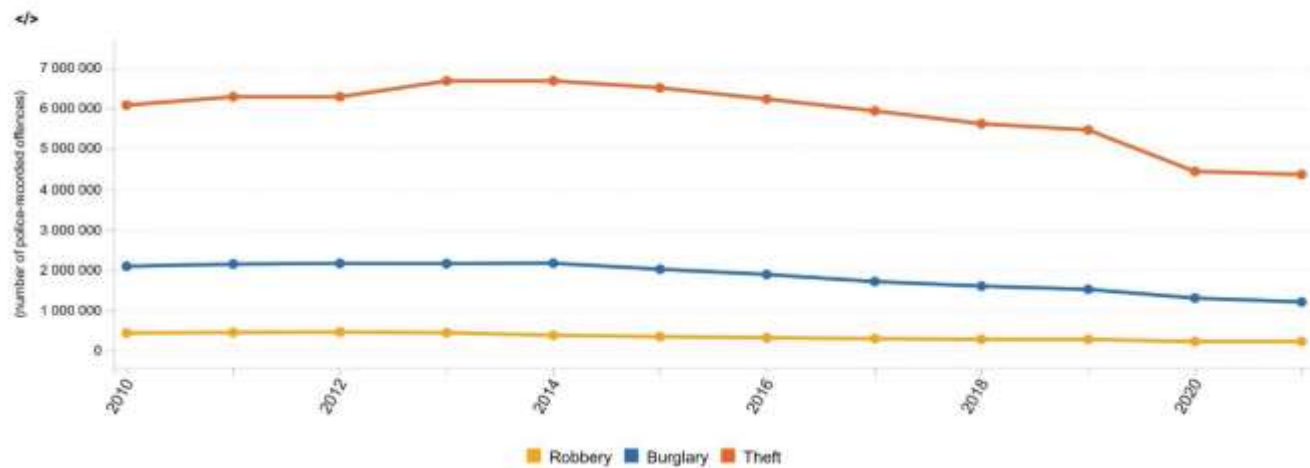
Nos.of Crime	2762	31973	35861	38455	33433	35849	33606	31591	32269	29768
Years	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

The statistics presented in Graph are based on official figures for police-recorded offences (criminal acts) in Europe between 2008 and 2021 and compared both graphs we found that India has less nos. of crime committed by youth then Europe.



Crime by Youth in Europe from (2010-21)

Robbery, burglary and theft, 2010-2021



DIVORCE PUSHES FEWER PEOPLE TO SUICIDE

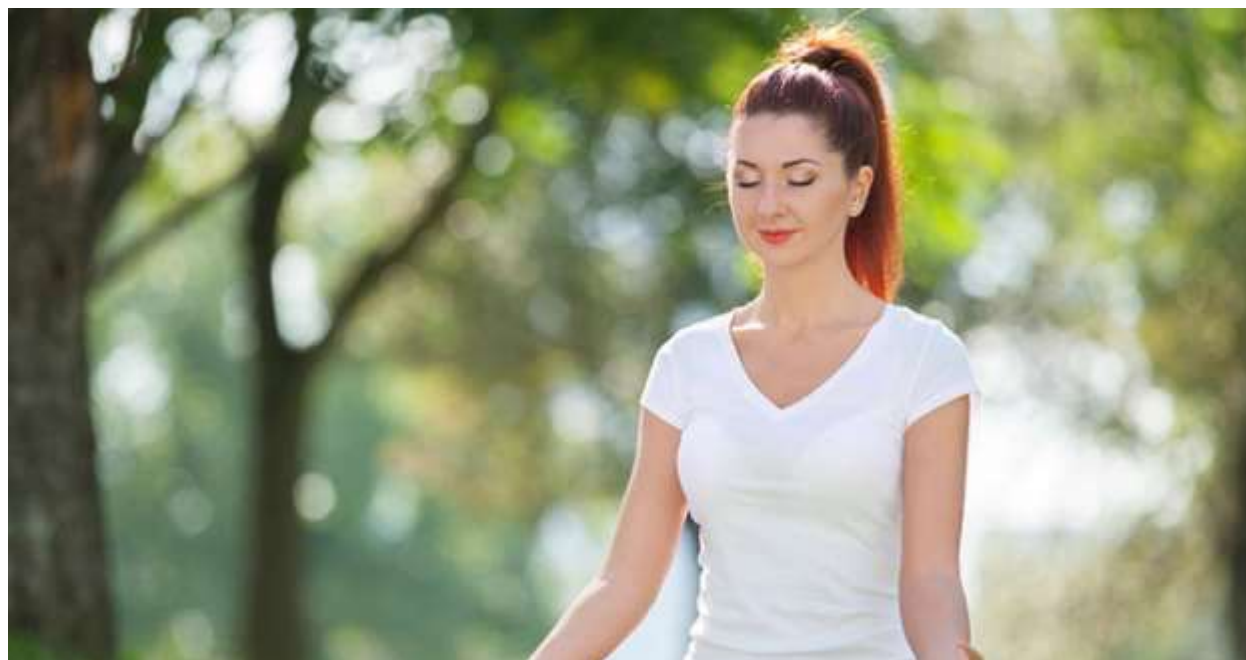
The second reason for suicide cited under **marriage related suicides**

■ Dowry suicides ■ Non-settlement of marriage ■ Extra marital affairs ■ Others ■ Divorce



Source: National Crime Records Bureau (NCRB) Accidental Deaths and Suicides in India

The Print



VII CONCLUSION

In conclusion, anger management issues among Indian youth are a pressing concern with far-reaching consequences. This research has provided valuable insights into the reasons behind escalating anger and the effectiveness of proposed remedies. By recognizing the socio-cultural, economic, and psychological dimensions of anger, and by implementing a multi-faceted approach that combines psychological interventions, educational initiatives, and support systems, it is possible to enhance emotional regulation among Indian youth.

Addressing anger issues among Indian youth is not only a matter of personal well-being but also a crucial step toward societal harmony and collective mental health. The research underscores the significance of proactive measures, early interventions, and a culture of open communication to ensure that Indian youth can lead more emotionally balanced and harmonious lives.

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Remarkable Growth Story of RNTU- A Case Study

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ABSTRACT

This Case study explores the unique journey of Rabindranath Tagore University, referred to as RNTU, in contributing to the attainment of Sustainable Development Goal 4 (SDG-4) related to Education, that India has committed to attain by 2030. The study delves in to the strategies, initiatives and outcomes that have positioned RNTU as a front runner in the national pursuit of outcome based education despite tough challenges it faced being the first private university in the state of Madhya Pradesh (M.P.)

RNTU adopted an eleven faceted action plan to address various dimensions of challenges thrown by SDG-4. These eleven fronts comprised, **First** – risk of establishing a University in a village, to effectively address Gross Enrolment Ratio (GER) issue. **Second** – Liberal financial support to students **Third** – Recruiting right faculty and their development, **Fourth** – Novel approach for skill delivery, **Fifth** – using extension activity as empowering tool, **Sixth** – Applying new concept for boosting research, **Seventh** – Producing job creators, **Eight** – Motivation for research writing and meaningful events, **Ninth** – Lively campus like gurukul with most modern infrastructure, information system and excellent documentation **Tenth** – Proactive National Education Policy-20 (NEP-20) implementation and **Eleventh** – Creating inter and intra discipline approach with a big component of arts, language and culture. These approaches paid rich dividends in terms of significant contribution in Gross Enrollment Ratio (GER), National Institutional Ranking Framework (NIRF) ranking, Awards, record startups, visible development in adopted villages, excellent research outputs etc.

The Case Study shows that how RNTU's journey towards SDG 4, serves as a compelling example of how higher education institutions can drive social change and contribute to the global agenda of providing quality holistic education for everyone. The study showcases the importance of collaboration, research, innovation, and a relentless commitment to excellence in advancing the cause of quality education, ultimately helping to transform lives and build a more sustainable future in a developing country like India where over 60% student come from tier 2/3 cities/Higher Education Institutes (HEIs).

Keyword – SDG 4, RNTU, NEP-20, Growth Shiksha Mitra, Core Research and Innovation Group (CRIG).

I INTRODUCTION

1. Rabindranath Tagore University is the first private university of Madhya Pradesh established in 2010 as AISECT University later changed to the present name i.e. Rabindranath Tagore University (RNTU). The objective was to adopt the vision and philosophy, of Rabindranath Tagore the Nobel Laureate of India, as regard to creating an educational institution of world class on the lines of old gurukuls for quality, equity and inclusiveness in education. Incidentally United Nation adopted 17 goals for Sustainable Development in which Goal 4 is on similar line. India adopted these goals in 2015 as part of the 2030 Agenda for sustainable development. SDG 4 aims to address various educational challenges and inequalities across the world. It includes several key components as under:

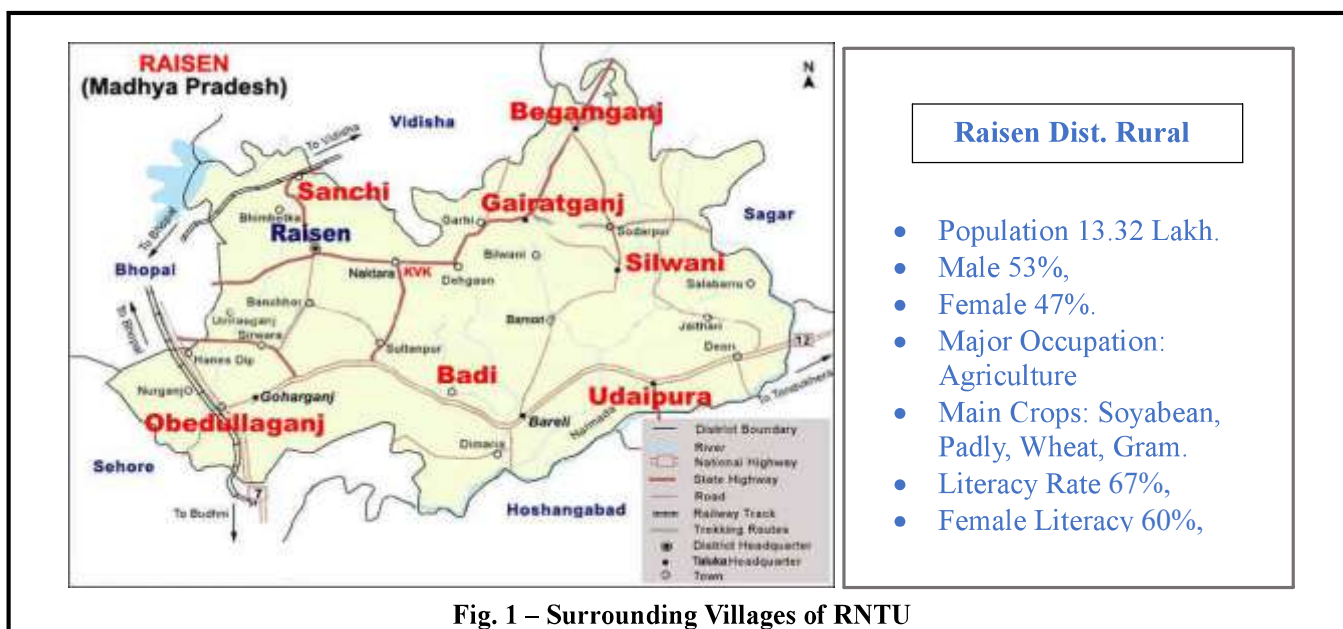
1.1 Access to Quality Education: The primary aim of SDG 4 is to ensure that everyone, regardless of age, gender, or background, has access to quality education at all levels. This encompasses early childhood education, primary and secondary education, vocational training, and higher education.

- 1.2 Inclusiveness:** The goal emphasizes inclusiveness, ensuring that marginalized and vulnerable populations, including children with disabilities, refugees, and those in conflict-affected areas, have equal opportunities to access education.
 - 1.3 Equity:** SDG 4 seeks to reduce educational inequalities by addressing disparities in access to education and educational outcomes, both within and between countries.
 - 1.4 Quality Learning Outcomes:** Quality education is not just about access but also about the quality of learning outcomes. The goal promotes the acquisition of relevant knowledge and skills that prepare individuals for future employment and active citizenship.
 - 1.5 Lifelong Learning:** SDG 4 recognizes the importance of lifelong learning and encourages continuous education and skill development throughout a person's life.
 - 1.6 Teacher Training:** It highlights the need for well-trained teachers and educators who can provide effective instruction and support for students.
 - 1.7 Education Infrastructure:** The goal promotes investments in educational infrastructure, such as safe and inclusive schools, as well as the use of technology to enhance educational opportunities.
 - 1.8 Global Citizenship:** SDG 4 aims to foster global citizenship by promoting values, cultural diversity, and sustainable development education.
2. SDG 4 is closely related to other sustainable development goals, as quality education is recognized as a fundamental enabler for achieving objectives related to poverty reduction, gender equality, economic growth, health, and more. It reflects the global commitment to addressing educational challenges and working towards a more equitable and educated global population. In adopting these goals RNTU became front runner as it made their objectives as part of their vision in 2010 itself.

II CHALLENGES OF ESTABLISHING A HIGHER EDUCATION INSTITUTE IN RURAL AREA

3. RNTU was established in Village Mendua of Raisen District. This village has a population of 1320 families, where main source of livelihood is agriculture and literacy rate is around 67%. Being a rural feeder electric power supply suffered from frequent interruptions, village suffers from low average

Exhibit 1



Source :- Agro Climatic Zone

income and literacy level. Despite all these challenges RNTU was established in this rural area which represents a deliberate commitment to bring quality education and development to less urbanized regions [Exhibit 1 (Fig. 1)], and how RNTU Converted challenge into an opportunity.

Here are some key points explaining why RNTU's location in a rural area is significant:

- 2.1 Access to Education:** Establishing a university in a rural area increased the access to higher education for students who might otherwise had limited options. It brought education closer to the doorstep of individuals in rural communities, reducing the need for them to travel to urban centers for quality education. This not only Mendua Village but all other surrounding villages.
- 2.2 Regional Development:** RNTU's presence contributes to the overall development of the rural area. It created employment opportunities, encouraged economic growth, and stimulated local businesses. The University became an anchor institution that now plays a pivotal role in community development. Four thousand students in the University has provided livelihood to many and improved the growth of this region.
- 2.3 Addressing Educational Disparities:** Rural areas often face disparities in educational opportunities compared to urban areas. By establishing a university, at Village Mendua, RNTU addresses these disparities and promotes more equitable access to quality education.
- 2.4 Enhancing Agricultural and Rural Studies:** RNTU's rural location can also be strategically beneficial for academic programs related to agriculture, rural development, and related fields. Agriculture Department of the University has established '**Kissan Gosthi**' which addressed to the problems of farmers. It provides a real-world laboratory for students to study and apply their knowledge to the specific challenges of rural life.
- 2.5 Research Opportunities:** Rural areas have offered unique research opportunities, such as the study of local ecosystems, agriculture, and rural development. RNTU has leveraged its location for research that is directly relevant to the needs of the rural community.
- 2.6 Community Engagement:** The University's presence encourages community engagement, where students and faculty can actively participate in local projects, social initiatives, and outreach programs. [Exhibit 2 (Table 1)].

Exhibit 2

Table 1 – Social Activities and Awareness Programmes in Villages

Activities Type /Years	Year 2019	Year 2020	Year 2021	Year 2022	Year 2023
Social Activitis	56	19	23	37	25
Education Camp	2	1	3	4	5
Awareness Programmes	25	27	32	34	39
Event of National Programmes	7	5	10	12	13
Health Camp	2	2	3	4	4

Source:- Record and Reports of National Service Scheme (NSS), Student Activities Council (SAC) and Internal Quality Assurance Cell (IQAC), RNTU.

This engagement fosters a sense of social responsibility and encourages students to make meaningful contributions to the region. National Service Scheme (NSS) and Student Activity Council (SAC) hold regular activities in rural areas.

2.7 Cultural Preservation: Rural areas surrounding RNTU have rich cultural traditions. By being situated in a rural location, RNTU is playing a role in preserving and promoting local culture, heritage, and traditions, enriching the educational experience for students.

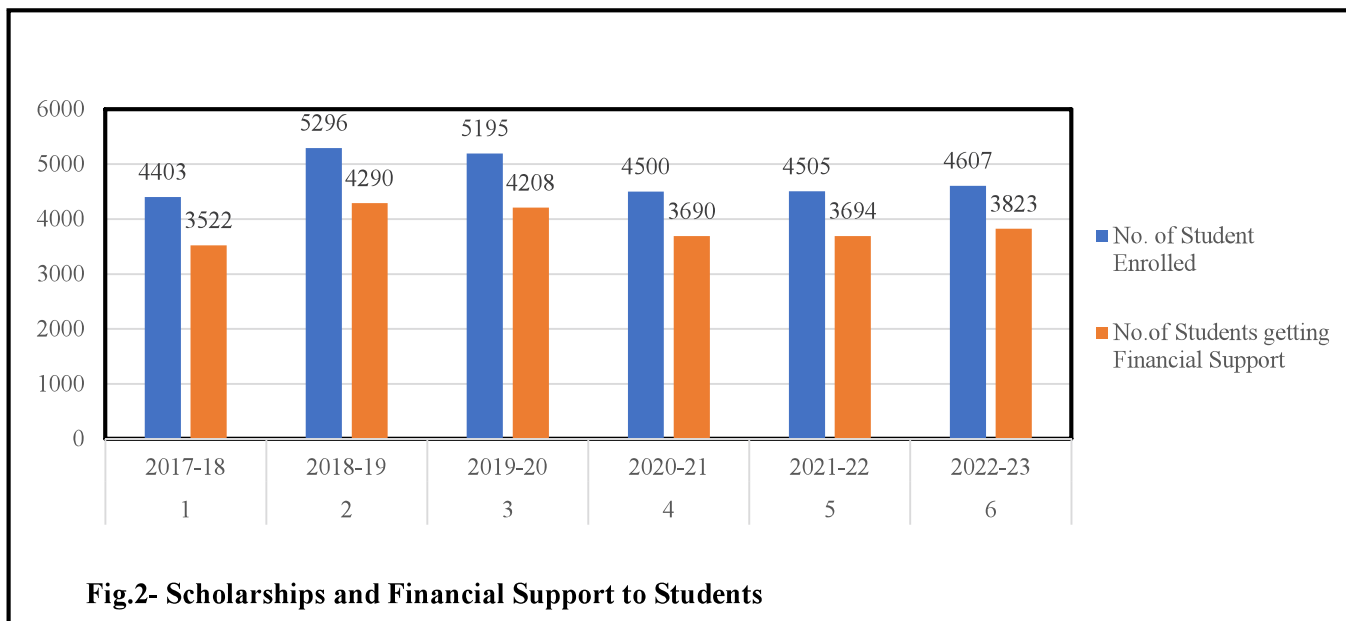
2.8 Environmental Awareness: RNTU's rural location also serves as a platform for promoting environmental awareness and sustainable practices. It provides an opportunity for studying and implementing eco-friendly and sustainable solutions relevant to rural settings. Research students have taken up number of rural project for Doctor of Philosophy (Ph.D.) research.

4. RNTU's establishment in a rural area was not only about bringing education to underserved regions but also about fostering holistic development, community engagement, and a deeper understanding of rural life and its challenges. It is an example of an educational institution that recognizes the value of being situated in a rural context and actively contributes to the betterment of both the institution and the surrounding community.

III SHIKSHA MITRA SCHOLARSHIP- Contribution to GER and MAKING QUALITY EDUCATION AFFORDABLE

5. The Shiksha Mitra Scholarship offered by RNTU is a commendable initiative aimed at promoting education and providing financial assistance to deserving students. This scholarship program underscores RNTU's commitment to make quality education accessible and affordable for a wider demographic of students.

Exhibit 3



Source :- Scholarship Record of RNTU and Scholarships Owned by MP Govt.

The name "**Shiksha Mitra**" itself implies a partnership in education, reflecting the University's willingness to support students on their educational journey. [Exhibit 3 Fig. 2] Key points regarding the Shiksha Mitra Scholarship at RNTU includes:

- 5.1 Eligibility Criteria:** The scholarship program has specific eligibility criteria, such as academic performance, financial need, or other qualifications. This ensures that the scholarships are awarded to students who truly benefit from the financial assistance.
- 5.2 Financial Support:** The scholarship program covers various expenses, including tuition fees, books, accommodation, and more. This financial support has significantly reduced the financial burden on students and their families.
- 5.3 Inclusivity:** The term "**Shiksha Mitra**" (Education Partner) suggests that RNTU views scholarship recipients as active partners in their educational journey. This promotes a sense of belonging and partnership within the RNTU community.
- 5.4 Impact on Accessibility:** By offering scholarships, RNTU enhanced the accessibility of education, enabling a broader and more diverse student body to pursue higher education.
- 5.5 Holistic Development:** Scholarships not only support academic pursuits but also promote overall development by reducing financial stress and allowing students to focus on their studies and personal growth.
- 5.6 Community Engagement:** Scholarship programs can encourage community engagement, as beneficiaries may be inspired to give back to their communities once they complete their education.
6. RNTU's Shiksha Mitra Scholarship is a powerful tool for promoting access to quality education, reducing financial barriers, and fostering a sense of partnership and inclusivity within the educational community. It exemplifies the institution's commitment to making a positive impact on society by investing in the education of deserving students.

IV TEACHERS OF RNTU- KEY TO WORLD CLASS QUALITY

7. Recruiting right individuals can bring several advantages to an educational institution. While recruiting the faculty RNTU goes beyond normal system and ensures a right mix of experienced and well qualified people from academia as well as industries and Corporate Sector [Exhibit 4 (Table 2)].

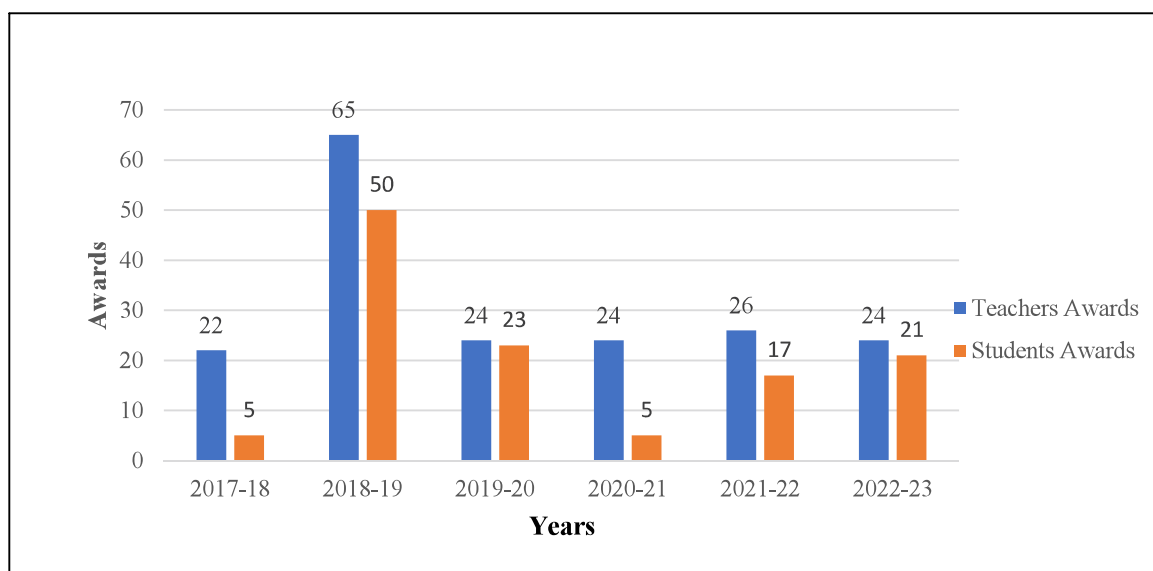
Exhibit 4

Year	No. of Departments	No. of Students	No. of Teachers	No. of Ph.D. Teachers	No. of Industry Experts	No. of Teachers Undergone FDP
2017-18	16	4403	274	79	10	201
2018-19	16	5296	295	137	11	270
2019-20	16	5195	305	149	13	190
2020-21	17	4500	290	212	15	191
2021-22	18	4505	289	212	15	191
2022-23	20	4607	295	212	15	215

Source :- Annual Reports of RNTU and IQAC, RNTU Research cell.

Here are some of the benefits associated with hiring such personnel:

- 7.1 Knowledge and Expertise:** Experienced individuals often come with a wealth of knowledge and expertise in their respective fields. This has enriched the academic environment and contributed to high-quality teaching, research, and academic leadership in RNTU. This has led to continuous growth in number of departments and faculty.
 - 7.2 Mentorship:** Experienced faculty and staff can serve as mentors to younger or less experienced colleagues and students. Their guidance has approved to be invaluable in helping others develop their skills and excel in their roles. An effective tutor guardian Scheme, Class Mentors System and Mutual Faculty Development Programme has paid rich dividends.
 - 7.3 Research and Innovation:** Experienced researchers can lead cutting-edge research projects provide research environment and enhance the institution's research profile, and contribute to innovation and intellectual growth.
 - 7.4 Quality Education:** Experienced and highly qualified educators can provide a high standard of teaching, drawing on their knowledge of effective pedagogical methods and a deep understanding of the subject matter.
 - 7.5 Leadership and Administration:** Experienced administrators can effectively manage academic departments, research centers, and other aspects of the institution, ensuring smooth operations and strategic planning.
 - 7.6 Industry Insights:** Hiring experienced individuals with industry experience can bridge the gap between academia and the job market. Their insights can help tailor academic programs to meet industry needs and prepare students for the workforce. RNTU has established excellent link with surrounding three industrial areas and many industry experts are in the Boards of Study in various departments.
 - 7.7 Continuous Improvement:** Experienced personnel from different fields often bring a culture of continuous improvement. They may have insights into best practices, quality assurance, and accreditation processes that can help the institution thrive. They have significantly contributed in many quality initiatives through Internal Quality Assurance Cell (IQAC) in RNTU.
 - 7.8 Stability and Reputation:** Hiring experienced and qualified individuals has certainly enhanced RNTU's. The presence of renowned faculty and staff has attracted students, funding, and partnerships, ultimately elevating the university's standing in the academic community.
 - 7.9 Inspiration and Role Modeling:** Experienced individuals can serve as inspirational figures, motivating students and junior faculty to strive for excellence in their academic and research pursuits. This can be easily experienced in RNTU Campus.
8. The number of awards faculty and students have won at national and international levels speak of the outcome of recruiting right kind of faculty members [Exhibit 5 (Fig. 3)].

Exhibit 5**Fig.3- Awards for Excellence in Performance (Slow down after pandemic)**

Source :- Compiled by authors based on Record at various departments and IQAC-RNTU

While recruiting experienced individuals from different fields can bring many advantages, it's also essential to maintain a balance between experienced and junior faculty and staff. This diversity can create a dynamic and innovative environment where new ideas and fresh perspectives complement the wisdom and experience of senior professionals, ensuring the institution's ongoing success and growth.

V SKILL ACADEMIES – AN INNOVATIVE APPROACH

9. Establishing 20 plus Skill Academies and a Pradhan Mantri Kaushal Kendra (PMKK) within the campus of Rabindranath Tagore University (RNTU) were strategic moves. Much before Skill India initiative came, in 2012 itself RNTU made Skill Electives compulsory in higher education in all the disciplines. Each department offered some skill electives which was available across all the disciplines. Most of these were livelihood electives linked with established skill sectors by Government of India (GoI). A PMKK set up within the campus had lot of spare capacity which was used by the higher education. In addition, all the labs and workshop in the University were furnished with industry grade equipment and tools with participation from industry. This helped in providing hands on training to reduce skill gap.

9.1 Skill Development: Skill academies and PMKK provide students with opportunities to acquire practical skills that are highly valued in the job market. This aligns with RNTU's commitment to holistic education and equipping students with more than just theoretical knowledge.

9.2 Employability: By offering skill development programs and PMKK, RNTU enhances the employability of its graduates. Students can gain industry-relevant skills, making them more attractive to potential employers. The most important point is that skill training of non-Science, Technology, Engineering and Mathematics Science Technology Engineering and Mathematics (STEM) Students has resulted in overall improvement in employability.

- 9.3 Industry Collaboration:** Skill academies and PMKK often involve collaborations with industry partners. These partnerships can result in internship opportunities, on-the-job training, and potential employment for students. RNTU collaborated with over 50 industries on a regular basis.
 - 9.4 Real-World Application:** Hands-on skill development programs provide students with real-world experience, allowing them to apply their knowledge in practical scenarios.
 - 9.5 Addressing Skills Gap:** Skill academies and PMKK can contribute to addressing the skills gap in the region by producing job-ready graduates with the skills needed by local industries.
 - 9.6 Community Engagement:** These initiatives can also engage the local community by providing skill development opportunities to individuals beyond the student body, further contributing to the region's socio-economic development. Over 4K youths got benefited.
 - 9.7 Diversification of Academic Programs:** Skill academies and PMKK diversified RNTU's academic offerings, making the institution more attractive to a broader range of students who seek both traditional education and skill development.
 - 9.8 Government Initiatives:** Initiatives like PMKK are supported by government policies and could provide RNTU with additional resources and funding.
 - 9.9 Competitive Advantage:** Skill development initiatives gave RNTU a competitive advantage in the education sector, differentiating it from other institutions.
 - 9.10 Contribution to National Goals:** These initiatives aligned with national and international development goals, such as India's Skill India mission, which aims to enhance the skills of the country's workforce.
10. Establishing skill academies and a PMKK within the campus of RNTU proved to be proactive and innovative step that benefited students, the local community, and the institution itself. It reflects RNTU's commitment to holistic education and its proactive approach to addressing the evolving needs of the job market and society.

VI RESEARCH AND INNOVATION – LOOKING BEYOND

11. Establishing a Core Research and Innovation Group (CRIG) in the campus with an annual corpus of Rs 1 Crore is a substantial and noteworthy initiative to enhance research environment in the University. Based on the emerging technologies and trend RNTU chose 9 areas of interest and established 9 Centers of Research Excellence popularly called “**Navratn Centers**”. These areas were- Energy, Internet of Things (IoT) and Computing, Agriculture, Environment Engg, Science Communication, Ministry of Small and Medium Enterprises (MSME), Augmented Reality/ Virtual Reality (AR/VR), Data Science, Advanced Material and Nano Science and Social Entrepreneurship. These centers are called Navratan Centers have collaboration with various research labs in India and several relevant industries. Subsequently 10 research centers on arts, culture language sociology etc have been added and they are called ‘**Suptrishi**’. [Exhibit 6 (Table 3)]. Initially established 9 Centers of Research Excellence were mostly technical in nature. With its commitment to otherwise neglected filed of arts, culture, language, sociology etc. RNTU added 10 more centers of Research in these areas making it a total of 19 Research Centers contributing to a wide band of research fields. This initiative reflects a commitment to advancing research and innovation within the institution and has several significant implications:
- 11.1 Research Funding:** The corpus of Rs 1 Crore has provided substantial financial resources for research projects, enabling faculty and students to engage in in-depth and impactful research endeavors.

Exhibit – 6**Table 3 RNTU Centers of Research Excellence**

RNTU Research Centers	
Navratn Centers (Technology & Science)	Saptrishi Centers (Arts, Culture & Humanities)
• Center for Renewable Energy (CRE)	• Tagore International Center for Arts & Culture (TICAC)
• Agriculture Research Center (ARC)	• Bhasha Shikshan Kendra (BSK)
• Advanced Material Research Lab (AMRL)	• Anuvad Kendra (Translation & Foreign Language) (AK)
• Center for IoT & Advance Computing (CIAC)	• Pravasi Bhartiya Sahitya Evam Sanskriti Shodh Kendra (PBSSK)
•	•
• Center for Advanced Water & Environmental Research (CAWER)	• Sanskrit, Prachya Bhasha Evam Bhartiya Gyan Parampara Kendra (SPBB)
• Dr. C.V. Raman Center for Science Communication (CSC)	• Vanmali Srijan Peeth (VSP)
• Future Skills Academy	• Lok Bhasha evam Sanskriti Kendra
• Atal Incubation Center (AIC)	• Center for Women Entrepreneurship
• Center for Skill Dev & PMKK	• Santosh Choubey Center for Social Entrepreneurship
	• Livelihood Resource Center

Source – IQAC-RNTU Records

- 11.2 Research Centers:** The establishment of nine research centers subsequently grown to 19 signifies a diverse and comprehensive approach to research. Each center could focus on specific areas of study, fostering interdisciplinary collaborations and specialization.
- 11.3 Cutting-Edge Research:** With such financial backing and dedicated research centers, the University could pursue cutting-edge research that addresses real-world challenges and contributes to advancements in various fields. [Exhibit 6 (Table 3)] and [Exhibit 7 (Table 4)]
- 11.4 Knowledge Generation:** The research conducted within CRIG has the potential to generate new knowledge, which could be disseminated through publications, patents, and innovative solutions. Research publications, patent and projects are testimony to this fact [Exhibit 8 Fig. 5]
- 11.5 Collaborations:** The research centers could serve as hubs for collaboration with other institutions, industry partners, and government agencies, enhancing the institution's network and influence. RNTU has collaborated with over 50 organisations.

- 11.6 Industry Relevance:** Research outcomes could be tailored to address industry needs, driving innovation and contributing to economic growth and development. 76 consultancy projects in last 5 years support this belief [Exhibit 7 Table 4]

Exhibit 7

Table 4 Year wise total numbers of Consultancy Projects at RNTU			
Year	No. of Consultancy Projects	Research Projects	Total Amount
2017-18	11	2	2.1 Cr.
2018-19	12	3	2.4 Cr.
2019-20	15	15	2.7 Cr.
2020-21	8	9	1 Cr.
2021-22	15	13 +	1.6 Cr.
2022-23	15	15	2.7 Cr.
Total	76	47	12.4 Cr.

Source :- Annual Reports of RNTU and IQAC, RNTU Research

- 1.1 Contribution to Academia:** The research centers could contribute to the academic community by publishing in high-impact journals, participating in conferences, and sharing findings with the global research community. [Exhibit 11 Table -6]
- 1.2 Student Engagement:** Research opportunities within CRIG could engage students in meaningful projects, enriching their educational experience and fostering a culture of innovation and inquiry.
- 1.3 Promotion of SDGs:** The research conducted within CRIG could contribute to Sustainable Development Goals (SDGs) by addressing social, economic, and environmental challenges.
- 1.4 Strategic Investment:** The allocation of such a substantial corpus demonstrate the strategic vision of the RNTU in advancing research and innovation as a central pillar of its mission.
12. CRIG within the AISECT Group of Universities, with its significant financial resources and nineteen research centers, is poised to make a substantial impact on research, innovation, and academic excellence. This initiative positions the university as a hub for knowledge generation and solution-oriented research that can positively influence both academia and society at large. RNTU's Track record of last 5 years fully assures this.

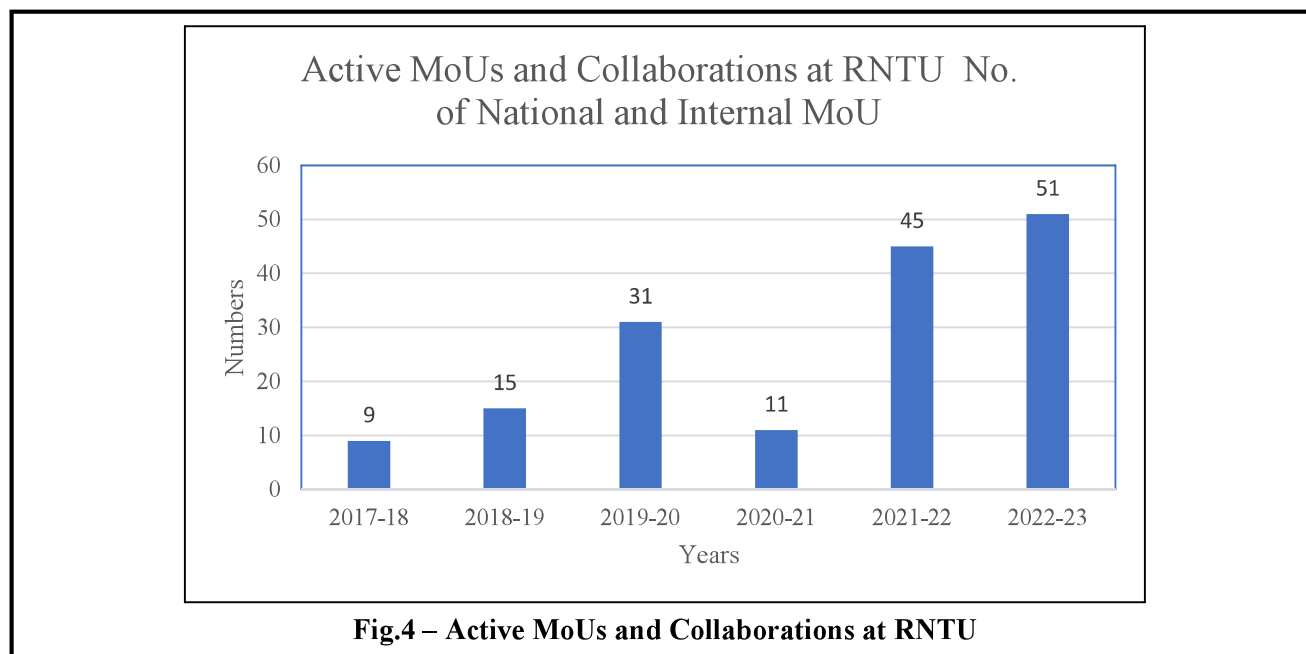
VII ENTREPRENEURSHIP DEVELOPMENT

13. Rabindranath Tagore University (RNTU) offering training and support to entrepreneurship is a commendable initiative. This approach has paid in a big way and RNTU became the first Private University in central India which was awarded **Atal Incubation Center by Neeti Aayog GoI**. The charged atmosphere in the University had many positive implications: -
- 13.1 Entrepreneurial Skills:** RNTU's training programs equipped students and aspiring entrepreneurs with essential entrepreneurial skills such as business planning, financial management, marketing, and leadership.
- 13.2 Innovation and Creativity:** Entrepreneurship training supported encourages innovation and creativity, fostering an environment where students could develop and implement new ideas and solutions.

13.3 Business Incubation: RNTU at Incubation Center provided facilities and resources for business incubation, enabling start-ups to develop and grow within a supportive environment.

13.4 Industry Networking: Entrepreneurship programs facilitated networking opportunities with industry experts, potential investors, and mentors who could provide guidance and resources.

Exhibit 8



Source :- Compiled by the authors based on MoUs available in the University

13.5 Start-Up Funding: Atal Incubation at RNTU offered access to start-up funding, grants, or venture capital, helping students and entrepreneurs turn their ideas into viable businesses.

13.6 Practical Experience: Students gained practical experience in entrepreneurship, which was invaluable when starting and running their own businesses.

13.7 Economic Development: Encouraging entrepreneurship contributed to economic development by creating jobs, boosting local economies, and fostering innovation.

13.8 Research and Development: Entrepreneurship often involved research and development activities, which align with the university's research initiatives. Research facilities have come handy for this.

13.9 Community Engagement: RNTU's support for entrepreneurship was also extended to the local community, providing opportunities for community members to start and grow businesses.

13.10 Inclusivity and Diversity: Entrepreneurship programs was mostly inclusive and encouraged diversity, allowing individuals from various backgrounds to participate in the entrepreneurial ecosystem.

14. RNTU's commitment to training and supporting entrepreneurship is an investment in the future of its students, the local community, and the broader economy. It empowered individuals to become job creators and innovators while aligning with global goals for economic growth and sustainability. 87 successful startups in last 5 years support this.

VIII SOCIAL CONNECT- MOST ESSENTIAL PART OF EDUCATION

15. Adopting five surrounding villages namely Village Mendua, Keerath Nagar, Chandlakhedi, Teelendi, Goklakundi is a laudable and impactful initiative by Rabindranath Tagore University (RNTU). This demonstrates the institution's commitment to community development and social responsibility. Here are some of the key benefits and implications of this initiative:
 - 15.1 Community Development:** By adopting these villages, RNTU actively contributed to the development of the local community. This included initiatives related to education, healthcare, sanitation, infrastructure, and more.
 - 15.2 Access to Education:** RNTU extended its educational resources and expertise to these villages, potentially establishing programs or offering resources to improve educational outcomes for students in rural areas.
 - 15.3 Healthcare Services:** RNTU worked on healthcare initiatives, including medical camps, health awareness programs, and improving access to healthcare services for villagers. An OPD opened in RNTU has been of immense benefit to village people.
 - 15.4 Skill Development:** Skill development programs extended to these villages are empowering individuals with practical skills and enhancing their employability through PMKK.
 - 15.5 Economic Development:** RNTU's involvement can stimulate economic development in these villages by promoting entrepreneurship, agriculture, and local businesses.
 - 15.6 Environmental Initiatives:** The university has engaged in environmental awareness and conservation efforts in these villages, promoting sustainable practices.
 - 15.7 Social Inclusiveness:** RNTU's initiatives has been promoting inclusiveness by reaching out to marginalized communities and ensuring that the benefits of development are accessible to all.
 - 15.8 Research and Outreach:** RNTU's faculty and students have engaged in research projects that are directly relevant to the challenges and opportunities in these villages. This research has contributed to evidence-based solutions.
 - 15.9 Cultural Preservation:** RNTU is contributing in preserving and promoting the cultural heritage of these villages, enriching the cultural fabric of the region.
 - 15.10 Community Engagement:** The initiative fosters a strong sense of community engagement among RNTU's students, faculty, and staff, encouraging them to actively participate in projects that make a meaningful impact on society. 394 activities were done in these adopted villages [Exhibit -2 Table -1]
 - 15.11 Team work, Character Building and Sensitivity:** Working in rural area connects youth to the roots of our culture and promotes team spirit, sensitivity and character building.
16. Adopting five surrounding villages demonstrates RNTU's commitment to being a socially responsible institution. It not only enhances the well-being and development of these communities but also provides students with opportunities for experiential learning and community engagement. This initiative reflects RNTU's broader role in addressing societal challenges and contributing to the betterment of the region.

IX SIGNIFICANT MILE STONES OF UNIQUE RNTU's JOURNEY

17. RNTU converted risks and challenges in to opportunities and went ahead to carve a niche for itself. Some notable milestones of its unique journey are-

17.1 Quality Acknowledgements: Right from its inception RNTU's main focus was on quality of education. Various initiatives taken as discussed in preceding paragraphs resulted in recognition at national and international platforms. It won '**Shiksha Ratn**' awards in 2011. Skill Excellence award of central government in 2013 and since then RNTU has continued winning awards at national and international level for excellence in academics, research, skill and innovation. 5 NIRF ranking 5 years in a row and Innovation Council of RNTU being amongst 9 institutes in central India to get four-star rating by the Ministry of Education GoI put RNTU in a class.

17.2 NIRF Ranking: For last 5 years RNTU has remained in the top 200 institutions in the country. In central India it became the only private university to achieve this distinction. [Exhibit -9 Table -5]

Exhibit 9

Table 5 RNTU NIRF Ranking and four-star rating for innovation

Year	Rank Band	Category
2019	151-200	Universities
2020	151-200	Overall
2020	151-200	Universities
2021	151-200	Overall
2022	101-150	Universities
2022	167	Engineering
2022	151-200	Universities
2023	151-200	Universities



Source :- Annual Reports of RNTU and IQAC, RNTU Research and UGC Reports

17.2.1 Awards Galore: Faculty and students have won record number of awards for their academic and research performance. Year after year RNTU has received awards for its outstanding performance in the field of education at national and international forums. [Exhibit 5 Fig. 3]

17.2.2 Initiatives in Arts Culture & Literature. RNTU received international recognition for spreading Hindi, Indian regional languages, arts and culture through '**Vishwa Rang**' annual international festival of arts and culture in over 50 countries all over the world every year.

17.3 Research Excellence: Research has many dimensions RNTU excelled in all dimensions.

17.3.1 Research Paper Publication: The faculty of RNTU have published record number of Research Papers in high impact research journals. In last five years it has published over 1500 research papers in world class journals.

17.3.2 Text Books and Edited Books: Publication of over 50 Text books and over 50 Edited books by the authors from RNTU became a record.

17.3.3 Research Events: Seminars, Conferences, Conclaves etc provide a synergic platform to share, discuss and exchange research ideas and outcomes and develop a collaborative research culture. Right from regional events to international event like Conference on Water, Energy, Environment and Society where over 20 countries participate RNTU has set up a benchmark for research events in quantity and quality.

17.3.4 Research Projects & Consultancy: RNTU has been awarded externally funded 16 projects from Department of Science and Technology (DST), Defense Research & Development Organization (DRDO), Ministry of Natural Resources and Forestry (MNRF), Madhya Pradesh Council of Science and Technology (MPCST) etc- during last 5 years 31 projects have been internally funded. There are 76 consultancy assignments in the field of agriculture environment, civil engineering, energy etc with RNTU. [Exhibit 7 Table 4]

17.4 Skill Initiatives: In central India, RNTU was the first to introduce compulsory skill electives as part of the curriculum across all the disciplines. Later NEP-20 also brought this a policy level. To make it effective RNTU established 15 skill academics and linked with skill sector offering over 30 skills.

17.5 Holistic Development and Fitness for All: State of the Arts Sports facilities, modern gym, yoga initiatives and credits for sports has motivated all students and faculty to look after their physical fitness. As a result, students of RNTU have made international records in Climbing, Athletics, Wrestling, fencing, Judo, Cricket etc. [Exhibit 11 Table 6]

17.6 Technology and Infrastructure: Smart class rooms, smart labs and most modern computer lab, Library have brought in a total change in academic and research environment in RNTU.

17.7 Entrepreneurship – The New Age Mantra: Producing job creators also rather than only job seeker, has been the objective of RNTU. This dream started with establishment of Entrepreneurship Development (ED) Cell but it got the wings when based on the potential and capabilities Neeti Aayog GoI provided first Atal Incubation Center (AIC-RNTU). It has incubated over 100 ideas ending up in 87 successfully startups. [Exhibit 10 Fig. 5]

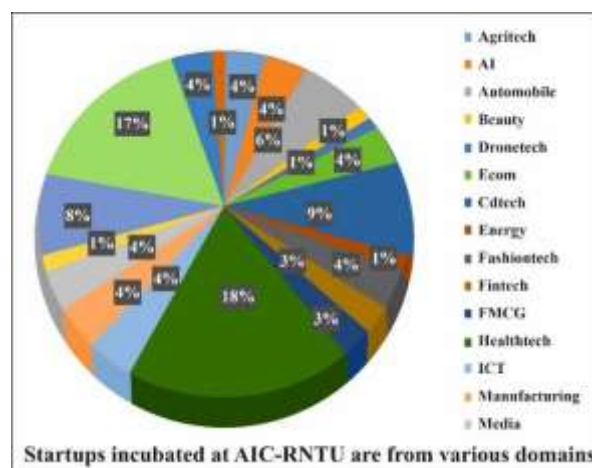
17.7.1 Successful 80 + Startups: AIC-RNTU has been able to provide 87 startups which are employing a workforce of over thousand people. There are number of startups in the area of social services and welfare activities.

Exhibit 10

Fig. 5- Startups at AIC-RNTU

Year	No. of Startups	No. of Mentors	Industrial Tieups
2018-19	2	26	13
2019-20	22	18	14
2020-21	21	20	9
2021-22	11	10	9
2022-23	31	8	18
Total	87	82	63

Start ups have provided over 1000 permant jobs



Source: - Records from AIC-RNTU

17.7.2 Mentors and Industry Support: There are over 80 mentors from industry and corporate world registered in AIC-RNTU. RNTU has a strong Industry- Academia interface. This has provided a very strong support system for successful startups.

17.7.3 Motivation through All India Competition: In collaboration with Confederation of Indian Industry (CII), RNTU organizes competition for startups ideas at national level since last 5 years which has motivated several students at school and college level.

17.8 Core Research & Innovation Group (CRIG): This is the most unique initiative of RNTU. Normally for a private university it is difficult to get government research funding. RNTU established an annual corpus of Rs. 1 Crore and created an apex body CRIG to look after research and innovation in the University.

17.8.1 Internally Funded Projects: CRIG has supported 31 projects in last 5 years' time in RNTU.

17.8.2 Multidisciplinary Approach: CRIG has encouraged team spirit and multidisciplinary approach in research with the result faculty members are doing now multidisciplinary projects for which CRIG is allocating the fund.

17.9 Flagship Research Events: In addition to several events like seminar, workshops, conferences, competitions, demonstrations and guest lectures there are two annual research events where research is celebrated like a festival.

17.9.1 Vishwa Rang : This is a unique annual event where over 50 countries participate. This 10 days long festival is of arts, culture, literature, paintings, dramatics and all form of performing arts. This is biggest such festival in Asia held both online and offline in which over 500 renowned artists, writers, painters take part. It has been highly appreciated by President, Prime Minister and other VIPs.

17.9.2 Shodh Shikhar : This festival is complimentary to Vishwa Rang. Research Projects, Research Papers and Posters are presented by scholars, Scientist, students, faculty and people from industry at all India level with over 1K participants.

17.9.3 International Research Event: Annually on Energy, Water Environment, Emerging Technology and Society an International Research Conference is organized and proceedings published.

X IMPACT OF RNTU INITIATIVES

18. The initiatives taken by Rabindranath Tagore University (RNTU) have had a significant impact on various aspects of the institution and the communities it serves. Here's a summary of the impact of these initiatives:

18.1 Bench Mark of Overall Performance

Quality has been the core issue for RNTU since its inception. It took 11 front action plan and provided men, material and equipment resources of world quality.

- **Impact:** Being only private university in central India to get NIRF ranking for 5 years in a row, being first to get Atal Incubation Center from GoI, being first to introduce skills in course curriculum and being first to set up 19 research centers, RNTU has set a very higher Bench Mark for others to follow.

18.2 Research Excellence:

Establishment of Core Research and Innovation Group (CRIG) with a corpus of Rs. 1 Crore, 19 Centers of Research with state of the art facilities, Institute of Training Development & Policy Research (ITDPR) Institution's Innovation Council (IIC-RNTU) and introduction of attractive motivational schemes proved to be a game changer for RNTU and created an environment of research and innovation in the University.

- **Impact:** Increased research output in high-impact journals reflects RNTU's growing influence in the academic and research community. It positions the university as a hub for cutting-edge research. Two peer review biannual journals '**Anusandhan**' and '**Shodhaytan**' published by RNTU have published over 500 research papers from researchers world over. RNTU faculty have published over 1000 research papers in various world class journals. They have published over 50 text books and equal amount of edited books. There are projects from DST, DRDO, MNRE, ICAR etc, over 30 projects internally funded have helped in boosting research. RNTU's Innovation Council has been provided 4* rating by Ministry of Education and for its research outcome RNTU is in NIRF ranking. In last five years the university has done over 76 projects of Consultancy and 47 Research Projects from various industries, DRDO, DST, MNRE, MPCST, BDB, ICAR, etc.

Exhibit 11

Table 6 Research Activities Summary Number of Research Activities Numbers and Funding Agencies	
• DST	4 Research Projects
• DRDO	2 Research Projects
• ICSSR	1 Research Project
• IIFM	1 Research Project
• MP Govt	4 Research Projects
• MPCST	4 Research Projects
• CRIG	31 Research Projects
• International Research Conference in 5 years	20 + * International Conferences on Water, Energy, Environment & Society (20 Countries) * Vishwarang International Conference on Arts & Culture (50 + countries)
• National and Regional Academic event in last 5 years	250 +
• Research Papers Published in last 5 years	1500 + (600 in Scopus and equivalent)
• Patents	70 + [Patents related to current national concerns]
• Books Published (Text Book)	52 + (Edited Books – 56)

Source- compiled by authors from Records and Reports at CRIG, IQAC and Department and News Media

18.3 Interdisciplinary Collaboration:

Multidisciplinary approach was embedded in the RNTU curriculum from its inception, Arts, Culture, language were made part of professional curriculum and similarly Professional Skills were made part of Arts and Humanities curriculum.

- **Impact:** Collaborations across disciplines has resulted in innovative solutions to complex problems and a more comprehensive educational experience for students. All the internally funded and some of externally funded projects are multidisciplinary in nature. Multidisciplinary approach applied in research and consultancy has improved quality of outputs in 76 consultancy project 16 externally funded research project and 31 internally funded research projects done by RNTU in last five years, RNTU has created a niche for itself in efficient project management and research activities.

18.4 Inclusiveness and Community Engagement:

Adopting 5 villages was the beginning of the initiative. Health campus, Awareness Programmes, Education drive, Sports and Skill Coaching camp for village youth '**Kissan Gosthi**' for farmers and '**Legal Aid Clinic**' and OPD for villagers have been some of the strong initiatives of RNTU for inclusiveness and community engagement.

- **Impact:** RNTU's community engagement initiatives have not only benefited local communities but also fostered a culture of social responsibility among students and faculty. This can be seen in all the villages adopted by University where a general improvement in all dimensions are visible. In last 5 years' students organized 394 activities in these villages. Extension activities conducted in 5 adopted villages during last 5 years has brought sea change on both sides. It has not only exposed the rural population to health awareness, govt programmes, importance of cleanliness and hygiene but also the University threw open many facilities including skill programmes through '**Kisan Gosthi**', '**Kisan Mela**' and '**Coaching Camp for Village Youths**'. On the other side it brought significant behavioral changes in students.

18.5 Scholarships and Financial Aid:

RNTU provides quality education at very low fees. Almost over 80% of the students are provided significant subsidy, concession and scholarship making quality education affordable to rural population.

- **Impact:** Scholarships and financial aid has made education more accessible, ensuring that a broader demographic of students can pursue higher education and improve their future prospects. This has showed a direct impact on GER.

18.6 Skill Development Programs:

Establishment of PMKK within the campus and setting up over 30 Skill Academies proved key initiative for skill development in higher education.

- **Impact:** Skill development programs have enhanced participants' employability, addressing the demand for practical skills in the job market. A genial improvement in placement can be attributed to this initiative.

18.7 Innovation and Entrepreneurship Support:

There were five major initiatives taken by RNTU. First Entrepreneurship Development Course in the curriculum across all discipline. Second establishing a vibrant Innovation Council. Third, establishment of Atal Incubation Center by GoI with excellent facilities, Fourth collaboration with large number of industries. Fifth, incentives for entrepreneurship.

- **Impact:** Incubating over 80 start-up ventures have contributed to economic development, job creation, and innovation, while offering students opportunities for real-world application of their knowledge. Over 80 plus startups have created 100 plus entrepreneurs and over 500 new jobs.

18.8 Green Initiatives

In addition to inherent locational advantage of green hills in front and back of the University RNTU has taken number of innovative measures. In the campus transportation is on solar carts, developed in house by the University. Electric power is supplied by solar resources designed by Energy Research Center of the University Water harvesting system of the university designed by center for Water Environment aims, for zero wastage. Waste disposal is converted to energy for the University kitchen. Plantation drives have made the campus green and picturesque.

- **Impact:** RNTU is amongst 18 campus in India chosen as green campus by MNRE, GoI. Initiatives have brought green discipline is faculty and students. The campus is litter free. With self-motivation the University is moving towards cashless and paperless campus. On their own students and faculty have taken up some internally funded projects to enhance green initiatives, to reduce carbon production. These initiatives have not only brought a green change in 5K students and 500 staff but has changed outlook of 5K families.

18.9 NEP-20 Implementation

RNTU did not wait for govt initiatives for implementing NEP-20. Incidentally some of the, directives in NEP-20 like skills, extension activities, outcome based curriculum with continuous evaluation system and holistic development were already part of academic system in RNTU much before NEP-20 came. RNTU took proactive measures, formed a task force and most of the provisions of NEP-20 were implemented by RNTU. A nicely designed Information and Monitoring System, 38 Policy documents, Manuals and Procedure Guides large number of formal committee/bodies and automated feedback not only add to the quality of academic administration but also has made NEP alignment easier for RNTU.

- **Impact:** There is a visible change in the quality of pass outs as reported in the feedback by employers and guardians of the students. Research outputs have increased and multidisciplinary approach has brought spirit –de-corps.

18.10 Festivities, Arts Culture and Sports:

RNTU, from it's inception was strong supporter of holistic development approach for its faculty and students. It is the only University which has a huge Tagore International Center for Arts and Culture promoting languages, dramatics, Cultural activities. A modern School of Drama provide UG and PG level formal education in dramatics, cinematic arts and creative writing works on same line as National School of Drama. There are two big flagship annual events at international level '**Shodh Shikhar**' is annual research festival in which from school to universities and industries to research organisations participate in Project Displays Competition and Research Paper Presentation Competition. '**Vishwa Rang**' is annual festival of Arts Culture Language, Literature Painting Music and Dramatics in which over 50 countries participate. In addition to above there are almost over 50 cultural and 50 academic/research events every year keep festive energy alive. World class facilities for sports and motivation for sports provide cutting edge to holistic development.

- **Impact:** With '**Vishwa Rang**', RNTU has become the real ambassador for Hindi, Indian Arts & Culture in whole world. '**Shodh Shikhar**' has boosted culture of innovation, research and project culture amongst youth. Sports facilities and motivation has produced international and national sports stars in RNTU. This has improved general awareness amongst faculty and students towards fitness and need for holistic development.

Exhibit 12**Table 7 RNTU Major Sports Achievements**

Sporting Stars RNTU Sports Academies	
• Megha Parmar	First woman from MP to reach summit of Mt. Everest
• Nandini Vats	Gold Medal Judo Commonwealth games
• Priyadarshi Prajapati	Gold Medal Wrestling All India University Champion
• Himanshi	Gold Medal Judo Khelo India Champion
• Manisha	Silver Medal Athletics All India University Games
• Anjana Yadav	First woman from MP to climb Mount Elbrus
• Team RNTU	Fencing – All India Bronze
• Team RNTU	Volley ball West Zone champion
• Team RNTU	Women Hockey West Zone champion
• Team RNTU	Cricket MP Regional Champion
Over 100 Medals in Regional, National and International Events	

Source – Record of Sports Dept RNTU and News Media

18.11 Global Collaboration

RNTU has over 100 ongoing collaborations within India and abroad through MoUs, agreement and Research/Academic joint projects, enhancing exposure and outlook of faculty and students

- **Impact:** Partnerships with international universities have enriched the academic experience, providing students with global exposure and broadening their horizons. Faculty and students have visited to Romania, USA, UK, Germany, Italy etc under the collaboration.

18.12 Modern Infrastructure:

Impact: Upgraded infrastructure, Modern Labs, Huge Library, Future Skill Academies, Research Resources, Modern Audio Visual Studio etc have enhanced the learning environment, making it more conducive to academic and research activities which is clear from feedbacks of students and parents.

19. In conclusion, these initiatives collectively position RNTU as a hub for quality education and research while fostering inclusiveness, accessibility, and community engagement. During the period under examination RNTU saw the most dreaded time of Covid which adversely affected performance of all other HEIs, but RNTU showed its consistency and quick recovery. Rich work culture and loyalty of the staff become drive-up force to make renewed efforts. The impact of these efforts extends beyond the university, positively affecting local communities, the employability of students, and the broader academic landscape. RNTU's commitment to Sustainable Development Goal 4 is evident through these initiatives and their tangible, positive effects on higher education sector and society by large.

Employers' Perspective About Early Attrition in Pharmaceutical Companies of Andhra Pradesh and Telangana

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ABSTRACT

In the pharmaceutical sector, managing skilled manpower has always been a challenge. Recently, however, addressing early attrition has emerged as a key concern. This research aims to uncover the perceptions of employers (specifically recruiters) regarding early attrition among new hires in the pharmaceutical industry across Telangana and Andhra Pradesh. The study zeroes in on discerning the actual reasons behind entry-level attrition in various pharmaceutical companies, particularly in Telangana. A structured interview questionnaire was employed, targeting approximately 150 HR heads from diverse pharmaceutical firms in both states. With early attrition becoming a ubiquitous issue, fostering employee retention has increasingly become a critical aspect of HR's role in ensuring business continuity. This study endeavours to ascertain whether there is common or differing reasons for early attrition among HR professionals in the pharmaceutical industry within these two states.

Key Words: Attrition, Pharmaceutical, Employers Perspective, Voluntary and involuntary attrition, Andhra Pradesh & Telangana.

I INTRODUCTION

Employee turnover intention is a key factor in organizational dynamics. It involves understanding and measuring the reasons behind employees' decisions to leave, enabling the development of strategic plans to address these issues. Turnover intentions are broadly categorized into two types.

- (a) **Voluntary Turnover Intention:** This occurs when employees choose to leave their job for reasons such as finding superior employment opportunities, dissatisfaction with their current role, personal health concerns, or family relocation, among others.
- (b) **Involuntary Turnover Intention:** This type of turnover happens when an employee's departure is not self-initiated but due to external factors like substandard performance, misconduct, or in unfortunate cases, the employee's demise.

Recognizing and differentiating between these two forms of turnover intention is crucial for effective organizational management and decision-making.

This research primarily concentrates on voluntary turnover intentions, warranting a more in-depth exploration of this area. For organizations to develop and implement successful retention strategies, it is essential that both senior and line management comprehend the underlying factors prompting employees to voluntarily seek alternative employment opportunities. A broader examination reveals that the heightened attrition rates may partly stem from the emergence of new companies, which has escalated the demand for jobs recently. This surge in demand, coupled with a relative scarcity of qualified professionals in the pharmaceutical sector, has resulted in a significant gap between demand and supply in the job market. While numerous studies have investigated these

two critical areas to understand the drivers of high attrition, there is a noticeable dearth of research exploring employers' perspectives on the causes of early employee turnover. This research gap has been the impetus for initiating the current study.

II REVIEW OF LITERATURE

As Mentioned above there are various studies that have been carried forwarded regarding the various reasons for the early attrition.

According to the various findings from "Marcus Buckingham" and "Curt Coffman", "If employees don't get along with their managers, don't like them or don't respect them, they will leave a company despite a high salary or great benefits. A good manager, no matter the salary, will inspire loyalty." Kim and Stoner, 2008 stressed that workers expect to leave on account of variables identified with individual (e.g., statistic components or identity), work (e.g., nature, substance or outline of employment) or association (e.g., pay, director or associate). Social help and occupation self-governance may have an immediate negative effect on the representative turnover goal. Terence et al., 2001 stated that there are various reasons why an employee leaves the organization voluntarily. Some may be personal and some may be influenced by organizational factors. Personal reasons such as family situation, career growth and attractive job offers etc. Organization factors includes lack of promotional opportunities, unfair treatment among employees and mismatch between personal values and organizational values etc., Overall turnover is a great problem for both organization and individual. Deepa and Stella, 2012, in their exploratory investigation featured various components which add to worker turnover. Socioeconomics, Organization's execution, Organization's

culture (as far as its reward framework, authority, shared objectives and so on.), Employees individual attributes (like want to learn, change in close to home life, new occupation offer and so on.), Job qualities, Unrealistic desires are the elements that are seen to upgrade worker turnover. Adhikari, 2009 distinguished the components influencing worker wearing down. The paper recognized four elements. Business related issues have the best effect on whittling down. The other three being manager related issue, aptitude of workers and the pay. Pay appeared to have minimal impact on steady loss. Ms. Deepti Sinha and co 2013, a study on employee retention in pharmaceutical study conducted in Dehradun city states that a proactive approach with lot of employee related benefits is very critical to the organization to retain the talented employees. Saleem and Affandi, 2014 investigated the effect which Human Resources hones have on the worker steady loss. Reasonableness of remunerations and development openings were viewed as the key components impacting the employees' choice to leave an association. According to Mr. S.V. Jayapal Reddy et. al. 2023 study, out of the 11 factors career for change stood out to be the top most reason while compelling family reasons took the second position. While the other factors like inadequate salary, workplace distance, health impact, lack of recognition, pursuing higher studies and issues with the reporting manager followed.

III PROBLEM STATEMENT

This study seeks to explore and understand the perspectives of employers regarding early employee attrition within pharmaceutical companies.

IV OBJECTIVES OF THE STUDY

The objective of the study are

- To identify the diverse reasons perceived by employers for early attrition in their organizations.
- To examine the commonalities in employers' perspectives on this issue.
- To analyse the differences in thought patterns among various employers regarding early attrition.
- To uncover any new, previously unexplored reasons contributing to early attrition.

V METHODOLOGY

This study employs a structured questionnaire to address the problem statement and achieve its objectives. The questionnaire comprises 11 closed-ended questions and one open-ended question. For the closed-ended questions, a 5-point rating scale is utilized, represented in percentage intervals: less than 10%, 10-30%, 30-50%, 50-70%, and above 70%. These intervals are generally set at 20% increments, with adjustments made for the first and last

categories to reflect their distinct significance. The questionnaire was distributed online through a link shared with employers within the research scope. From over 150 employers contacted, 89 responses were initially received. After a thorough review, it was determined that 78 responses were relevant to the study's focus. Further analysis revealed participation from 47 unique companies, including 5 from Andhra Pradesh and 42 from Telangana State.

VI SCOPE OF THE STUDY

The scope of this research is confined to key employers from pharmaceutical industry, specifically Human Resources leaders of companies with a turnover exceeding Rs. 500 crore, located in the Andhra Pradesh and Telangana States.

VII DATA ANALYSIS AND INTERPRETATION

- Comparison between the two states:** The below table represents average scores of two states against each of the reason.

Table 1 - Computer between AP & TS

Reasons	AP	TS
Work Load	2.6	1.8
Colleagues	1.5	1.5
HR Polices	2.6	1.9
Manager	2.9	2.9
Culture	2.8	2.8
Employee Engagement	2.4	2.0
Health & Wellness	2.2	2.1
Compensation	3.6	2.8
Learning Opportunities	2.5	2.3
Career Opportunities	4.2	2.8
Job Satisfaction	3.0	2.7

The provided data table offers insights into the average scores attributed to various reasons for early attrition across employers in Andhra Pradesh and Telangana. In Andhra Pradesh, career opportunities emerged as a predominant factor, with an average score of 4.2 from five companies. This suggests that employers believe over 70% of early attrition is driven by employees seeking better career opportunities. Following this, compensation is identified as the next significant reason, with an average score of 3.6, indicating employers' perception that over 50% of early attrition is due to improved compensation offers elsewhere. In contrast, in Telangana, the primary reason identified is the influence of reporting managers, with an average score of 2.9 across 42 companies. This implies that, according to

employer opinions, around 50% of early attrition is influenced by issues related to reporting managers. Additionally, organizational culture and career opportunities jointly hold the second position, each with an average score of 2.8.

From the table we can understand that career opportunities have scored 4.2 on average from the five companies. This means that the employer opines that more than 70% of the early attrition is happening due to better career opportunities. The next reason is compensation with 3.6 average. Which means that the employers feel that more

than 50% of the early attrition is happening due to better compensation. On the contrary in Telangana, Reporting manager stands with average of 2.9 from 42 companies. Which means as per the opinion of the employers, close to 50% of early attrition is happening due to Reporting managers. While culture and career opportunities stand in the second position with the average score of 2.8.

(b) Company wise Analysis: Below table represents the company wise data of both Andhra Pradesh 5 companies and Telangana 42 companies with the reasons for attrition based on the employer.

Table 2 – Company wise Analysis

TS Companies	Work Load	Colleagues	HR Policies	Manager	Culture	Employee Engagement	Health & Wellness	Compensation	Learning Opportunities	Career Opportunities	Job Satisfaction
C1	2.3	1.8	2.3	3.5	3.5	1.8	2.0	3.0	2.3	2.5	2.3
C2	1.5	2.5	1.5	2.0	3.0	2.0	2.0	3.0	2.0	2.5	3.0
C3	2.2	1.2	1.5	2.2	2.2	1.7	1.7	2.8	2.0	2.3	2.5
C4	1.0	1.0	1.0	1.5	2.0	1.5	1.5	3.0	2.0	3.0	2.0
C5	1.3	1.5	2.3	4.3	3.5	3.3	3.3	3.3	3.8	2.5	3.5
C6	2.3	1.7	1.8	2.2	2.8	1.8	1.8	3.0	2.8	3.2	3.2
C7	1.0	1.5	1.5	3.5	2.5	1.5	2.0	3.5	3.5	4.0	2.5
C8	2.0	2.5	3.0	4.0	4.0	2.0	2.0	3.5	3.0	3.0	3.5
C9	1.5	1.2	1.0	2.7	2.2	1.8	1.2	2.0	2.0	2.0	2.2
C10	1.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0
C11	2.0	1.0	2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0
C12	2.0	1.0	1.0	3.0	3.0	4.0	3.0	5.0	3.0	3.0	5.0
C13	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
C14	3.0	2.0	5.0	4.0	5.0	1.0	5.0	5.0	3.0	5.0	5.0
C15	1.0	1.0	2.0	1.0	2.0	2.0	2.0	1.0	1.0	2.0	2.0
C16	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
C17	3.0	1.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0
C18	2.0	2.0	2.0	3.0	3.0	2.0	1.0	3.0	2.0	2.0	2.0
C19	4.0	4.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	3.0
C20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
C21	1.0	1.0	3.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	4.0
C22	3.0	2.0	4.0	3.0	4.0	3.0	2.0	4.0	3.0	4.0	4.0
C23	2.0	1.0	4.0	2.0	2.0	1.0	1.0	2.0	3.0	3.0	3.0
C24	2.0	1.0	1.0	2.0	2.0	1.0	1.0	2.0	1.0	2.0	2.0
C25	2.0	1.0	1.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0
C26	2.0	1.0	1.0	1.0	2.0	2.0	3.0	1.0	3.0	3.0	2.0
C27	2.0	1.0	2.0	4.0	2.0	1.0	2.0	3.0	1.0	3.0	3.0
C28	1.0	1.0	1.0	3.0	2.0	1.0	1.0	3.0	1.0	2.0	2.0
C29	1.0	1.0	3.0	2.0	3.0	1.0	2.0	3.0	2.0	2.0	2.0
C30	3.0	2.0	3.0	3.0	3.0	1.0	2.0	3.0	1.0	2.0	2.0
C31	3.0	1.0	2.0	5.0	4.0	1.0	2.0	3.0	2.0	3.0	4.0
C32	3.0	4.0	3.0	5.0	5.0	5.0	5.0	4.0	4.0	3.0	4.0
C33	1.0	1.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	3.0	3.0
C34	1.0	1.0	1.0	1.0	2.0	1.0	2.0	4.0	2.0	4.0	2.0
C35	3.0	3.0	1.0	4.0	2.0	2.0	1.0	3.0	2.0	2.0	2.0
C36	1.0	1.0	1.0	4.0	2.0	1.0	1.0	2.0	1.0	2.0	1.0
C37	1.0	1.0	3.0	4.0	4.0	2.0	2.0	2.0	3.0	3.0	2.0
C38	1.0	1.0	2.0	2.0	2.0	1.0	1.0	3.0	2.0	2.0	3.0
C39	1.0	1.0	1.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0
C40	3.0	3.0	3.0	5.0	5.0	5.0	3.0	4.0	4.0	5.0	5.0
C41	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
C42	1.0	1.0	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0
TS- Average	1.8	1.5	1.9	2.9	2.8	2.0	2.1	2.8	2.3	2.8	2.7

(c) Analysis of State-Wise Average Scores:

The provided data table offers insights into the average scores attributed to various reasons for early attrition across employers in Andhra Pradesh and Telangana. In Andhra Pradesh, career opportunities emerged as a predominant factor, with an average score of 4.2 from five companies. This suggests that employers believe over 70% of early attrition is driven by employees seeking better career opportunities. Following this, compensation is identified as the next significant reason, with an average score of 3.6, indicating employers' perception that over 50% of early attrition is due to improved compensation offers elsewhere. In contrast, in Telangana, the primary reason identified is the influence of reporting managers, with an average score of 2.9 across 42 companies. This implies that, according to employer opinions, around 50% of early attrition is influenced by issues related to reporting managers. Additionally, organizational culture and career opportunities jointly hold the second position, each with an average score of 2.8.

(d) Analysis of Employer Perspectives on Early Attrition:

The data table provides insight into various employers' perceptions of the causes of early attrition within their organizations. The figures represent consolidated data from HR departments across different locations or manufacturing units, resulting in an analysis of 42 unique companies. The aggregated data reveals that the primary factor for employee departure, as perceived by employers, is related to managerial issues. Specifically, four out of 42 companies report over 70% of attrition being manager-related, and eight companies attribute more than 50% of attrition to this reason.

The second most cited reason for early attrition encompasses the '3 Cs' - Culture, Compensation, and Career Opportunities, each scoring an average of 2.8 out of

5. Interestingly, while colleagues rank as the least cited reason for early attrition, managerial influence stands out as the most significant factor. This highlights a contrast between the impact of peer relationships and managerial dynamics in the workplace.

Additionally, three companies (C19, C32, and C40) have average scores exceeding 4, indicating a high rate of early attrition potentially reflective of the organizational culture. This warrants immediate attention and suggests a need for reassessment of the workplace environment in these companies. Conversely, one company (C20) has an average score of 1, suggesting minimal early attrition issues.

Overall, the data indicates that early attrition in these companies is attributed primarily to reporting managers, organizational culture, compensation, and career opportunities. Notably, only one of these factors is monetary, suggesting that non-monetary aspects also play a crucial role in employee retention. This underscores the importance of a holistic approach to understanding and addressing the reasons behind early attrition in organizations.

Over all, as per the above table there is above average early attrition is happening and the employers opine that the reason for this attrition is majorly reporting managers, culture of the organization, compensation and career opportunities. Out of all these four factors for early attrition, only one is related to monetary while the others are not related to monetary. This is also an indication it is not only monetary which matters for working in an organization but the other factors.

(e) AP Companies: The below table is related to the companies which are from Andhra Pradesh. Since there are very few companies compared to Telangana the number of respondents also is very less.

Table 3 – AP Companies

TS Companies	Work Load	Colleagues	HR Policies	Manager	Culture	Employee Engagement	Health & Wellness	Compensation	Learning Opportunities	Career Opportunities	Job Satisfaction
C1	5.0	2.0	5.0	5.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0
C2	2.0	1.5	2.0	1.5	2.0	2.0	1.0	2.0	2.5	3.0	3.0
C3	2.0	2.0	3.0	4.0	4.0	4.0	3.0	5.0	4.0	5.0	4.0
C4	1.0	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	3.0	2.0
C5	3.0	1.0	1.0	2.0	2.0	1.0	1.0	5.0	1.0	5.0	1.0
AP- Avg	2.6	1.5	2.6	2.9	2.8	2.4	2.2	3.6	2.5	4.2	3.0

The data table reveals that employers in Andhra Pradesh predominantly attribute early attrition to enhanced career opportunities, as evidenced by an average score of 4.2 out of 5 from five responding companies. This suggests that over 70% of attrition in these companies is driven by employees seeking more favourable career prospects. Following career opportunities, compensation emerges as the next significant factor, with an average score of 3.6. Job satisfaction ranks third, with a score of 3. This indicates that, according to the employers in Andhra Pradesh, early attrition primarily occurs as employees depart in search of better career prospects, improved pay, and greater job satisfaction.

VIII FINDINGS

- (a) In Telangana, employers attribute early attrition primarily to issues related to Reporting Managers.
- (b) Employers in Andhra Pradesh believe that early attrition is predominantly due to the pursuit of Better Career Opportunities.
- (c) A comparative analysis of employer opinions from Telangana and Andhra Pradesh indicates that in Andhra Pradesh, employee turnover is driven by the search for improved career prospects, better pay, and greater job satisfaction. In contrast, in Telangana, the turnover is largely influenced by factors related to reporting managers and organizational culture.
- (d) Further insights gathered from employer comments highlight additional reasons for attrition, such as aspirations to work abroad and a preference for a five-day workweek within an appreciative working culture.

IX SUGGESTIONS

- (a) This survey reaffirms the adage that employees often leave managers, not organizations. The influx of a new generation into the workforce, characterized by diverse expectations and a desire for sophisticated work cultures, necessitates a shift in managerial approaches to effectively engage and motivate employees.
- (b) It's evident that financial remuneration alone does not suffice in retaining staff. Organizations must, therefore, prioritize fostering a positive and fulfilling workplace environment.
- (c) Furthermore, with the younger generation showing a preference for employment in metropolitan areas, companies located in smaller cities need to concentrate on cultivating an appealing work culture, coupled with long-term benefits. Such initiatives are crucial for these organizations to successfully retain their workforce.

X CONCLUSION

The study has provided valuable insights into the phenomenon of early attrition in the pharmaceutical industry, particularly in the states of Telangana and Andhra Pradesh. It has highlighted that the reasons for early attrition vary significantly between these two regions. In Telangana, the primary factor contributing to early attrition is related to the dynamics with reporting managers and organizational culture. In contrast, in Andhra Pradesh, the driving forces are better career opportunities, enhanced compensation, and job satisfaction.

This divergence in attrition factors underscores the complexity of employee retention and the need for tailored strategies that address specific regional and organizational contexts. The study has also reinforced the notion that monetary compensation is not the sole determinant of employee retention. Factors such as managerial style, workplace culture, and career development opportunities play a crucial role in influencing an employee's decision to stay with or leave an organization.

Moreover, the research findings suggest that as the workforce evolves, with a new generation of employees entering the industry, there is an increasing need for organizations to adapt. This adaptation involves not only re-evaluating compensation and benefits but also focusing on developing managerial practices and work cultures that align with the diverse expectations and values of the contemporary workforce.

In conclusion, the study offers a roadmap for pharmaceutical companies in Telangana and Andhra Pradesh to understand and effectively address the challenges of early attrition. It calls for a holistic approach to human resource management, one that balances traditional incentives with the evolving needs and aspirations of the modern workforce, thereby enhancing both employee satisfaction and organizational stability.

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- [1] Bowman, M. Peterson L. (1997). A Study on Video Browsing Strategies. *Technical Report*: 13(1), PP.8-12
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Glimpses Tagore National School of Drama (TNSD) April to Dec. 2023

~ | Stage Show by TNSD | ~



टैगोर राष्ट्रीय विद्यालय के विद्यार्थियों के निर्देशन में स्कोप कैपस में चिल्ड्रन थिएटर वर्कशॉप हल्ला गुल्ला का आयोजन



राजकमल नायक जी के निर्देशन में कविता का रंगमंच के तहत बर्टोल्ट ब्रेख्त और पाब्लो नेरुदा की कविताओं का मंचन



कुमार दास टी एन के निर्देशन में पी एम ताज द्वारा लिखित नाटक रावुन्नी की प्रस्तुति



लोकेंद्र त्रिवेदी जी के निर्देशन में नाटक राजा की मोहर की प्रस्तुति



देवेंद्र राज अंकुर के निर्देशन में संस्कृत नाटकों की प्रस्तुति



जर्मनी से आए सुकेश अरोरा के निर्देशन में डिवाइसिंग एंड फिजिकल एक्टिंग पर तैयार प्रस्तुति

Glimpses Some Significant Research Related Activities

April to Dec. 2023

~| Awards Proud Moments |~



Shri Santosh Choubey, Chairman AISECT Group of Universities received 'Vatayan International Shikhar Samman' at London (UK) on 15th Oct., 23 for outstanding services rendered for the cause of Hindi at Global level.



AISECT University Hazaribagh was awarded 'Jharkhand Gaurav Award'. Dr. Munish Govind Registrar CVRU received the award in a glittering ceremony.



C.V.R.U. Vaishali awarded 'Most Emerging University of India -2023' at Global Education Summit on 15th Oct., 23 at Hotel Taj. Prof. V.K. Verma, Chancellor received the award.



National Excellence Awards in Education were given to AISECT University Hazaribagh and CVRU Vaishali at Mumbai. Vice Chancellors, Dr. P.K. Nayak and Dr. Vimal Kumar Sharma and Registrars Dr. Munish Govind and Dr. Brijesh Singh received the award.



Glimpses Some Significant Research Related Activities April to Dec. 2023

~| Events of Substance |~



Two days National Conference and Book Release ceremony on Indian Knowledge System were organized at RNTU Bhopal on 26th-27th Oct., 23. Large number of papers were presented.



Hackathon was organized by RNTU Dept of CSE and Center of Excellence in IoT in association with IIC and AIC-RNTU on 27th Oct., 23.



Students of RNTU win prize in Technovision-23 for their Project "Smart Dust Bin in Computer and IT Project Category.



Outreach event DISCX and iDex Prime at AIC-RNTU in which large number of entrepreneurs and students participated for 72 Defence challenges. AIC-RNTU is the only organisation to receive this honor in central India.



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