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Recent Trends in Higher Education

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PREFACE

The value of higher education to society and individuals has grown, and as a result, there is a greater need to foster competent administration and initiative. In order to prepare for a progressive and borderless economy, Universities and colleges will be forced to reconsider traditional advanced education programs and past instructional methods. Understanding the broader job profile of advanced education in a globalized world is the first step toward dealing with the impending challenges. The higher education venture is providing solid, vibrant postsecondary institutions to impart the knowledge required for social versatility and financial advancement for social orders worldwide.

To properly engage their students, educators must stay current on the latest changes and key factors influencing classroom learning. Understanding these trends can assist them in creating more effective learning environments.

This book is intended to understand the recent trends in higher education, so this book will provide an idea about recent trends in different streams of higher education so it will have great help to students, junior researchers, and instructional professionals

ACKNOWLEDGEMENT

We feel fortunate to have been given the opportunity to edit and publish the edited collection "Recent trends in higher education."

First and foremost, we express our gratitude to our researchers, who work diligently in the domains of research and innovation to improve knowledge in all fields, raise people's living conditions, and make the best use of available resources.

Firstly, we would like to thank all of our family members we are grateful for always being by our side, taking care of all our responsibilities, and encouraging us to keep pushing our limits.

Secondly, we would like to express our gratitude to Mr. Sanjay Nahar, Sarhad's President, Mrs. Sushma Nahar, Sarhad's Secretary, Mr. Shailesh Wadekar, Sarhad's Trustee, and Sarhad's Principal, Dr. Hanumant R Jadhawar, for their assistance and advice. We want to express our gratitude to the Sarhad College of Art, Commerce, and Science's teaching and non-teaching personnel for their unwavering support.

We would also like to express our gratitude to all of the contributors whose chapters have been included in this book, their devotion, and hard work have paid off handsomely, as this book has proven to be an engaging and informative read.

Thank you everyone again, this would not have been possible without your tireless research efforts.

Dr. Sangeeta Shashikant Shinde

Dr. Sheetal Deobaji Lakde

Dr. Shilpa Mirikar

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RECENT TRENDS IN HIGHER EDUCATION: ROLE OF VARIOUS TRENDS THAT WILL SHAPE THE FUTURE OF HIGHER EDUCATION

Aparna V. Kedari
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ABSTRACT
The curriculum used to be more subjective, with a focus on pre-determined material. This resulted in dull assignments with little opportunity to introduce fresh thinking or encourage pupils to think beyond the box. Higher education, on the other hand, will now provide students with the necessary space, encouraging them to use their creative potential. As a result, the focus will change from what to think to how to think. These developments will undoubtedly alter your academic trajectory. Quality education, on the other hand, can be costly at reputable institutions or universities. As a result, student loans for higher education might help you achieve your goals without relying on others. The goal of education is to provide students with a well-rounded education. To achieve this level of development, students must take a combination of arts, computer science, science, and humanities or literary courses. Universities and colleges are expected to provide students with marketable skills that will help them succeed in today's fast-paced workplace. The purpose of this article is to explore current technological, financial, and academic trends in higher education institutions around the world in order to help students, professors, and recruiters understand what changes to expect in the next years. Learning new skills, knowledge, values, or preferences, as well as modifying and reinforcing existing knowledge, behaviors, skills in various fields of education, values, or preferences It may also entail combining various types of information.

Keywords: Higher education, Trends in Higher education, Flexible learning, Innovation in higher studies.

INTRODUCTION
Colleges and universities have been obliged to shift a lot of their teaching online since the outbreak of the latest pandemic. This appears to have sparked a slew of educational advances as a result of this. Colleges all across the world have welcomed greater flexibility, providing virtual and physical courses. These modifications may convey the impression that education is experiencing much-needed transformation. Higher education in most nations is out of reach for the poor, certifies knowledge rather than nurturing learning, and concentrates on quickly outdated information. In short, it fails on both quality and accessibility.

1. Adaptive and Flexible Learning
Flexible learning strategies are frequently created by combining a variety of teaching and learning ideas and philosophies as well as strategies for providing students with chances to gain access to knowledge and experience, to contribute ideas, and to collaborate exchange ideas, and communicate with other students and mentors. This can be fulfilled by using internet-based tools such as Virtual Learning Environments or Learning Management Systems and experimental learning, discussion boards, or chat rooms; or it can be accomplished using a "blended" approach, with content available electronically and remotely, as well as "face-to-face" classroom tutorials and lectures. Flexible learning refers to those who are interested in a variety of learning methods, such as e-learning, and online learning (i.e., flexible learning allows students to choose where, when, and how they learn). Students should be aware of the importance of strengthening oneself through flexible learning so that they can excel in their chosen field. They should arm themselves with a thorough understanding of technology in order to pique their attention and make learning simple and efficient. Flexible learning encourages

students to organise their activities around their passions and interests. It also maintains their minds in a positive frame of mind and away from external threats.

2. Active Learning is Being Used to Replace Lectures

Lectures are both a great teaching tool and an ineffective learning tool. Professors have been utilizing them for centuries as a cost-effective technique of imparting their expertise to pupils at universities and colleges. Some educational institutions are beginning to embrace teaching approaches based on learning science in order to demonstrate excellent learning results. This strategy, known as 'totally engaged learning,' has slowly gained acceptance in the educational establishment. There is evidence that it not only improves learning results but also narrows the educational gap for pupils from low-income families. Students generally view low-effort tactics, such as passively listening to a lecture, to be more effective than active strategies, such as hands-on experimentation and group problem-solving. Students may get dissatisfied and "painfully conscious of their lack of comprehension" as a result of the group dynamic, but the study found that the more effort and struggle involved—hallmarks of a student-centered, active approach—the more students learnt. If students do not understand the advantages of learning tactics that demand more work, they may be hesitant to leave their comfort zone. Students should be familiar with difficulty and perceive it as a vital element of learning in order to solve difficult challenges. It's tough for pupils to assess their own knowledge of a subject.

3. Career Pathways

Students continue to place a high importance on how well their school prepares them for a post-graduation career. In fact, the report's findings show that students' career anxieties begin well before they enroll in a college or university. Many higher education leaders have the potential to focus on career prospects not just to build alumni and student connections regarding certain career paths, but also to attract more students to their institutions.

4. Technology Based Education Benefits:

Our world has been permanently changed by technology, and increasingly, youngsters are getting their hands on it as soon as they can click a button or swipe a screen. Students can learn anywhere and at any time thanks to the growing use of phones and mobile gadgets. According to research, there are over 80,000 educational apps for iOS and Android devices, covering every subject and grade level from kindergarten to college. Students use technology to access the Internet, gaining access to the benefits of a global classroom where information is collected and shared that goes beyond the Colleges four walls. Students gain a variety of important life skills when they utilize technology, including cooperation, problem solving, critical thinking, and communication. Technology will enhance the learning experience and familiarize Students with a life-long love of learning so that they can continue to develop their minds after their formal education is completed.

CONCLUSION:

The policies are in higher education are driving at international level in directions that may not serve long-term academic goals and the achievements, higher education institutions must advocate for policy change at the governmental level. In this context, the most important and ongoing responsibility of all stakeholders in higher education is to constantly examine and evaluate the effects of internationalization. It includes looking at the consequences of a more internationally open programme, classroom, and institution on students as well as the benefits of exposure to scholars and researchers from various regions of the world on the creation of new knowledge. Additionally internationalization of higher education should not be merely a paper agreement, as the true essence of such collaborations necessitates execution in an environment that is conducive to the development of the international process in all ways.

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IMPACT OF ONLINE LEARNING ON MANAGEMENT STUDIES

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ABSTRACT
The COVID-19 pandemic has created a global awareness that the current way of life is not a way of working. The many areas need to change it with advancing environment. Business, lifestyle, way of thinking, way of education everything is changed. The major impact was on education because online education was new for many teachers and students. But now it's a new normal. Students and teachers are comfortable with online education.

The objectives of the management studies are to develop managerial and communication skill, improve personality and intellectual capacity which will help them in their business and organizations. Hence Group discussion, case studies, presentations, management games, interactive sessions help them to improve their skill. But online education has positively and negatively effects on such activities. The purpose of researcher is to find out satisfaction and effectiveness of the students in online activities during the pandemic. This study depends on the general survey of management students.

Keywords: Group discussion, case studies, presentations, management games, interactive sessions.

INTRODUCTION
Management education plays very important role in Indian Business world. Management studies gives knowledge to the students how to deal with management and business issues. Management education is a tool which help to contribute in the world economy.

The objective of Management studies are

* To give basic management education for understanding the business management

*To prepare students for management opportunities.

*To improve communication, presentation and entrepreneurial skill.

In this article researcher analyzed online common activities conducted in management studies i.e. Group discussion, case studies, presentations, management games, interactive sessions.

2 .REVIEW OF LITERATURE:

2.1 Mukesh Rawal: 'An Analysis Of Covid-19 Impact On Indian Education System.'
Research analysed in this paper how the Indian education is impacted by covid-19. He was also explain how online education was positively and negatively impacts on the Indian educational system. The objective of study was to understand impact of online education on Indian educational system and to give helpful suggestion to teacher's parents and students. He concluded covid-19 situation offered many challenges and opportunities also. The Indian educational people should utilise the online platform effectively.

2.2 Ram Gopal, Varsha Singh, Arun Aggrawal: 'Impact Of Online Classes On The Satisfaction And Performance Of Students During The Pandemic Period Of Covid-19.'
In this article author identified the factor affecting on the students' performance and satisfaction level in in online classes. The study was based on the survey of 544 respondents. That is students from MBA and BBA courses. They concluded some factors like feedback, student's expectation, instruction quality, and Porsche design were positively impacts on the performance of students.

2.3 Shalini Bhorkar, Rammohan Khanapurkar, Ketan Dandare , Pralhad Khatole: 'Online Education In India: Building A Framework For Better Learning Outcomes.'
In this paper an author analysed the present guidelines for online schooling from the government and they studied how it adequate in building online education system. They found from the case of Maharashtra, there was a conceptual gap in the online education.

2.4 Girish Lakshman Naik, Maltesh Kumar Deshpande, DC Shivananda, C. P. Ajey, G.C. Manjunath Patel: 'Online Teaching And Learning Of Higher Education In India During Covid-19 Emergency Lockdown.'
In this article authors compared how the online learning and traditional learning impact on the students' performance. Analysis shown traditional method was much effective than the online education. They recommended some guidelines for improving quality of learning and teaching method.

2.5 Stephanie J Blackmon and Claire Major:
'Student experiences in in online courses qualitative research synthesis.'

The researcher explained the student's experiences with the digital education. Some got a benefits from online learning and some were struggled in online learning.

3. OBJECTIVES OF RESEARCH:
1. To study the general activities enjoyed by the management students.

2. To find out favourite online activities of Management students.

3. To find out favourite offline activities of Management students.

3. To study impact of online activities on improving the skill of management students.

4. To study the participation of students in online activities.

5. To study the trends in management students regarding online and offline Management activities.

4. RESEARCH METHODOLOGY:
This is a fact finding research approach. Research was based on the survey method. The survey of BBA and MBA students conducted for knowing the responses to online activities. Common activities conducted by the colleges only studied in this research.

4.1 Sources of Data:
Data Were Collected By Using Primary And Secondary Sources.

A. Primary Data
Data were collected through the questionnaire and discussion with the management students.

Questionnaire were sent to BBA and MBA students.

B. Secondary Data
Secondary data were collected from journals and websites.

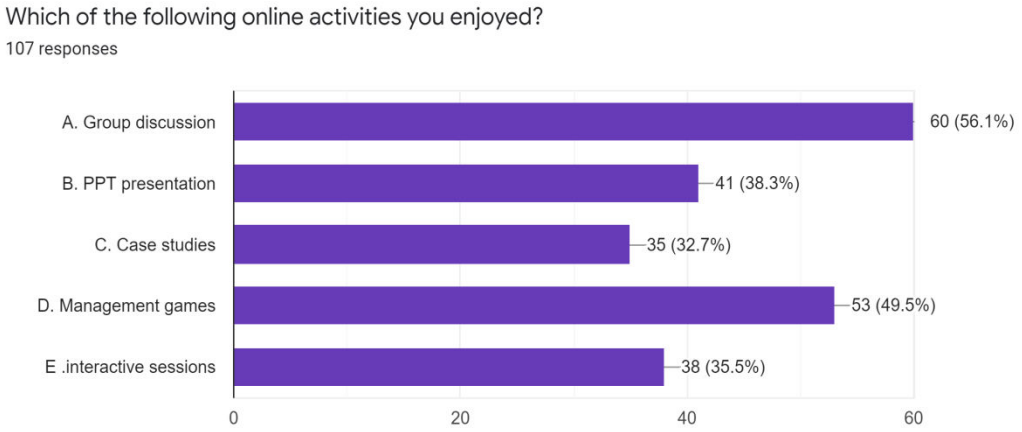
4.2 Sampling Size
Simple random sampling technique were used for or collecting a data. Data were collected through the survey. Randomly 107 students were selected as a sample from BBA and MBA course.

4.3 LIMITATION OF STUDY
* The study is limited with the Management courses i. e. BBA and MBA

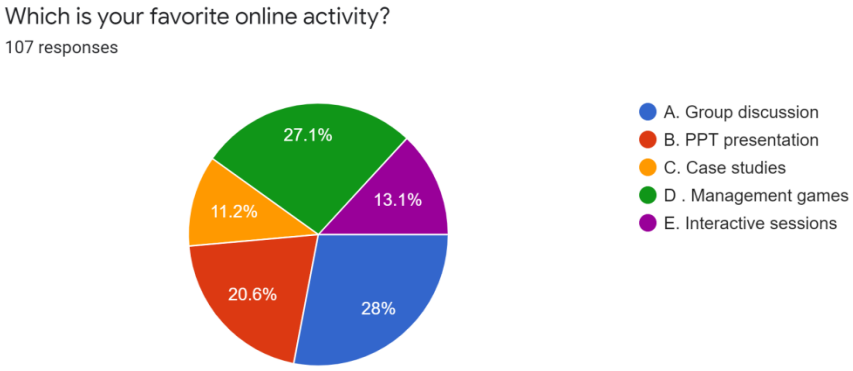
*The scope of the study is limited with the selected samples only.

5. Data Analysis And Interpretation

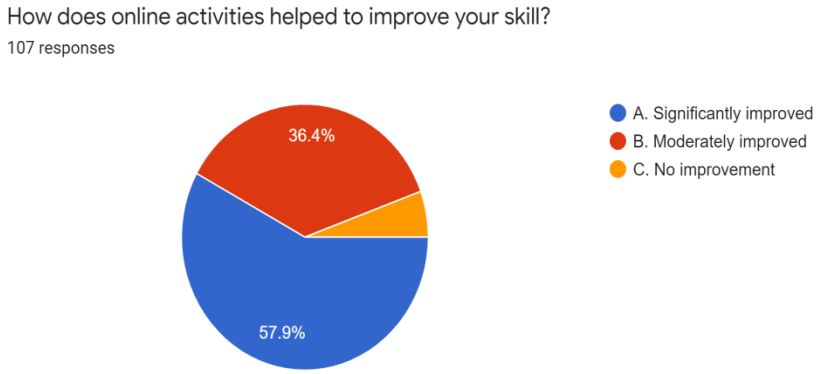
Data collected from 107 students through the questionnaire. The analysis of responses collected from the students are as follows.



This bar chart shows mostly the students participated in the group discussion management games and PPT presentation. The group discussion having a higher response and case studies having a less response.

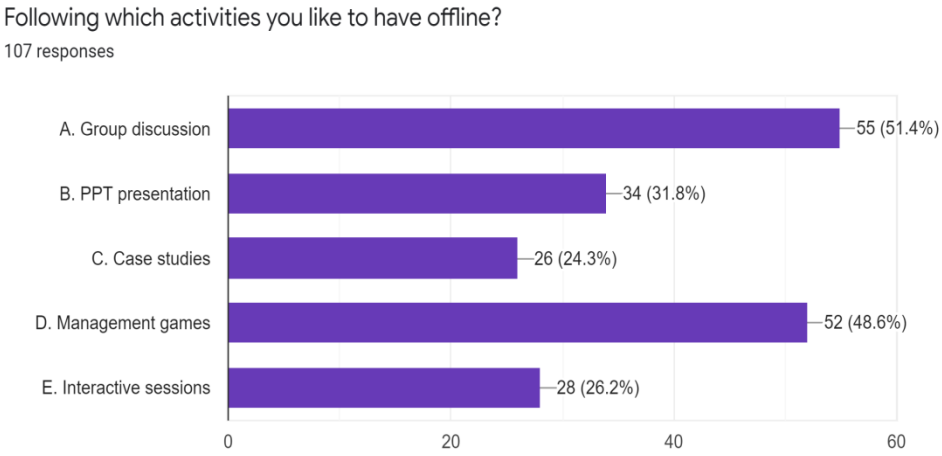


This pie chart shows favourite online activities of Management students. As per the chart group discussion is a favourite online activity of 28% students, management games is a favourite activity of 27.1 % students, PPT presentation 20.6 %, interactive session 13.1 %, case studies 11.2%. Which shows group discussion and management games are the favourite online activities of Management students but they are giving less preference to the PPT presentation case studies and interactive session.

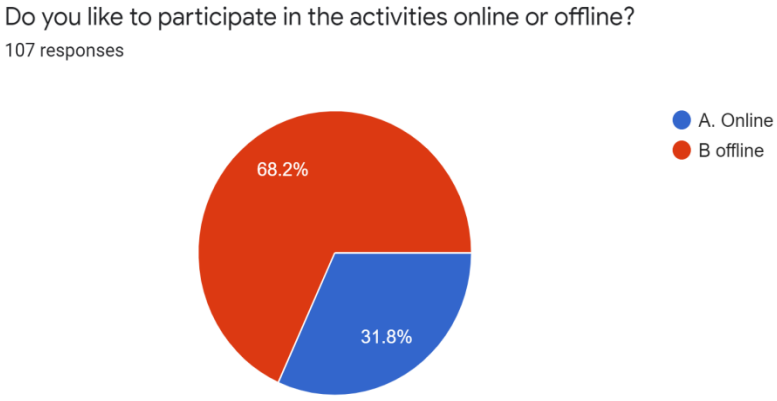


This pie chart shows impact of online activities on their skill improvement. 57.9% students said online activities improve their skill but 36.4% students said moderately improved and 5.7% student said no improvement.

This chart shows the participation of Management students in online activities. Out of 107 students, 74.8 %actively participated in the online activities and 25.2 %were not participated actively.



This Chart shows offline favourite activities of Management students. 51.4% students said they like group discussion as offline activity, 48.6 % said management games. But below 31% student said they like PPT presentation, case studies, and interactive sessions as an offline.



This pie chart shows 68.2 % students want to participate in management activities offline 31.8 % students want to participate in management activities online.

6. FINDINGS OF THE STUDY:

1. Most of the students participated in online group discussion and management games. But less students participated in online PPT presentation case studies and interactive sessions. Hence most of the students like to participate in online group discussion and management games.
2. Favourite online activity of most of the students what's group discussion and management games.
3. Online activities helped to improve the skill of management students.
4. Mostly the management students actively participated in online activities.
5. Different offline activities of Management students are the group discussion and management games.
6. Most of the students want to participate in offline activities rather than online.

7. CONCLUSION

All the students can participate in online activities easily. It is a requirement of current situation. Teachers can conduct many interesting online activities. That will gives enjoyment and management knowledge to the students. But students want to participate activities offline. As per the requirement of new normal frequently online activities must be arranged for management students like group discussion, PPT presentation, interactive sessions, case studies etc. It will help to improve communication and managerial skills of Management students.

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RECENT TRENDS IN NANOTECHNOLOGY IN EDUCATION: NANO EDUCATION

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ABSTRACT
The rapidly growing fields of Nano Science or Nanotechnology are gaining in popularity. Nanotechnology is truly interdisciplinary, involving the manipulation and control of discrete atoms as well molecules in order to build and create new materials Nanomachineses, and Nanodevices for use in all aspects of our existence. Academia has challenges in educating and training a latest generation of qualified engineers and competent scientists as a result of recent breakthroughs and anticipated improvements in enabling nanotechnology. Nanomaterials are constantly evolving due to their wide range of technological uses, and as a result, they are receiving more attention not just in academic research but also in industry. Nanomaterials perform differently than their counterparts, exhibiting a large assortment of physical, chemical, biological, electrical, and other properties. High-energy ball milling, hydrothermal synthesis, co-precipitation, micro emulsion, sol-gel processing, and other processes are commonly used in the production of nanomaterials.

These scientists should be able to use their knowledge of math, science, and engineering to design, analyze, and build Nanodevices and systems that are fundamentally different from traditional technological systems. This study briefly covers the current state of advances and developments in nanotechnology and Nano education from the standpoint of applications. Instructional strategies for nanotechnology are also provided using a few simple examples.

Keywords: - Nanotechnology, Nano science, Nanomaterial and Nano education.

INTRODUCTION
PHYSICS is a vast field of study. It encompasses the fundamental knowledge and procedures of virtually all fields of engineering and technology, and in many people's minds, it encompasses all of these subjects. However, the actively followed avenues of research in physics only cover a small portion of the discipline and fluctuate with time. In some ways, this is because physicists share the desire to be fashionable, to be doing something that other people regard as important and about which they can converse. In another sense, though, this shift in study priorities is due to the fact that progress is being made, that some subjects are becoming well understood, and that new worlds to conquer must be sought in different paths [1].

Nanotechnology, often known as Nano science, is the scientific study and application of extremely small molecules or nanostructures. Norio Taniguchi, a professor at Tokyo University of Science, created the word "Nanotechnology" in 1974. It's fascinating to consider the scale of nanotechnology, which is roughly 10^{-9} meters (which is extremely small).

A Nanometer is one Thousand Millionth of a Meter.

1nm = 10 -9 of A Meter
Nanotechnology and research in this field are gaining in popularity every day. Nanoscience and Nanotechnology are paving the way for a technological revolution in the new millennium. The main objectives of nanotechnology have the potential to have a significant impact on the world we live in. Nanotechnology will have a significant impact on all sectors of the economy, including consumer goods, electronics, computers, information technology, and biotechnology, as well as aerospace defense, energy, the environment, and medicine.

Several governments and private-sector research projects have been launched in the United States, Europe, Australia, and Japan to accelerate nanotechnology research and development. [2]

Hundreds of millions of dollars have been set aside for this purpose. The traditional techniques of design, analysis and manufacture for a wide range of engineering goods are anticipated to change as a result of nanotechnology research and development. This has made it difficult for academics to provide engineering students with the knowledge, understanding, and skills they need to interact and lead in the rapidly evolving world of nanotechnology. [3]

Nanotechnology focuses on nanoscale materials and devices, as well as their applications in fields such as engineered materials, electronics, computers, sensors, actuators, transducers and machine learning. Atoms and molecules, or extended atomic or molecular structures, are the basic units, or building blocks, for creating future generations of electrical devices and materials. Because they are derived from the very comparable features of the atomic- or molecular-level building components, several varied enabling fields and accompanying technologies start to combine at nanometer length scales. For instance, DNA molecular strands are now offered as self-assembling templates for biosensors and detectors, molecular electronics, and the building blocks of all biological components.

Nanotechnology research and development will alter the traditional design, analysis, and manufacturing techniques for a wide range of engineering goods. This impact makes it difficult for academics to provide students with the knowledge, understanding, and skills they need to participate and lead in the rapidly evolving nanotechnology environment [5].

Recent achievements in enabling nanotechnology, as well as future improvements, provide difficulties to academics in terms of educating and training a new generation of qualified engineers and competent scientists. These engineers and scientists should be able to use their math, science, and engineering skills to develop, analyze, and build Nano devices and Nano systems, which are vastly different from micro devices and microsystems. Nano devices and Nano systems, which are made up of atomic and molecule components, exhibit unique quantum phenomena and capabilities that must be exploited. As a result, sophisticated ideas, methodologies, tools, and technologies should be thoroughly taught and given efficiently [6].

Nanotechnology's Broad Framework

Nano science technology is defined as the science and technology of directly or indirectly manipulating atoms and molecules into functional structures, with applications that were previously unimaginable. The prefix "Nano" refers to a basic length unit of 10^{-9} metres, which is 100 to 1,000 times smaller than a biological cell or bacterium.

Nanotechnology is having an increasingly large impact on many elements of our daily lives, job prospects in this subject are rapidly expanding. Engineers, chemists, physicists, and biologists are all involved in Nanotechnology. Nano science and Nanotechnology are adding benefits to society in both direct and indirect ways. Various industries such as homeland security, medical, transportation, information technology, food safety, environmental science, and energy are significantly improving as a result of nanotechnology advancements. International students are enrolling in nanotechnology courses in order to get scientific knowledge of Nano science and the skills necessary to develop innovative products. As part of a multidisciplinary scientific education, it is critical to equip top-notch professionals and specialists with a broad background in science and technology. This blog will give you a comprehensive list of Nanotechnology courses, colleges, and job opportunities.

Individual electrical and logic devices based on atomic or molecule level materials, breakthroughs in material self-assembly to enable the assembly of larger functional or integrated

systems, and, most importantly, advances in computational nanotechnology, Modeling and simulation of prospective nanomaterial, devices, and applications based on physics and chemistry. It turns out that at the Nano scale, device and system sizes have decreased to the point where their behavior can be accurately described. Many unique concepts and designs have been presented based on modelling and simulations, and then realized or verified by experiments [4].

Current Status of Nano Education

Many attempts have been made to establish multidisciplinary engineering and scientific curriculum that will enable undergraduate and graduate students to enter and master engineering and science fields successfully [8, 11]. Different curriculum, programme, track, and course models have been established to suit academic and industrial issues. Without a unifying theme, achieving educational objectives and goals becomes increasingly challenging. Academia has challenges in educating and training a new generation of qualified engineers and competent scientists as a result of recent breakthroughs and anticipated improvements in enabling Nanotechnology.

These scientists should be able to use their understanding of science, math and engineering to develop, evaluate, and produce Nano devices and Nano systems, which are vastly different from micro devices and microsystems. Nano devices and systems, which are made up of atomic and molecular components, exhibit unique quantum phenomena and capabilities that must be exploited. As a result, advanced ideas, methodologies, tools, and technologies should be presented thoroughly and effectively.

The academic community is taking its time in preparing the workforce for emergent Nanotechnology opportunities. Currently, a small number of universities in the United States, Europe, Australia, and Japan collaborate with research centers to offer elite graduate programmes in Nano science and Nanotechnology. The federal and state governments, academic institutions, industry, and a variety of for-profit and nonprofit groups in the United States have formed collaborations to construct nanotechnology research centers.

The major purpose of these centers is to undertake Nanoscience and Nanotechnology research and development. Some research institutes additionally help to fund a graduate program at the sponsoring university. Furthermore, academic members at various institutions undertake and oversee research initiatives in Nanotechnology and Nanoscience that are supported by funding agencies such as the National Science Foundation, Department of Defense, National Institutes of Health, DARPA, and others. The following universities in the United States offer Nano science and Nanotechnology courses at the graduate and undergraduate levels. [2]

The following universities throughout the world offer graduate and undergraduate courses in Nanoscience and Nanotechnology. [7]

Top Colleges for Nanotechnology Courses in India

There Are Many Colleges For Nanotechnology/Nano Science Courses In India.

1. Shivaji University
2. SRM University
3. Amity University
4. IIT Madras
5. IIT Roorkee
6. National Institute of Technology

7. Amity University
8. Vellore Institute of Technology
9. NIT Calicut
10. University of Madras, Nano Indian: India's nanotechnology education and research portal

(M.Sc., M.Tech Dual Degree in Nanoscience and Nanotechnology)

11. Indian Institute of Science – Masters Jadavpur University at Kolkata- Masters, Ph.D
12. Amity University, Noida
13. Vellore Institute of Technology,

14 Vellore, Tamilnadu

15 University of Rajasthan at Jaipur

16. Andhra University, Visakhapatnam

17. Nano Indian: India's nanotechnology education and research portal, Punjab University, Chandigarh (M.Tech, Nano Science & Nanotechnology)

18**.** Jabalpur University in Kolkata - Masters, Ph.D.

Certificate Program in Nanotechnology

If you're seeking nanotechnology certification courses. There are numerous solutions available both online and offline. Examine the following list of the best Nanotechnology certification programs:

1. Nanotechnology: A Maker's Course by Duke University
2. Nanotechnology and Nano sensors, Part1 by Israel Institute of Technology
3. Understanding Einstein: The Special Theory of Relativity by Stanford University
4. Design of bulk nanostructured metal materials by Polytech
5. Nanotechnology and Nano sensors, Part 2 by Technion

Areas of Major Employment

Nanotechnology specialization students learn about nanomaterials, microbiology, and basic safety procedures. Nano science is used in a variety of fields, including engineering, medicine, and the food industry, among others. Nanotechnology is also applied in the following areas:

- Electronics (semiconductor industry) is a branch of the electronics industry.
- Industries in the Aerospace
- Biotechnology
- Computing
- Sporting Equipment
- Geosciences
- Microscopy
- Pharmaceuticals
- Forensic Food Quality Control and Packaging in Agriculture
- Military and National Security

- Material Science (polymers, packaging, textiles, etc.)
- National and Military Security
- Federal Lab Research
- Energy Capture and Storage
- Agriculture

Salary & Employment

Nanotechnology is a highly specialized sector in which scientists, engineers, and technicians are in high demand. The following is a list of career development in this field:

- Director of Research
- Director of Product Marketing
- Manufacturing Engine
- Research Scientist
- Research & Development Engineers
- Product Marketing Engineer
- Mechanical Engineer
- Optics and Holography Technician
- Sales Manager
- Market Development Manager
- Product Marketing Manager
- Technical Program Manager
- Applications Engineer
- Mechanical Engineer
- **Let's Explore the Salary Structure of Some of the top Profiles:**

Job Profile	Salary p.a in INR
Applications Engineer	₹5447380
Director of Research	₹2500000
Manufacturing Engineer	₹667000
Research Scientist	₹887600
Sales Manager	₹700000

Nano-Educational Curriculum

The emphasis on nanotechnology and microscopic considerations reflects curriculum changes in response to the engineering enterprise and the demands of evolving industrial demands. Nanoscience has been nearly new to tackle, integrate, and solve an extensive variety of new engineering, science, and technology problems. A broad educational community appears to have opposing views on what should be targeted, emphasized, covered, and delivered in nanotechnology courses.

Various engineering, liberal arts, science, technology, and other schools and departments have taken different approaches [8, 6]. The undergraduate and graduate courses include a broad range

of topics and materials. It also covers various nanotechnology courses such as classic -quantum physics, microscopy, metrology, electronics, and other traditional science and engineering disciplines. A definition of nanotechnology has yet to be agreed upon by the scientific and teaching community. General education, science, engineering, and technology courses are all integrated into engineering and science curricula. Quantum physics, engineering mathematics, chemistry, and biology are all areas where students often fall short. Multidisciplinary curricula and courses are a significant departure from traditional curricula.

Attempting to substitute for basic courses can pose considerable difficulties. In addition to the specialized in-depth disciplines, engineering design and fabrication, an interdisciplinary education incorporates and demands a larger overview of cornerstone science. It's difficult, if not impossible, to replace foundational scientific and engineering courses with diverse courses that don't repeat the basics. Traditional courses such as Biology, Calculus, Chemistry, and Quantum Physics are not less important, but rather more important [8, 6, and 10]. This element should be considered in the construction of nanotechnology curricula. The necessary chemistry, biology, physics, and freshman engineering courses can be used to teach and stress introductory nanotechnology themes.

This offers pupils a useful starting place. A wide understanding of basic and engineering sciences relevant to nanotechnology is included in an interdisciplinary curriculum. To provide effective educational and training possibilities, nanotechnology-centered research and education projects necessitate close coordination between departments and colleges. Nanotechnology curriculum have the ability to develop and strengthen combined engineering and science studies.

Nanotechnology education should be coherently integrated into the mainstream undergraduate engineering and science curriculum by:

1. Integrating nanotechnology into traditional and modern science and engineering courses;

2. Creating new multidisciplinary courses that supplement (rather than replace or duplicate) traditional courses;

3. New multidisciplinary courses are being developed. traditional courses by supplementing (rather than substituting and duplicating) them.

4. Creating opportunities for interdisciplinary research and educational collaboration;

5. Disseminating best practices;

6. Creating student and teacher exchange programmes [9]

Instructional Techniques

Nanotechnology should be taught in both within and outside the classroom by providing knowledge-centered and learning-centered contexts [12]. Because technology is growing at such a rapid pace, activities that promote creative thinking, critical thinking, and life-long learning should be prioritized.

Nanotechnology is a true cross-disciplinary field. It is critical to have an interdisciplinary curriculum that includes a comprehensive understanding of basic sciences linked with engineering and information sciences relevant to Nanotechnology. Instead of mathematical divergence, introduction to nanotechnology courses should emphasize concept development and qualitative analysis. Every effort should be made to depict the big picture and how the various learning exercises interact with one another to meet the course objectives. Every subject must be taught at the appropriate level, and all prerequisites must be met.

Beginning in freshman and sophomore engineering classes, teachers should introduce the notion of nanotechnology and continue throughout the science curriculum.Nanodevices and Nanosystems of Modeling, simulation, control, and advancement should be included in the course objectives for junior and senior design courses, particularly capstone design courses. Nanotechnology is, in fact, a branch of engineering and because design is the essence of engineering, every effort should be made to include nanotechnology concepts in all design courses.

Nanotechnology education should emphasize interactive learning. Both within and beyond the classroom, technology may play a significant role in supporting participatory learning. Students from all over the world can participate in nanotechnology research development initiatives and laboratory tests via the Internet. To get hands-on experience, students should be offered the opportunity to collaborate directly with established nanotechnology research institutions (local, regional, national, and international).

University faculty members must collaborate with industry in order to educate and train students in the field of Nanotechnology. Teaching nanotechnology courses with a team of faculty members who specialize in relevant fields is extremely beneficial. The addition of guest speakers from business and research institutions raises the quality of the available courses.

It is critical to educate engineering teachers who are rooted in traditional fields about breakthroughs in nanotechnology and how they will affect all engineering disciplines in the future. Governments, businesses, and universities must take the initiative in allocating greater monies to faculty development in Nanotechnology fields. [3]

CONCLUSION

Basic science breakthroughs, engineering advancements, and anticipated Nanotechnological breakthroughs have all presented new challenges to academia. As a result, several institutions have updated their curricula to include courses that are relevant. Due to a lack of a cohesive strategy and differing perspectives on what nanotechnology entails, attempts to implement nanotechnology have only been partially effective. Efforts that are coordinated should be sought. Students in engineering and science should be taught how to design, evaluate, and create Nano systems. Nanotechnology teaching should be included in all undergraduate engineering programs. In order to teach students in Nanotechnology, the government, industry, and academic bodies should collaborate. Other researchers will benefit from this chapter.

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RECENT TRENDS IN THE DEVELOPMENT OF HIGHER EDUCATION IN THE FIELD OF COMPUTER SCIENCE

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ABSTRACT
The purpose of this paper is to identify the modern requirements for competencies that graduates of major educational programmes in the direction of training "Service" must have. Several groups of respondents were involved in this study: representatives of the higher education community, graduates, and higher education institutions implementing educational programs in these areas.

This study is an effort to conduct a study of the latest research on "computers" and "educational technologies." A common keyword in the study is "computer science." Computer science has also become the basis of educational technologies in recent years, according to the study. It is possible that content analysis studies could benefit other computer training software as well.

Keyword: Trends, Education, Computer Science, Educational Technology ,Higher Education, Artificial Intelligence,

INTRODUCTION
Tech-savvy individuals interested in the latest advancements in computers can pursue a lucrative career in computer science.The field of computer science is poised for a bright future due to a number of trends, including cloud computing, security, and big data collection. IT professionals who understand computer science trends have a competitive edge for the best job opportunities. This guide explores the latest IT developments and trends, such as AI, cybersecurity, and robotics.

Following are Recent Trends in the Development of Higher Education in the Field of Computer Science:

- **Adapting to Higher Education Through the Internet**

Online education started through the internet due to the COVID-19 pandemic situation. Online education existed prior to the pandemic, although it was referred to as distance learning at the time.

Higher education institutions are developing programmes that can be completed entirely online in response to rising demand. Despite the fact that this is only the beginning, they have already gotten a tremendous response. Along with the advancement of online learning, it is projected that young people will demonstrate an interest in studying a variety of languages.

- **Quality and Admission Rate are the Two Most Important Factors to Consider.**

Quality and admittance rates should be prioritized. The government is now likely to focus on raising student enrollment and improving the quality of each institute.

- **Enrollment of Women Has Increased.**

India does, in fact, have the world's largest educational system. However, when it comes to women's engagement in this area, it is rather low. Fortunately, it is projected to change.In the academic year 2018-19, 1.82 crore women enrolled in higher education. Women's enrollment has increased at a staggering 4.9 percent compound annual growth rate (CAGR) during 2011–12. The number of young females who have high academic aspirations is thus expected to increase dramatically.

- **Emerging Foreign Destinations**

Due to the COVID-19 pandemic, going abroad for additional education is nearly impossible right now. However, once the situation has returned to normal, the number of Indian students going outside to study will continue to rise.

Previously, the United States, Canada, Australia, and the United Kingdom were the most popular destinations. With the shift in US immigration regulations and the impending Brexit, Indian students are anticipated to relocate to other countries such as New Zealand, Ireland, Germany, France, and Russia.

- **Demand for International Courses is Growing.**

As previously said, our country is still undecided about sending its citizens abroad for higher studies. As a result of this predicament, there has been an increase in demand for colleges and universities that offer foreign certifications.

We offer a wide range of global courses at ASM's IBMR, including those from Harvard Business School, Cetys Universidad, and others. As a result, our pupils will be able to learn and keep up with what is taught around the world as a result of this.

- **Development of Skills**

The main reason behind the fact that only a small percentage of people stepping into the market are able to find decent jobs is that they lack the necessary skill set. There are 12.8 million job seekers each year, yet just a small percentage of them are able to find decent jobs.

In order to increase skill development programs, our government is planning to increase the number of beneficiaries to 500 million.

It is also working on implementing new skill centers, creating a national policy on skills development and entrepreneurship, and amending the Apprentice Act, among other things.

- **Higher Education and Artificial Intelligence**

We all know that India's higher education system has not undergone any major changes in the last 20-30 years. Accordingly, institutions are willing to revamp the present system to keep pace with AI's growing opportunities.

The colleges are expected to develop a curriculum that enables education and research to keep pace with the rest of the world. Private educational technology start-ups even use AI for learning tools, interactive and immersive tutoring, and personalized feedback.

- **Introduction to the Holistic Course Curriculum**

Traditionally, colleges were only concerned with imparting theoretical knowledge. Since only studying textbooks isn't really effective for getting a decent job, colleges should focus more on teaching practical skills.

A few colleges, including IBMR, have already established innovation and entrepreneurship labs on campus and incorporated internships into their degree programmes.

In addition, the syllabus should focus on each student's overall development rather than just their specialization.

- **Artificial Intelligence and Robotics**

It is largely due to the strong interest and investment in artificial intelligence (AI), which is one of the most controversial and intriguing fields of computer science research. Although the technology is still in its infancy, tech giants such as Facebook, Google, and IBM are investing enormous amounts of money and resources into AI research.This technology offers tremendous potential for developing real-world applications, and there are many opportunities for breakthroughs in this field.

- **Edge Computing**

Edge computing, in contrast to cloud computing, places computer data closer to the user, as opposed to being handled and stored far away in data centers. The cloud isn't going away completely, but rather will work in tandem with edge computing to bring processing closer to users, and streamline everything from factory production to self-driving cars.

The edge computing technology lies at the heart of technologies like autonomous cars, video conferencing, and augmented reality. As an example, when an autonomous vehicle decides to stop in a split second, edge computing eliminates the need to wait for a cloud server to respond. The telecommunications, security, oil & gas, and security industries hire edge computing experts. Computer network architects and software developers typically require at least a bachelor's degree, while research and management positions often require a master's.

- **Quantum Computing**

An atomic or subatomic quantum computer utilizes extremely sophisticated computers to solve problems. A quantum computer uses quantum bits, which are also known as qubits, instead of binary codes for calculation and storage.

- **Cybersecurity**

Cybersecurity is concerned with safeguarding computer systems and networks against cyber threats and attacks. As businesses continue to store data in the cloud and conduct operations online, the need for improved cybersecurity grows.

Individuals, businesses, and governments suffer significant financial losses as a result of cyberattacks.

- **Bioinformatics**

Bioinformatics professionals research, store, and analyze biological data. An area of bioinformatics that combines computer science and biology is looking for patterns in sequences of genetic material, such as DNA, genes, RNA, and proteins. Bioinformatics workers create the methods and software applications that enable these tasks to be completed.

Bioinformatics computer science technologies have a significant impact on the medical and pharmaceutical, industrial, environmental/government, and information technology fields. Bioinformatics assists doctors practicing preventative and precision medicine in detecting diseases earlier and providing effective targeted treatment.

CONCLUSION

According to the findings of these studies, applied competencies such as production, technology, and service-related ones are preferred in professional activity by representatives of the professional community, graduates, and the academic community of higher education institutions. These types of programmes of applied bachelor's degree in the direction of service include professional competencies.

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TECHNOLOGY HELP TO GROW THE FUTURE OF EDUCATION

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ABSTRACT
New technologies and approaches are updated in teaching to bring about improvements in the current structure to achieve prearranged educational goals.

The only source of instruction was earlier books, differentiating learning and individualized teaching. The teaching learning process can be made more involved and interactive by Information and Communication Technology (ICT).

Keywords: Online Education, Digital and Comprehensive Online Assessments, Education Technology will inherit the BlockChain methodology, Personalized Learning, AI- based Personalized Analysis of Individual, Gamification, Augmented Reality (AR) and Virtual Reality (VR), STEAM and Privacy of the Students.

INTRODUCTION
The way we live and interact is rapidly changing due to technological advancements. It is transforming the face of every field and industry in the most positive way conceivable. However, education is trailing behind in terms of technological uptake. Given that education has the potential to positively impact the world, using technology into education has become even more critical.

Education technology has the potential to help overcome current limitations to offering high-quality education to people all around the globe. Students' imaginations will be widened and their grasp will be improved thanks to educational technology. The education sector, as well as individuals such as students, teachers, managers, and parents, will profit greatly from current and future educational technology advances. For this reason, we have compiled some of the key trends and technologies that can define trends for the coming year.

Keywords: Here are some creative teaching techniques that can be adopted by any teacher and make their teaching more interesting:

1. Online Education
Even while things like ticketing, viewing TV shows, and purchasing food are becoming more online, education is still lagging behind in terms of online education delivery. The number of internet users is rapidly expanding as a result of the widespread availability of the internet. The growing number of Smartphone users presents an excellent opportunity to deliver education via the internet.

Because of the willingness displayed by working professionals to learn new things and extend their knowledge of technology, online education, which includes online courses and online tests, is slowly but steadily growing more popular. A growing number of businesses, such as Byju's, are focusing on online education for students.

Online Education

I. Digital Education (K-12)

K-12 blends technology and education to develop high-quality, individualized learning curricula for children in kindergarten through 12th grade. K-12 online schools are steadily gaining traction because they offer a perfect blend of conventional teaching with modern technology and digital learning tools.

Ii. Education At A Higher Level

Higher education is catching up to the digital revolution. College students are increasingly interested in online credentials or certifications that add value to their degree. The majority of these courses are designed to boost students' employability. The availability of many more such courses may contribute to the popularity of online education in India.

Iii. Professional Training

Professional education, such as executive management courses, has a high level of adaptability. This is due to the fact that many working professionals are opting for courses that allow them to effortlessly enroll, learn, assess, and obtain certification from any location, such as their office or home.

2. Digital and Comprehensive Online Assessments

One of the most important aspects of the academic programme is student evaluation. The sort of evaluation used determines how successful education is. Students have traditionally been evaluated mostly through theory examinations. On the basis of their theoretical knowledge, the pupils are evaluated. In most tests, students submit conceptual or descriptive answers, which are reviewed by one of the examiners. Their ability to pass or fail is determined by their understanding of theory.

Digital and Comprehensive Online Assessments

I. Blended Education

Blended learning is the blend of traditional learning methods and internet educational content. Because each of these techniques of learning have advantages and disadvantages, blended education combines the best of both.

Ii. Grading By Computer

Automatic grading is a method of grading tests, homework, assignments, quizzes, essays, and other student-submitted materials using Artificial Intelligence. Automation grading is a flexible and effective method of evaluating students that also helps teachers save time and effort by reducing their workload.

Iii. Textbooks in Digital Format

Learners can access digital textbooks at any time and from any location. Students may quickly highlight any sections of these textbooks while reading them, as well as look up the definitions of terms, listen to audio translations, change the font and light, and so on.

3. Education Technology Will Inherit the Blockchain Methodology

Blockchain technology allows data to be copied and transferred but not modified. This technique is incredibly beneficial since it can prevent system hacking. As a result, Blockchain has become a new technology. In the future decade, it will be the driving force for innovation in numerous industries.

Block-chain technology has been the subject of numerous articles. They're useful when a database or information needs to be shared or collaborated on. Exam management, student credential verification, certificate verification, and other fields of education can all benefit from block-chain technology.

4. Personalized Learning

Personalized Education Traditional classroom learning entails a regular theory-based syllabus that is physically taught by teachers. Despite disparities in their interests and grasping capacity, all students have the same syllabus, classrooms, and teachers. Traditional classroom-based learning is becoming old and obsolete since it is not tailored to the needs of each individual student.

Consider online or on-demand streaming services such as Netflix, Amazon Prime, and others. These services allow us to watch television in a customized and on-demand manner. They're getting rid of limitations like location, device, and timing. With the help of these platforms, television shows and sporting events may be streamed in a personalized manner.

Similarly, the delivery of education and the learning process must be individualized. The traditional lecture format in the classroom may not be appropriate for all students. Every person has different strengths, limitations, and learning styles when it comes to a certain subject. Different students will have a preference for or interest in various subjects. Each person has their own set of circumstances. Different students flourish in different subjects as a result of these factors. Some pupils fall behind because their strongest suit is not theoretical study.

Traditional classroom learning, on the other hand, overlooks these realities and evaluates pupils solely on the basis of their grades in each subject. When students obtain lower grades in a topic, they often compare themselves to those who have received higher grades. This creates unhealthy competitiveness among kids, which may have a long-term negative impact on their self-esteem. These are some of the disadvantages of traditional classroom-based education that must be addressed as soon as possible.

Personalized learning through technology is the only option to develop a syllabus or learning activities that takes into account each student's strengths and weaknesses. As a result, this will be one of the major themes in the following year.

5. AI- Based Personalized Analysis of Individual

Artificial Intelligence (AI) is today's hottest buzzword. AI will change not only the technology sector, but all sectors as well, including banking, manufacturing, and healthcare. In the coming years, the education industry is likely to see more AI-based concepts and implementations..

Teaching By Means of Virtual Reality

Teacher feedback (human) has various limitations in terms of understanding student performance while taking prior performance into account. AI can assist in providing a complete analysis of a student's exam performance. While evaluating psychometric exams, AI can be designed to analyze a candidate's responses. AI can make algorithm-based conclusions, which may be highly useful in analyzing a candidate's responses and, as a result, understanding their thought and behavior patterns. It can also assist in making future forecasts regarding the candidate's behavior.

6. Gamification

Another creative teaching approach includes facilitating student teamwork with different Teachers and educators have begun to lend their assignments and projects in the form of games in response to the need for immersive and interactive learning approaches in the classroom. Despite the fact that it is not a new idea in the field of education, as it has been the industry's motto for more than 20 years, today's generational learning relies heavily on it. While most people believe that gamification refers to the process of incorporating solely games into the educational process, it actually has a far broader scope than it appears on the surface.

Making the learning experience for an individual as plain as possible by supplementing him with clearly established rules and restrictions made expressly to engage in the student's creative behavior is one way to incorporate gamification into one's teaching schedule.

It's critical to remove stereotypical modules from the minds of creators, parents, and teachers, because without them, pupils' trust in gamification would be limited, resulting in lower-than-expected results.

More often than not, the type of incentive that this type of learning provides the student with is short-term motivation such as achievements and scores, but since this approach is supposed to increase the learning experience, a deeper analysis by the student as well as the teacher is required. Differentiating from the established game patterns can be fascinating and encourage students to think outside the box.

7. Augmented Reality (AR) and Virtual Reality (VR)

AR uses photos, videos, and interactive data to enhance real-world experiences. AR can be experienced via portable devices such as smartphones or smart glasses. Virtual reality (VR) delivers a wholly manufactured immersive 3D experience. It gives consumers the impression that they are in a real world. In the digital environment, users hear natural sounds and see beautiful graphics. VR headsets are required for a virtual reality experience.

Virtual reality's capacity to turn academic concepts into real-life experiences can be beneficial to students. Biology students, for example, can journey inside the human body using virtual reality devices. Students will gain a better grasp of how the heart and circulatory system work in our bodies as a result of this immersive learning experience. Trainee healthcare practitioners, for example, can use virtual reality to learn how to do laparoscopic surgery.

8. Steam

STEAM is a step forward from its forerunner, STEM. STEM (science, technology, engineering, art, and math) is the new acronym. STEM (science, technology, engineering, and mathematics) has been around since the early twenty-first century, and it was a set of abilities that educators pushed students to master. The new element in this equation that encourages creativity is art.

People with STEM degrees often make more money since STEM careers are in great demand. STEM workers were vital to the recovery of the economy, but a balanced education is no longer adequate. Students learn personal expression, empathy, and purpose through arts and humanities programmes. Students' inventiveness has improved as a result of the introduction of the arts, and they have been encouraged to attempt new things. Including arts in STEM is a trend that may appeal to other students.

9. Privacy of The Students

Consumers of all types, especially students, are concerned about cyber-security and digital privacy. As a result, there is a sizable market for increasing the efficacy of existing solutions and developing new ones that will aid in the management of student data and the protection of their privacy.

CONCLUSION

Thanks to new trends in education technology, geographic accessibility and access to learning opportunities continue to improve. Students may learn from anywhere, and new learning alternatives can help them get the greatest education and training available.

To determine which choice is best for you, you must first determine what outcomes you anticipate. Define your objectives and evaluate the benefits and drawbacks of the various technological instruments available. Consider using education software development services to get a more complicated solution. When you hire a partner, you'll get more than just a finished product; you'll also get a clear picture of where you want to go next.

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TEACHING-LEARNING WITH ARTIFICIAL INTELLIGENCE: A RECENT TREND IN HIGHER EDUCATION

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ABSTRACT
Use of effective and innovative teaching-learning tools process is the need of higher educational filed. Use of digital technologies have become integral part of our day today life, including education field. "Artificial Intelligence in Education (AIED)" has seen major advancements in recent years. AI allows higher education services to become more freely accessible at a faster rate, both within and outside of the classroom. This research paper investigates the phenomenon of artificial intelligence's rise in higher education teaching and learning. Also challenges of AI implementation in higher education are also explored.

Keywords: Artificial Intelligence in Education, AIED, higher education, teaching-learning tools

INTRODUCTION
Higher education is the final stage of formal education. Higher education continues to be an important aspect in the growth of any country; this is due to the fact that the well-educated persons generated by various higher educational institutions of learning across the world play significant roles in the development of any community. Higher education is an important route through which people gain the skills they need to operate and develop. Higher education has seen an increased necessity for utilizing the latest technologies to provide online education since the pandemic began in 2020. The traditional teaching and learning process has the potential to be revolutionized by technology. Artificial Intelligence (AI) is transforming our world [1]. Artificial intelligence-based technologies have the potential to become tools for promoting equity and providing customized education.

In this chapter, role of AI in higher education and tools that can be implemented using AI.

WHAT IS ARTIFICIAL INTELLIGENCE (AI)
AI is defined as a computer system that can perform a task using certain capabilities (such as speech or vision) and intelligent behavior AI systems are Intelligent systems capable of automating tasks that were previously carried out by humans. Advances in machine learning and deep learning are driving a paradigm shift in practically every area, despite AI being a multidisciplinary science with multiple techniques. Thinking humanly, thinking rationally, behaving humanly, and acting rationally are the four basic approaches to AI that have historically defined the field. [2]. The first two concepts are about thinking and thought processes, whereas the rest are about conduct. There are four types of AI [W 1.1].

1. Reactive machines: A reactive machine is guided by the most fundamental AI principles and, as the name suggests, is solely capable of perceiving and reacting to the world around it. Reactive machines are without memory therefore; it is unable to make real-time decisions based on previous experiences. Limited memory: When acquiring information and considering prospective options, artificial intelligence with limited memory has the ability to store past facts and forecasts. Artificial intelligence with limited memory is more complicated and has more possibilities than reactive machines.
2. Theory of mind: Theory of Mind is exactly that: a theory. The technology and scientific capabilities required to advance artificial intelligence to the next level have not developed yet.

3. Self-awareness: The final step for AI to become self-aware will be the development of Theory of Mind in AI, which will occur at some point in the future. This form of artificial intelligence is aware of its own presence in the world as well as the presence and emotional state of others on a human level. Self-awareness in artificial intelligence involves both human and machine researchers understanding the concept of consciousness and then learning how to reproduce it.AI systems learn from patterns and features in the data they study by combining vast volumes of data with sophisticated, iterative processing methods. Each time an AI system completes a data processing cycle, it reviews and measures its own performance, obtaining new information. Because AI never requires a break, it can quickly complete hundreds, thousands, or even millions of tasks, learning a tremendous lot in a short amount of time and becoming incredibly capable at whatever work it's been given. The goal of AI research is to create a computer system that can model human behavior and solve complicated issues using human-like cognitive processes. Artificial intelligence (AI) is being researched and utilized in almost every industry, with the goal of improving results, automating procedures, and improving organizational performance [W 2].

AI'S IMPACT ON HIGHER EDUCATION

Chalk and talk is a traditional way of teaching learning in which the teacher is the transmitter and the learner is the receiver of knowledge. The goal of education is to develop students' computing skills, abilities, and knowledge while also encouraging them to be innovative and creative. Technology is being brought into the sphere of education in the twenty-first century. Technology has made knowledge transfer simple, effective, and engaging. Technology has the power to improve teacher-student connections and make grading pupils easier. Now a day, classrooms are being replaced by technology which makes teaching-learning process easier and effective. Artificial intelligence is significant for both teachers and students since it allows for more flexible learning solutions for students without any limitations. Artificial intelligence has already been successfully adopted in developed countries around the world. However, as compared to developed countries, developing countries are still in the early stages of artificial intelligence application. Weak infrastructure, limited access to information, a lack of institutional support, a lack of necessary resources, and a lack of technological skills are just some of the challenges that developing nations face when it comes to implementing artificial intelligence as a tool in higher education [3]. Artificial intelligence-based technologies have the potential to become tools for promoting equity and providing customized education.

Ai Tools for Future Higher Education

AI tools used for higher education are classified into three types: Institutional, Student Support, and Instructional [W 3]

1. Institutional: Application data mining that uses artificial intelligence and data mining to determine which potential students were actually interested in their programs. In this system, how these students interacted with the university's website, how they used social media, and how quickly they responded to communications is assessed. Recommendation engine takes a set of criteria - such as academics, test scores, co-curricular activities, and work experience - and provides a list of colleges that are tailored to the student's profile, making university shortlisting much easier.
2. Student support: AI is used as assessment center. At the time of assessment, AI keep watch on suspect behavior, such as looking away from the screen, conversing on the phone, making strange hand movements etc. because of this, workload of staff reduces. AI enabled chatbot is used to respond to students' questions regarding the university's programs, application procedures, and campus life.

3. Instructional: Virtual teaching assistant is a programme that aims to improve a student's academic performance. The purpose of a Virtual Teaching Assistant in an online course is to assist the professor. Virtual teaching assistants powered by AI are intended to relieve faculty members of some of their responsibilities. Cognitive Immersion Room is to enable immersion and natural multi-modal communication, the CIR pulls together numerous cutting-edge technologies like as speech-to-text, natural language comprehension, and computer vision.

CONCLUSION

When it comes to using artificial intelligence to education, the best results will come from combining AI's strengths with human abilities. There will never be a period when humans are not required for educational work. Teachers will always play an important part in our society, as we must never underestimate the importance of human connection and critical thinking in education. We are still in the early stages of AI's use, despite the fact that it offers many exciting developments, particularly for boosting education around the world. Only a small percentage of colleges presently have an AI strategy, but the majority intend to build one in the near future. For AI tools to be successfully adopted across higher education institutions, more experimentation and study is required.

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RECENT TRENDS IN HIGHER EDUCATION

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ABSTRACT
After the United States and China, India has the world's third largest higher education system. Since independence, India has made significant development in the realm of education, with a massive growth in the number of universities/university level institutions and colleges. Although India's higher education system has faced numerous obstacles, it also faces numerous chances to overcome these challenges and improve the higher education system.

The most significant problem for higher education in the post-COVID-19 Pandemic era will be to build courses expressly for online distant learning and to design strategies to attract international students. Higher education has been a priority in India since the country's inception. However, as a result of liberalisation, privatisation, globalisation, and the need for a competent workforce, there has been an increase in demand for higher education. In response to the rising demand for higher education, the government has made steps to assure system quality while also meeting the rising demand.

Keywords: Higher education, learning, curriculum, students etc.

INTRODUCTION
India has the world's largest higher education system, with 1,000 universities and 40,000 colleges. India's higher education system is about to undergo a massive shift. One of the reasons why our higher education system has shaped higher education in India is because of the pandemic. So, here are the upcoming trends that you may have seen a significant shift in. Second, the New Education Policy will be quite important.

1. The Curriculum's Perspective Has Shifted:
Previously, the curriculum was more subjective and focused on pre-determined subjects. This resulted in boring coursework with little room for introducing new ideas or pushing pupils to think outside the box. Higher education, on the other hand, will now provide students with the necessary space, encouraging them to use their creative potential. As a result, rather than focusing on what to think, the attention will move to how to think.

These developments will undoubtedly have a significant impact on your academic career. Quality education at reputable schools or universities, on the other hand, might be costly. As a result, student loans for higher education will enable you to achieve your goals without relying on others.

2. Taking In Information from Several Sources:
Learning results across the education spectrum have suffered as a result of schools and universities around the world hastily pivoting to online instruction. The experiment with online teaching, on the other hand, forced a re-examination of time and location in the educational world. Students learning at their own pace and conducting science experiments in their kitchens had some advantages. Hybrid learning entails not just mixing virtual and physical classrooms, but also allows for genuinely immersive and experience learning, allowing students to apply classroom concepts in the real world.

Instead of adopting a "learn from anywhere" strategy (which provides flexibility), educational institutions should adopt a "learn from everywhere" strategy (providing immersion). In 2021, one of our partners, Esade, a European business school, will introduce a new bachelor's degree

that includes on-campus and online seminars in Barcelona, as well as immersive practical experiences working in Berlin and Shanghai, while students develop their own social venture. This type of course offers a fully blended learning environment.

3. Enriching the Educational Experience of Students:
Chatbots, AI, and other technological solutions are already integrated into the educational system and are evolving to become more robust in order to fulfil the new requirements. Learning Management Systems (LMS), on the other hand, will alter how coursework is delivered. From creative learning content to educational movies, educational puzzles to innovative games, the LMS will have it all. This will also keep all of the student data, making it simple to track their progress.

4. Active Learning in Place of Lectures:
Lectures are both a great teaching tool and an ineffective learning tool. Professors have been utilising them for centuries as a cost-effective technique of imparting their expertise to pupils at universities and colleges.

However, at an age where digital information is widespread and accessible, it seems absurd to pay thousands of dollars to listen to someone give you information that you can get for free elsewhere. School and college closures have brought this to light, as ineffectual lectures have made their way into parents' living rooms.

Institutions of higher learning must demonstrate good learning outcomes, and some are beginning to embrace teaching techniques based on learning science. This demonstrates that our brains do not learn by hearing, and the information we do pick up in this manner is soon forgotten (as shown by the Ebbinghaus forgetting curve, below). Real learning is based on principles like spaced learning, emotional learning, and knowledge application.

This strategy, termed as 'totally engaged learning,' has progressively gained acceptance in the educational establishment. There is evidence that it not only improves learning results but also closes the educational gap for pupils from low-income families. For example, Paul Quinn College, a historically black college in Texas, will begin offering an Honors Program in 2020 that will mix completely active learning with internships at local businesses. This has allowed students from historically marginalised backgrounds to put their university skills to use in the real world.

5. E-Learning/Video Streaming/Flipped Classroom Trends:
Video is likely the most obvious and widespread type of technology innovation in K-12 and higher education, including Zoom, Skype, Webinars, and even live broadcasting on social media itself.

Of course, video facilitates additional developments. What's an example? In some cases, the flipped classroom concept appears to be posing a challenge to the college lecture.

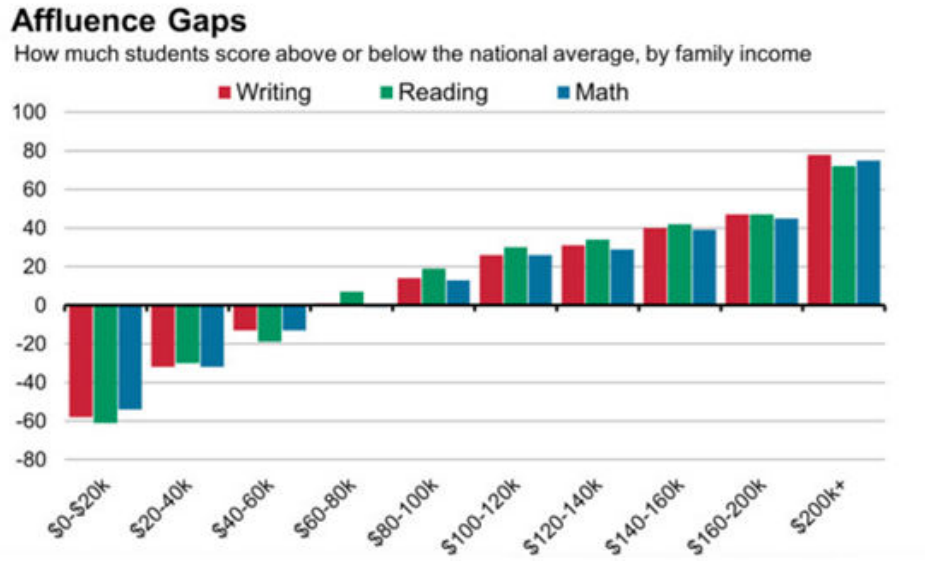
YouTube, too, does–or should–this. Because there is already so much outstanding information available, selection is just as important as creation.

It's not like any of this is really exciting. In higher education, like in K-12, there is a lack of leadership, with each university or league looking for itself. This is exacerbated by equity difficulties, when the quality of one's education is nearly entirely contingent on how much money their parents make, despite programmes professing otherwise.

6. Instilling Abilities That Will Be Useful in an Ever-Changing Environment:
According to a recent poll, 96 percent of university Chief Academic Officers believe their institutions are doing an excellent job of educating students for the workforce. Only 11% of business leaders and less than half of college students (41%) agreed with this statement. Even if

these abilities and the technologies that support them are destined to become obsolete, universities continue to focus on teaching specific talents utilising the latest technologies. As a result, universities are always playing catch-up when it comes to the abilities that will be required in the future job.

Skills that remain relevant in new, changing, and unexpected circumstances are what we need to teach. Journalism students, for example, may have previously been taught how to write long-form stories for publication in newspapers; more recently, they may have been taught how to write shorter pieces and upload content for social media. How to identify and relate to readers, how to construct a written article, and how to choose the best medium for your intended market are all skills that will last a lifetime. These are talents that cut across fields and can be applied by scientists as well as attorneys.



Many people are admitted to higher education as a result of standardised tests that favour people from a particular socioeconomic class.

7. Curriculum that is Open to All:

Open curriculum, such as MIT's Open Courseware, has been around for a while but hasn't caused much of a stir.

MOOCs are fantastic ideas, but they are hampered by obstacles such as assessment and feedback loops, as well as certification. And, somehow, they've become the punch line of edtech jokes. Many of the complaints people seem to have about them are ones I disagree with. It could be a question of what kind of expectations you're bringing to the table. It's not fair to compare an unsupported MOOC from 2008 to an in-person college experience.

When you compare that MOOC to a self-motivated learner Googling topics or browsing Reedit for information, it's not that awful. I believe that, rather than being on the periphery of the university experience, eLearning will eventually become the norm, but how? What is the content? What types of delivery models are there? There's a lot to think about. Nonetheless, this is an excellent example of higher education innovation.

8. Textbooks on the Internet:

This is a tiny but significant innovation: free, open-source textbooks, digital textbook rental, and so on. At the very least, this makes textbooks more accessible than they have ever been (just like MOOCs made courses more accessible–for better or worse).

9. Virtual and Augmented Reality (VR/AR):
Almost certainly a major factor in the future of all education in some form, but far from ready for widespread implementation. Let me give you an example. Students can operate a chemical plant using augmented reality.

10. Artificial Intelligence (Ai):
AI, like virtual reality, is on the horizon but not quite there yet. It's quickly becoming a hot issue in universities all across the world.

This is only one of many possibilities for AI's contribution in education.

11. New Types of Certification and Degrees:
New certifications and university degrees may combine STEM and humanities subjects, as well as 'nano-degrees' and the ability to 'upgrade' your certification and degree over time.

CONCLUSION

India has a long history of the Gurukul system, in which students from all walks of life received all sorts of instruction in residential institutions, both formal and informal, in order to instil and assess both scholastic and co-scholastic domains in each and every student. It was CCE approach from the past. The length and breadth of different disciplines of learning are becoming infinite as technology evolves and knowledge revolutionises. One of the ways we can train our next generation to become global contributors who can connect across cultures, time, and geographies is to combine traditional teaching pedagogy with modernization of learning and a globalised approach. The implementation of CCE in higher education in India is deemed necessary because the majority of students completing higher education courses in India are deemed unable to work on a global scale. In today's industry, a dynamic youth with a diversified personality is required. At the moment, there is a significant gap between industry requirements and higher education curricula. Neither the curriculum designers nor the teaching strategies for transferring the learning of the supplied subject contents are specified. Due to a shortage of teaching instructions such as conveying topic knowledge via lecture, seminars, group discussion, workshops, tutorials, or role play, most higher education teaching is restricted to boring lecture methods.

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RECENT TRENDS IN HIGHER EDUCATION

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ABSTRACT
Within a new strategy, higher education institutions have played a prominent role in the social and traditional to the modern. Universities are accountable not just for teaching and research in this changing environment, but also for the economic development of countries. There has recently been a shift from the who are also in charge of responding to student requests, the government, and the corporate world. Understanding all of these trends is a very important component for the advancement of universities, as the higher education environment has changed primarily as a result of globalisation and a number of other key international trends. Universities should be aware of all new techniques in higher education during the transition process in order to educate their students for a new environment.

The reform process in higher education has been mentioned by a number of people, newspapers, and publications, but they have not fully grasped it. The goal of this piece is to draw attention to the clear trends and advances in higher education. The essay begins with a review of pertinent literature. The eight approaches are then listed. To explain all eight indicated advances and trends, the study relies on linked literature. The paper concludes with a synopsis of recent developments and trends in order to grasp new approaches to higher education change.

The core of any modern educational system is a well-equipped and well-managed library. It is stated that education without library services is akin to having a body without a soul, driving a car without an engine, or constructing a structure with bricks but no cement. The library is the most important tool for preserving and utilising our intellectual legacy. Only well-equipped libraries allow formal education to be conducted properly and efficiently. This paper focused on recent trends in India's higher education system, as well as the function of academic libraries in that system.

Keywords: Higher Education, system, students etc.

INTRODUCTION
The ability to generate qualified workforce of sufficient quantity and quality is a prerequisite for promoting economic and industrial development in a country. According to demographic forecasts based on 2001 Census data, almost 144 million Indians will be between the ages of 18 and 23, which is the target age range for higher education, in 2011. At the time of India's independence, there were 20 universities and 591 colleges, with 0.2 million students enrolled in tertiary education. Following independence, the country's progress has been phenomenal. India today has a well-developed higher education system that provides opportunities for study and training in nearly every element of human creation and intellectual endeavour.

Structure And Statistics Of Higher Education In India:
Engineering/technology, pharmacy, architecture, hotel management & catering technology, management studies, computer applications, and applied arts & crafts are all approved and regulated by the AICTE and similar sectoral authorities (such as the Medical Council of India). The DEC maintains standards, encourages, and organises open and distance learning activities in India (ODL). Distance education, combined with new information and communication technology (ICT), has the potential to expand the boundaries of higher education in ways that have never been seen before. This is because it costs 66% less and students do not have to leave

their homes or jobs. Distance education is being advanced through the use of the internet and satellite technology. Accreditation agencies formed for this purpose help the Higher Education sector ensure the quality of the educational process.

Challenges of Higher Education System in India:

• A Scarcity of High-Quality Research:
Funding for top Indian institutions such as IITs, IIMs, and other national-level research institutes is plentiful. However, due to a lack of high-quality research, the research money is not underutilised. Few Indian higher educational institutes are internationally recognised due to a lack of focus on research and internationalisation.

• Although the number of research articles produced in India has steadily increased over the last few decades, it has a low citation impact when compared to other countries such as Germany, the United States, France, and China.

The inadequate quality of curriculum in Indian higher education is a problem. The curriculum at higher educational institutions is outdated and irrelevant.

• Faculty Shortage and High Student-Faculty Ratio:
More than 30 percent of faculty posts at most state and central institutions are vacant. In recent years, the number of students enrolled in higher education has increased at a quicker rate.

• Inadequate Infrastructure and Facilities:
With the exception of India's most prestigious higher educational institutions, most colleges and universities lack basic and advanced research facilities. Many institutes lack sufficient infrastructure and fundamental facilities such as libraries, dorms, transportation, and sports facilities, all of which are necessary to rank a quality institution.

Initiatives Taken By the Government in the Area of Human Resource Development:
• The Central government has developed a new special scheme for female students called "Udaan." Mentoring and scholarships will be provided under this scheme to help deserving female students transition smoothly from school to technical education, as well as to improve the teaching and study of mathematics and science at the senior secondary school level by offering free resources.

• The project's main goal is to increase the number of female students enrolled in famous technical universities and to provide them with particular incentives and support so that they can join these institutions and eventually assume leadership roles.

• Another noteworthy step is the launch of a mission named after freedom fighter and educationist Pandit Madan Mohan Malviya, which aims to develop a strong professional cadre of teachers by addressing all issues concerning teachers, teaching, teacher preparation, professional development, curriculum design, design and development of more effective pedagogy, and better assessment and evaluation methodologies.

• The Rashtriya Avishkar Abhiyan was established to rekindle youth enthusiasm in technology by promoting innovative learning based on observation and experimentation. Learning outside of the classroom would be emphasised through direct interaction with the environment surrounding educational institutions.

Suggestions For Improving The System Of Higher Education:
• To make India's educational system more internationally relevant and competitive, new and transformational approaches must be implemented from primary to higher education levels.

• Through student exchange, teacher exchange programmes, and other cooperation with high-quality national and international higher educational institutes, higher educational institutes can increase their quality, reputation, and credibility.

• For better quality and collaborative research, the government should encourage collaboration between Indian higher education colleges and top international institutes, as well as create links between national research laboratories and research centres of top institutions. There is a need to focus on graduate students by offering them courses in which they can achieve excellence and develop a deeper understanding of the subject so that they can get jobs after being hired by corporations, reducing the need for unneeded rush to higher education.

CONCLUSION

We have highlighted the current state of higher education in India in this paper. We also identify obstacles in higher education.

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TO STUDY ON NEW TRENDS IN HIGHER EDUCATION - HYBRID LEARNING

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ABSTRACT
Nowadays very popular trends in higher education Hybrid learning .Hybrid class means having both classes online and offline or Hybrid pattern means a mixture of online and offline classes or lectures combined. It is where the lectures are held both in the college and online.Students will have the option of attending lectures in person or remotely under this approach. This programme combines online and offline learning.The main advantage is that the students who are living far from the institution don't necessarily need to move away from their home and can easily attend the classes from the comfort of their home.It is even cost effective to some students as living expenditure goes down drastically for students living far from institutions.Understanding becomes easier as you have everything available at the palm of your time.It has made the students more acquainted and adaptable to both the ways of learning. The students are readily acceptable for any mode of education be it traditional or modern. remove barriers of location in the education process.

Keywords: Hybrid, Education and Learning

It Where the Lectures Are Taking Place in the College As Well As Online

INTRODUCTION
Nowadays very popular trends in higher education are Hybrid learning .Hybrid learning tools are very important tools in higher education. Hybrid learning is an educational way of learning .Hybrid class means having both classes online and offline. Offline classes students attend the classes in person while others join the classes virtually from home . Hybrid learning educators teach remote and in person students at the same time using tools .Hybrid learning is one of the important trends in higher education .Flexible for students and teachers, better students engagement during pandemic , connection ,cost and time efficient.Also we were used online tools in pandemic situation . After second or third wave started that time we were used hybrid pattern

The term hybrid learning can imply two types of educational settings :-

1. Where face to face learning is combined with online learning for those learners / students who cannot make it to the classrooms physically simply because of geographical limitations or remote location.

2. Where traditional classroom blackboard - lecture method is accompanied by technology and digital platforms for teaching students for a more immersive learning. This is also called blended learning.

OBJECTIVES OF HYBRID LEARNING
To increase outreach of learning to remote places and left out learners.

To enable practical learning to supplement classroom learning techniques.

RESEARCH METHODOLOGY
This research studies primary data have been collected through observation based as well as secondary data have been collected through magazines, articles , Books ,Newspapers ,websites etc .

Hybrid Education Plan in Higher Education

An education plan that seeks to accommodate online / digital learning along with classroom learning is a hybrid education plan. Hybrid learning is an educational approach that combines face to face classes and joins the classes virtually from home .

It's an approach to learning and combines instructions from class and active online participation. This education plan mainly aims at giving students the benefit to choose whether they want to attend lectures personally or remotely. This plan is a combination or a mixture of online and offline classes.

Benefits of Hybrid Learning

Benefits for learners, educators.

For learners :

Conceptual clarity

Greater interest in learning

More retention capacity.

Helps develop basic understanding of the subject.

Hybrid learning can overcome distance and location related barriers.

For Educators

Complementary aid to teachers for better explanatory teaching.

Enables teachers to carry out teaching - learning process for worthy but underprivileged students owing to various barriers.

Increases outreach of education.

Helps educators get updated with the latest technology usage.

More effective teaching can help achieve better outcomes.

The benefit is that the students who are living far from the institution don't necessarily need to move away from their home and can easily attend the classes from the comfort of their home.It is even cost effective to some students as living expenditure goes down drastically for students living far from institutions.Understanding becomes easier as you have everything available at the palm of your time.

Advantages of Hybrid Learning -

The main advantage is that the students who are living far from the institution don't necessarily need to move away from their home and can easily attend the classes from the comfort of their home.It is even cost effective to some students as living expenditure goes down drastically for students living far from institutions.

Understanding becomes easier as you have everything available at the palm of your time.

-More immersive experience in learning.

-Useful in case of geographical limitations or remote locations and abnormal situations like pandemic.

-More useful for science studies where concepts of physics and chemistry can be explained with the help of animation based education packages.

-Visual aids based learning has more retention power compared to rote learning.

-Students show more interest in dealing with technology.

Dis -advantages of Hybrid Learning
For some students understanding can become a problem.

Understanding capacity of each student is different and grasping power as well.

Internet accessibility. Power cut problems. Speed related problems.

Platforms for online classes remain limited.

Limited participation.

Does not provide a dedicated environment for clearing doubts as in the case of classroom environment.

Educators cannot give individual attention to every student.

Most queries of students may go unentertained.

Stay at home study can be constantly interrupted by a homely environment.

Makes students more lazy.

Classroom aesthetics are not followed.

Issue of ergonomics - effects on eyesight, posture related issues.

Effectiveness of Online Learning
Better retention capacity of learners.

More practical learning and understanding outside of books.

It might translate to better explanations by students during exams.

Permanent learning

Outcomes of Hybrid Learning -
It has made the students more acquainted and adaptable to both the ways of learning. The students are readily acceptable for any mode of education be it traditional or modern .

-Better and in depth understanding.

-Conceptual learning.

-Cognitive development .

SUGGESTION
Hybrid learning models are a great way to achieve effective teaching - learning process.

Educators can use digital teaching aids to supplement their teaching process.

Delivering lectures throughout presentations and interactive writing tools can help save time spent in traditional blackboard - duster writing for teachers.

Hybrid learning can enable in depth understanding coupled with speedier process of learning and retaining compared to traditional methods.

This is especially helpful for teaching subjects like accounting where numericals are long and can not be taught completely on one board and in a span of 45-60 minutes with explanation.

It can be replaced by an empty schedule of accounts that can be presented on a PPT slide and then relevant information can be written through use of light pens and interactive writing screens by teachers.

CONCLUSION

The term "hybrid pattern" refers to a combination of online and offline lessons or lectures.Hybrid class means having both classes online and offline.Online classes open a new way of teaching as it gives more different ways of putting a topic forward.It gives the professors the opportunity to add new pictures, ppt presentation and any other way they want to present it.It becomes easier for the professors to make the students understand the topics.Give students choice to take class as they want .In pandamic situation having more of offline lectures can be dangerous for the spread of covid .If one student has covid it can affect all the people in college and everyone will have to get them tested .If they go positive their whole family will be at risk and will have to be quarantine.The main advantage is that the students who are living far from the institution don't necessarily need to move away from their home and can easily attend the classes from the comfort of their home.It is even cost effective to some students as living expenditure goes down drastically for students living far from institutions.Understanding becomes easier as you have everything available at the palm of your time.

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RECENT TECHNOLOGY TRENDS IN HIGHER EDUCATION

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ABSTRACT
The previous decade`s trend of advancing higher education technology has led to the current education technologies that are burgeoning in 2022 due to various advances in higher education.

As a result of the ongoing pandemic, Universities worldwide are struggling to adapt to the changing scenario. The adoption of new technologies has been essential to keep the world moving forward.

Keyword: Technology, Higher education, Students

INTRODUCTION
Among the many new trends in education other than privatization, globalization, and education for sustainable development are technologically mediated education, lifelong learning, distance learning, inclusive education, education for peace, etc. All these trends are a consequence of modern thought and practice. As shown in the new trends in education, the recent changes in society have altered the educational system's requirements. In this sense, a particular trend often has its roots in a contemporary social issue. In this article, we will primarily discuss trends related to privatization, globalization, and sustainable development, while discussing a few others briefly.

1. Conducting Online Assessments
Various companies have developed platforms to conduct exams online, enabling people to give exams from the comfort of their homes. Digitization of an old-fashioned method of conducting exams offline has led to online proctoring.

It has been one of the major trends in higher education from 2020-21, which has continued this year.

Students are prohibited from misbehaving by way of the use of algorithms, especially those that use Artificial Intelligence. Automated proctors and chat boxes that use AI have been developed.

Students are photographed while they write exams as an example of how AI can be applied to the education industry. The use of facial recognition for cross-checking the identities of students on campus and online is another example.

Consequently, students in remote locations can enroll in virtual reality classes and complete their assessments in a hands-free, secure environment. Such platforms will be in high demand in 2022 as many countries are still recovering from the pandemic

In addition to analysing handwritten or typed answers to theoretical questions, algorithms that use machine learning and artificial intelligence can also compare them with the models' answers in order to make an accurate and consistent analysis every time.

Using AI-driven assessments, educational institutions can gather precise data on what students have learned and how they have performed. In the near future, software-driven evaluation is likely to become the norm.

2. Podcasting

Throughout history, podcasts have been around. Then how does podcasting contribute to the evolution of education technology? Podcasts are downloadable audio files that can be played on various devices over the internet.

According to estimates from the year 2019, the world's podcasting industry was valued at around USD 9.28 billion. Between the years 2020 and 2028, it is projected to grow by 27.5% annually.

Among the most popular podcast channels are without a doubt Apple and Spotify. Furthermore, Spotify, iHeartMedia, and audible all closed content deals at a rapid pace in the past two years.

Students usually have less than a 10- to 15-minute attention span during live lectures. A student typically listens to 80% of a podcast recording. Podcasts can be listened to whenever and however many times the person wishes. Students can therefore remember concepts better.

Students enrolled in online classes can benefit from podcasting by understanding concepts better.

3. Big Data For Performance Tracking

In the education industry, data analytics programs are being utilized to bridge the gap between current issues that require immediate attention and future possibilities that can impact the way we work.

For students pursuing higher education, data analytics are immensely beneficial not only during exams, but also during everyday campus life.

This allows for the change and improvement of curriculum structure, instructional delivery, and student learning. It can also provide insight into important trends that impact resource needs now and in the future.

This can also lead to an increase in the graduation rate of almost 61%, as well as 47% real-time curriculum adjustments. The study found that 44% of professors believe that big data is also an essential tool for measuring an institution's performance and 22% believe that regular scans can uncover flaws in the university's administrative processes.

Students' records and data can be maintained with this technology, saving the university a lot of time. Exam results, attendance, behavior, etc. can be tracked precisely.

As a matter of fact, the major advantage of data analytics is the lack of human error. A student's future performance can also be predicted with Immersive technology in education using historical data.

4. Internet of Things (Iot)

Software, electronics, and other devices are being used in education to connect objects via the Internet of Things (IoT).

Besides exchanging and compiling any type of information, they do not require human intervention. Among the applications of this technology in the education sector are face detection, student vehicle monitoring, etc.

An IoT-enabled school is known as a "smart school". For receiving and sending instructions, they use smart devices that use WiFi networks on campus. This allows them a satisfactory level of personalized learning.

Cost-effectiveness has now been achieved by IoT. The system provides digital attendance management, tracking of students' locations in real-time, monitoring of electricity usage, the detection of humans in a room, etc.

Typically, schools spend about $200,000 on paper annually, which represents about 10% of their budget, however, the reusable tech will eliminate that expense completely.

Universities can use technology such as 3D positioning to monitor the presence of any student at any time using IoT to create a safe and secure campus. Emergency buttons can also be made available during an emergency.

IoT can also help track the total time taken by the students for completing a particular assignment.

5. Virtual Reality Labs

In case you are a devout humanist who dislikes the idea of dissecting frogs open, then you will definitely like this trend! The immersive and engaging nature of Virtual Reality means the most engaging experience possible for students.

Students & faculty can conduct advanced science experiments on their desktops using the VR Labs virtual reality science labs. The benefits of VR Labs for higher education are that students can interact with objects while learning more about how they work instead of just reading about them in a book.

This provides students with the opportunity to learn about experiments that are often too complicated, expensive, or dangerous for regular classroom use.

The inside of the human body, the pyramids of Egypt, or a simple chemistry experiment can all be explored with virtual reality labs. Wearing a VR headset can give you a whole new level of learning!

The benefits of VR in education take training to an entirely new level by not only providing a whole new experience for the user but also making it fun for them. Technology is the key to deep, conceptual learning, and VR takes that to an even higher level.

CONCLUSION

Adapting quickly to the latest trends in technology will enable higher education institutions to gain high-value propositions. In addition to gaining brand value and recognition, this will improve the learning experience of students at the institutions.

So, the year 2022, although still quite unpredictable, is probably going to witness a rise in the number of institutions that will be utilizing the aforementioned technology as well as a variety of others in the education industry.

It will also assist them in generating hybrid patterns of education to attract a larger audience of students who want to keep up with the pace of technology development.

In addition to offering the most advanced technological solutions for enhancing students' education, VR labs are also helping candidates get ready for the professional world.

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SKILL DEVELOPMENT COURSES IN HIGHER EDUCATION

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ABSTRACT
Nations with high skill capital tend to be prosperous from the perspectives of both GDP and per capita income. As an economy moves from a factor and commodity-centric to a knowledge-centric one, growth becomes increasingly dependent on the availability of skills. Creating a skill growth program for continuous improvement is the surest way of achieving inclusive and sustainable growth. Skill development takes place through two major institutional structures. formal and informal, according to recent times. Along with the public sector, private sector participation in various skill development programs has increased. The focus of skill development is diverse, encompassing both the provision of simple manual skills for basic employment and the development of comprehensive skills for industrial employment.

Key words- *Skill Based learning, higher education, skill development.*

Skill-based learning involves the planning, implementation, and analysis of skills acquired through knowledge-based learning methods. Students are encouraged to think logically, analyze concepts, and apply their findings. The idea behind this innovative and in-demand learning method is to help students become independent thinkers and prepare them for future challenges. The world changes, and so do economies; the demand for a skilled workforce is increasing. In India, there has been huge demand for graduates possessing employability skills. Catering towards this industrial market demand has provided a requirement to integrate skill-based education in higher education. There is an aim to develop student's skill sets and make them work ready and industry-ready professionals. Graduates with general education possessed only theoretical knowledge were unable to find jobs due to the lack of skills as per the industrial demand. They suffer rejections and even unemployment due to a shortage of requisite skill sets. A necessity has been felt to parallelize general education with skill-based education in the higher education sector. The integration of higher education with skill-based education incorporating experiential learning has become an important part of the present days' education system to provide better sustenance to the profession. Thereby, it provides a smoother transition to work for graduates leading to productive employment.

OBJECTIVES OF THE STUDY

1. To Understand Role of Skill Development Courses in Higher Education.

Ugc Skill Development Initiatives:
Through various interventions, India's vast population can be transformed into a benefit of a vibrant demographic dividend and a highly skilled society. An investment in skill-based education, learning, and training assists the country in transitioning from a labor-intensive economy to a skill-intensive economy and will serve as a means of achieving inclusive development for the entire country.

The Government of India has established various national partnership organizations, such as the National Skill Development Corporation, to provide a holistic approach to skill development (NSDC). Many Sector Skill Councils (SSCs) have been established under the auspices of NSDC in collaboration with industry partners (University Grants Commission). This has resulted in the curriculum being aligned and a shift from knowledge-led to demand-driven systems for skill acquisition and training.

The University Grants Commission (UGC) has introduced a plan in the country for skill development-based higher education.

The Community College Scheme intends to deliver low-cost, high-quality education on a local level, including conventional skill development as well as traditional coursework.. The CCs provide knowledge-skill mixed programs of varying durations based on the needs of the local industry. It is a mutually beneficial relationship between the community, community colleges (CC), and the labour market

The B.Voc. programme focuses on universities and colleges that offer undergraduate programmes that include particular employment responsibilities and associated National Occupational Standards. This will allow graduates to play a significant role in boosting India's economy by finding suitable work, becoming entrepreneurs, and producing knowledge.

Universities and colleges will be home to Knowledge Upgradation Centers for Skilled Human Action and Learning (KUSHAL). These centers will provide programmes ranging from the Certificate to the Research level (NSQF Levels 4 – 10). 100 such centers are proposed to be set up during 12th Plan of University Grants Commission (UGC).

In collaboration with NSDC, a comprehensive credit framework for skill development-based vocational courses has been developed. The revised guidelines will be presented to the Commission for approval at the next meeting. Credit Framework for Skill Development-Based Vocational Courses: UGC Guidelines for Community Colleges and B. Voc Degree Programs, as well as KUSHALs.

NSDC will ensure that post-training assessments and skill component certification are completed on time by NSDC-approved Sector Skill Councils. NSDC will also assist in facilitating learner employment and On-the-Job-Training (OJT) for UGC-trained students.

This curriculum will be built around identified job roles and will be aligned with Qualification Packs and National Occupational Standards developed by sector Skill Councils.

Advantages

Students are the country's human capital, and it is critical to empower them in order for the economy to grow. Some of the advantages of skill-based education are as follows:

Flexibility-Skills-based education gives students ownership of their learning and helps them close the knowledge gap. The entire structure is dependent on the individual, and students control their learning through assessments and hands-on projects. The assessment, rather than grades, demonstrates their competency, and is a great boon for dropouts.

Acquiring Knowledge-Skills-based learning means students are groomed to become successful leaders in their chosen field. To facilitate this process, it is paramount for students to acquire real life skills such as leadership and management skills. These tangible experiences are often overlooked in the traditional form of education.

Purpose-Driven -Skills-based education is unquestionably more effective and purpose-driven, providing students with a clear goal as well as a vibrant culture. It is the ideal blend of opinions, values, and routine to form a strong foundation. It promotes and develops the art of learning and development, allowing students to succeed in their chosen field.

Reforms in Higher Education for Skill

Although India's young population is an asset, barely 12 to 15 percent of those between the ages of 18 and 24 are enrolled in higher education**.** Current general education also suffers from a lack of qualified teachers, study materials, study facilities in rural areas, and a high dropout rate. The problems are exacerbated in rural, interior villages due to receiving the least priority and having

insufficient facilities. Unrecognized industry training courses in skill training institutes are a major source of dropouts. The government is working to reform higher education by identifying major challenges and strengths. In order to reform the aforementioned parameters, the primary role of ICT in education and delivering the expected results has been identified. Nowadays, ICT-based education is made mandatory and is being expanded to all institutes in both secondary and higher education, as well as in all subjects.

Through skill-based education that includes work-integrated learning, experiential learning, and training, students will be able to develop, demonstrate, and apply effectively the generic or employability skills that include soft skills and hard skills. The following are some of the perceived learning outcomes as they relate to the development of generic or employability skills:

- **Technical Skills:** Students will be able to recognize and operate tools, techniques, machines, equipment's and devices.
- **Problem-Solving Skills:** Students will be taught the importance of thinking and then working out how to apply their knowledge to solve problems.
- **Critical thinking Skills:** They will be taught how to critically examine and consider different points of view, as well as engage in creative and imaginative problem-solving.
- **Creativity and Innovation Skills**: Learning by doing and learning through role-playing, industrial internships, and apprenticeship will help students discover new facts, contribute, and share ideas. Students will remain open to new opportunities and committed to continuous improvement for specific tasks.
- **Communication Skills:** Students will develop the ability of understanding, listening, reading, writing, negotiating, presenting, giving and receiving feedback and being assertive. They will also be able to transmit ideas, opinions and information. Learning in the classroom as well as in the workplace under the guidance of several experienced faculty mentors and industry specialized professionals will enhance their development.
- **Team-Working Skills:** Students will be able to collaborate effectively with people of different races, ages, genders, religions, and cultures. Students would learn and practise with friends, faculty mentors, instructors, trainers, and professionals both in the formal classroom and in the industry. As a result, such experiential learning will improve the student's ability to collaborate effectively with others.

CHALLENGES

There is still a disconnect between the key stakeholders in the academia-industry network, which are the Educator, Students, and Employer. A significant source of concern is the lack of formulation between higher education institutions and industry employers.

The trainers and teaching staff do not receive appropriate and timely quality training.

Another issue is a lack of skilled teachers and support systems for apprenticeships and apprenticeships in the industry.

The population-to-university-skills ratio is inequitable.

SUGGESTIONS

To ensure that all stakeholders are involved in shaping India's education system, a comprehensive collaboration between academia, industry, and government is required. Through work-integrated learning activities, internships, and industrial mentoring programs, more effective and sustained industry-institute engagement leads to strong academic-industry connections.

In this regard, the number of teacher training colleges built in India should significantly expand.. Educational institutions must ensure that all teaching staff have adequate qualifications and industrial experience, that they have received training before beginning to teach, and that they continue to receive training.

Greater efforts should be made to increase the flexibility of multidisciplinary education and training systems, which means that there should be integration of study and work within mainstream education to develop transferable skills among students.

It is critical to place a strong emphasis on collaborative, complementary, and innovative models such as Public-Private Partnerships (PPPs) and to encourage greater participation from the public and private sectors in order to improve skill development capacity.

Roll of Educational Institutions in Skill Development

*Schools' vocational education should be improved, as this will provide a channel for students to acquire skills! During school, students develop both life skills and industry-specific skills.

*Content and Curriculum designing should be delivered with Quality.

*Information and communication technology led to the use of interventions to achieve scalability, standardization, and impact maximization.

ICT can play a role in the following areas:

Assessment and Sourcing (via media, internet, community-based mobilization of employers) are required.

Curriculum design and development standardized curriculum that can be easily replicated and offered in multiple locations to assist with scale up

*Focus should be on formulation of institutional mechanisms for content formation! delivery! and assessment, with a focus on training needs of the unorganized/ed sector. This could include government institutes! Private agencies and civil society organizations as well as academia and non-governmental organizations' (NGOs).

*Technical and vocational schools and training centers should take steps to strengthen their ties with industry. Update curricula and instructional materials! In addition to updating facilities and equipment, schools and training centers should consider how they connect with the private sector.

*Schools should strive to improve the relevance and quality of their students' technical and vocational training, as well as the relevance of skills developed to employment, and should provide additional training resources.

*Schools are being encouraged to engage in CBT (Cognitive Behavioral Training) which aims to improve the relevance of training offered and the placement of students. The CBT approach aims to shift attention from schooling inputs to outcomes and promotes greater accountability.

CONCLUSION

India has one of the most extensive higher education systems in the world, with central universities, state universities, private universities and affiliated colleges serving as sources of skill training in both technical and non-technical methods. The New Education Policy is on its way, and it may contain appropriate directions for integrating skills in higher education and academic equivalence to skill-based courses.

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WEB- BASED LEARNING IS THE FUTURE FOR HIGHER EDUCATION IN INDIA

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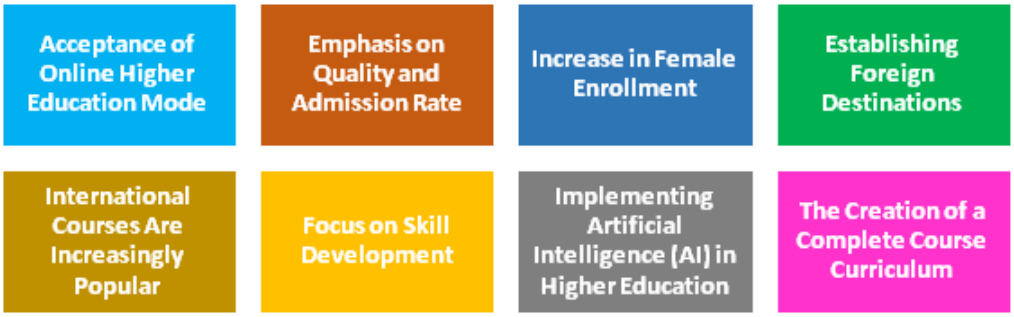
ABSTRACT

India's higher education system ranks third in the world, trailing only the United States and China. India is making steady progress in the field of education. The expansion of universities/university level institutions and colleges is evidence of a developing nation. There are many challenges in India's higher education system, but by overcoming them, India is focusing on only future opportunities and attempting to make higher education better and more efficient. India has over 42,000 colleges and 1,000 universities. India is about to witness a massive transformation in higher education. Pandemic is a watershed moment in higher education, which has been undergoing tremendous change. The New Education Policy (NEP) 2020 will have a significant impact on higher education in India. So, in this chapter, we'll focus on what's coming up. The primary goals of higher education can only be realized through qualitative changes in the educational system. Higher education has made remarkable progress across all educational patterns, but India still has a long way to go. The year 2020 was very important for education; throughout the year, the education system was gradually evolving and responding to inductions such as changing learner needs and emerging technologies; the pace of change has enhanced with the unexpected situation created by the pandemic and the sanction of the NEP.

Keywords – NEP, Government education Institutions, Private education Institutions, Overseas education app



1. Acceptance of Online Higher Education Mode

As a result of the pandemic, educational institutions have been forced to use this method of instruction. Prior to the pandemic known as distance learning, there was online education. In response to rising demand, higher education institutions are developing program that can be completed online. Despite the fact that they are just getting started, they have already received a tremendous response. Along with the advancement of online learning, it is expected that the youth will show an interest in learning a variety of languages.

2. Emphasis on Quality and Admission Rate

We have a solid foundation to build on with the most comprehensive higher education system. The government is now expected to focus on improving the quality of each institute and increasing student enrollment.

3. Increase in Female Enrollment

India has the world's largest education system, which is expected to change and even grow in the coming years. In the academic year 2018-19, approximately 1.82 crore women enrolled in

higher education. Women's enrollment has increased at an astounding 4.9 percent CAGR since 2011-12. We can now expect a much younger generation of females to have higher academic aspirations.

4. Establishing Foreign Destinations

The United States, Canada, Australia, and the United Kingdom are the most popular countries. Indian students are expected to relocate to new countries such as New Zealand, Ireland, Germany, France, Russia, and others as a result of changes in US immigration policies and Brexit.

5. International Courses Are Increasingly Popular

The demand for colleges and universities that offer international certifications has increased. We offer a diverse range of global courses from prestigious universities such as Harvard Business School and others at ASM's IBMR. This ensures that students around the world can learn and continue with what is being taught.

6. Focus on Skill Development

In the near future, the government plans to expand skill development programmes to serve more than 500 million people. It is also working on the establishment of new skill centers, the creation of a National Policy on Skill Development and Entrepreneurship, the amendment of the Apprentices Act, and other initiatives.

7. Implementing Artificial Intelligence (AI) in Higher Education

In the last 20-30 years, there has been slight change in the Indian higher education system. Institutions are eager to restructure the current educational system in order to meet the challenges and expand opportunities presented by AI advancements.

Colleges are expected to develop a course curriculum that will ensure that the country's education and research do not fall behind. When it comes to learning tools, interactive and immersive tutoring are the most effective.

8. The Creation of a Complete Course Curriculum

The program regularly engrossed on imparting theoretical knowledge. Colleges are expected to take a more hands-on approach to teaching because textbook learning is unlikely to result in a good job. Colleges have already begun to incorporate internships into their degree program, as well as to establish campus innovation and entrepreneurship cells. The syllabus is expected to focus on the overall development of each student.

Higher Education In NEP (New Education Policy) 2020

In the year 2022 education gives more importance to NEP (New Education Policy), It gives added incentive to vocational education by introducing vocational subjects and training at school levels as well as college level. The upcoming of education looks as auspicious as never before. The pandemic period almost two years have covered technique towards newer possibilities and innovative dimensions in learning. The National Education Policy 2020 (NEP 2020), introduce on 29 July 2020, highlights the vision on India’s new education system. NEP 2020 emphases on five supports: Affordability, Convenience, Quality, Equity, and Responsibility.

It aims at develop the complete personality of students by firming infrastructure for open and distance learning, online education and increasing the use of technology in education.

- The National Research Foundation (NRF) will be established to increase research activity in the country.
- A National Accreditation Council (NAC) will be recognized as a single regulator for higher education institutions across the country.

- Efforts will be made to establish a National Recruitment Agency for all government recruitment exams, as well as a Common Eligibility Test (CET) for similar level recruitment exams.

The NEP 2020 calls for important improvements in both secondary and higher education to better prepare the next generation to flourish and compete in the new digital age. As a result, there is a strong emphasis on multi disciplinarity, digital literacy, written communication, problem-solving, logical reasoning, and vocational readiness.

❖ **Online Courses Offered by Government (HRD-UGC)**

To make the pandemic period productive, the Ministry of Human Resource Development, in collaboration with UGC, has published a list of some ICT initiatives on its official portal.

In the form of a digital platform, the list comprises various ICT initiatives of the MHRD, UGC, and its INER University Centers (IUCs)-Information Library Network (INFLIBNET) and Consortium for Education Communication (CEC). Teachers, students, and researchers in universities and colleges can use this to broaden their learning horizons.

1. Swayam Online Courses

SWAYAM which means Study Webs of Active Learning for Young Aspiring Minds is an online portal enthusiastic to provided that the best teaching-learning knowledge. Candidates can apply for SWAYAM by visiting the website and following the instructions. This portal allows any learner to sign up for online courses. Of course, availability varies according to the number of institutions, the requirements of individual courses, faculties, and a variety of other factors. Over 900 free online courses will be available beginning in January 2022. Courses delivered via SWAYAM are free to students; however, students pursuing a SWAYAM certificate must register for the final proctored exams, which are charged, and attend in-person at designated Centre on specified dates.

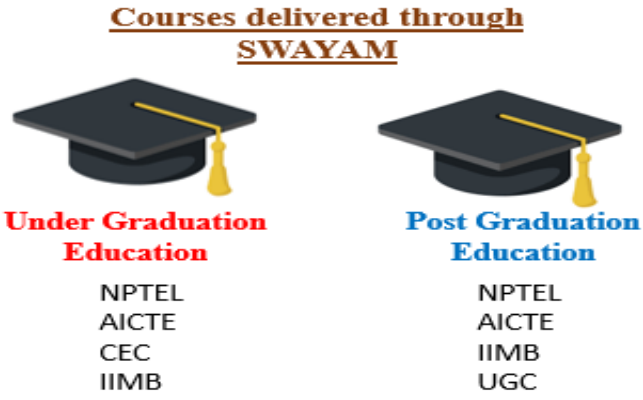
Courses in SWAYAM are divided into four parts:

(1) Video lectures,

(2) Reading material that can be downloaded

(3) Self-valuation through tests and quizzes,

(4) An online conversation opportunity for clarification.



- **CEC (Consortium For Educational Communication) For Under-Graduate Education**

CEC suggestions free online courses. The SWAYAM online platform of the Government, permitting students to virtually attend online higher education courses. Students can gain access

to high-quality educational resources from eminent subject matter experts, participate in discussion forums, and earn academic credits by taking tests.

The CEC MOOC lasts between 8 and 12 weeks. Video lectures, reading materials, assessment components, discussion forums, e-mails, and video conferencing are used to engage students. These credit-bearing free online higher education courses can be found here.

- **CEC-UGC-Youtube Channel**

Unlimited educational videos by experts are there on this website which is totally free of cost**.**

https://www.youtube.com/user/cecedusat

- **UGC (University Grants Commission) For Post-Graduation Non-Technical Education**

The SWAYAM online stand is a Ministry of Human Resources and Development scheme. It offers UGC course materials in pdf format as well as explanatory lecture videos from industry experts. Although not all courses on the portal offer a certificate, they are designed to help UG/PG students from all disciplines. Some courses, such as those in Cybersecurity, Artificial Intelligence, and Digital Marketing, do, however, provide a certificate. The UGC MOOCs portal is part of the Ministry of Human Resources and Development's SWAYAM initiative.

- **NPTEL- (National Program on Technology Enhanced Learning)**

NPTEL is a combined venture of the IITs and IISc. NPTEL began as a project to bring quality education to all corners of the country, but it now offers nearly 600+ courses for certification in roughly 22 disciplines every semester. The largest online source of engineering, basic sciences, and selected humanities and management courses in the world. With over 1.3 billion views and 40 lakh subscribers, NPTEL's YouTube channel is the most subscribed educational channel. Around 56000 hours of video have been subtitled. The world's most popular peer-reviewed educational content library.

- **AICTE (All India Council for Technical Education)**

The All-India Council for Technical Education (AICTE) has announced the launch of an online training platform which was known as "Enhancement in Learning with Improvement in Skills (ELIS)". It offers free online courses through a single platform. These courses came from 18 of the most well-known Ed-tech companies, including edX, Guvi, Simpliv, Great Learning, and others. The content is the responsibility of the respective company because AICTE is a collector rather than the original content creator.

- **IIMB (Indian Institute of Management, Bangalore) For Management Studies**

IIMB has offered more than 20 free online courses with the help of SWAYAM. It receives and assesses MOOC which means Massive Open Online Course suggestions from institutions universities show interest in offering online course on SWAYAM. Universities and institutions can submit proposals to IIMBx, the digital learning division of IIM Bangalore. The IIMB provides a diverse set of approximately 30 management courses. The IIMB faculty offers all courses that meet the needs of the learner, from accounting to innovation and corporate strategy. Furthermore, depending on the type, complexity, and level of the free online courses, the duration ranges from 5 to 12 weeks. IIMB's primary courses are Ph.D MBA, PGPPM, and MBA (Business Analytics).

- **Swayamprabh**

This website, SWAYAM PRABHA, is a collection of 34 DTH channels dedicated to broadcasting high-quality educational program 24 hours a day, seven days a week via the GSAT-15 satellite for arts, commerce, science, agriculture, technology, engineering, and other subjects. The channels are from BISAG, Gandhinagar. NPTEL, IITs, UGC, CEC, and IGNOU provide the content. The web portal is managed by the INFLIBNET Centre. 5. All students and teachers are able to use the cable operator.

2.E-PG Pathshala

The UGC is executing e-PG Pathshala as part of its National Mission on Education through ICT. Subject experts working in Indian universities and other R & D institutes across the country created high-quality, curriculum-based, interactive e-content in 70 subjects spanning all disciplines of social sciences, arts, natural and mathematical sciences and mortalities, dialectology and languages. Each subject had its own team of researchers, paper coordinators, content writers, content reviewers, language editors, and multimedia specialists.

3. National Digital Library

The National Digital Library of India (NDLI) is a virtual source of learning resources that offers more than just search and browse capabilities to the learner community. The learners can find the right resource with the least amount of effort and in the shortest amount of time. NDLI offers services personalized to specific user groups, such as Examination Preparatory for high school and college students and job seeker even for researchers and general learners.

4.Vidwan

India's highest database of profiles is VIDWAN not only for researchers but also for scientist and R&D organizations who involved in teaching and research. It contains vital information about the expert's background, contact information, experience, scholarly publications, skills and accomplishments, researcher identity, and so on.

5.Bharat Skills and Eskill India Portals

The Bharat Skills portals are a collection of skill-based courses, the majority of which adhere to the NSQF curriculum. Currently, the Bharat skills portal offers e-learning videos for 79 trades such as carpenter, electrician, and plumber.

eSkill India, a multilingual portal, provides more than 400 courses in approximately ten regional languages. The information on these online portals is combined by various knowledge and content partners. These are NSDC e-Learning Aggregator Portal.

❖ **Best Online Platform for Professional Courses**

The government, higher education institutions, and corporations such as IBM and TCS have all taken steps to provide courses through online portals. There are many online learning portals available for school, college, and university students, as well as higher education and research institutes.

Learning platforms are better suited to students looking for a subject to study.

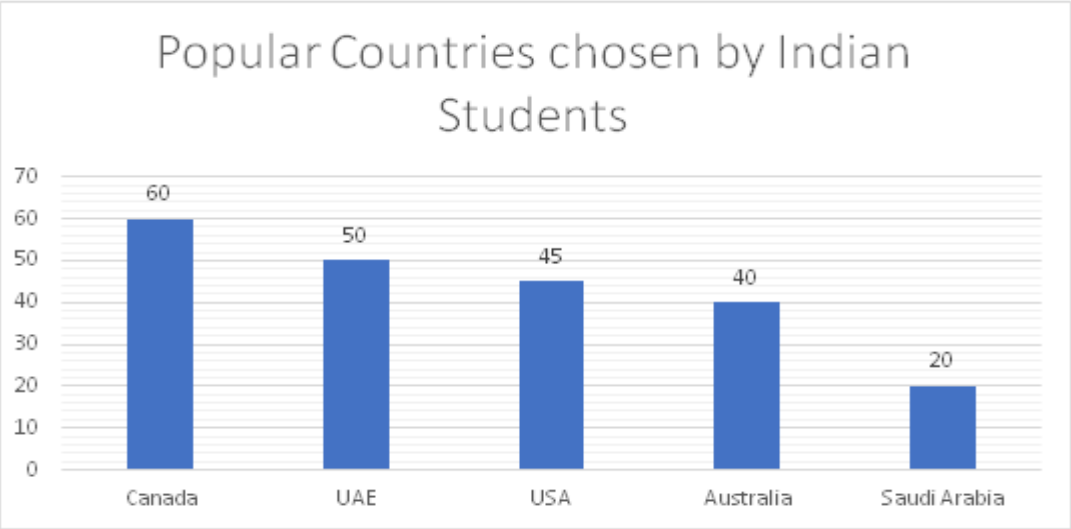
Online learning platforms, such as Coursera, Udemy, and Unacademic are frequently used to identify marketplaces for courses or education, whereas course platforms usually refer to the software used to create a learning environment.

LOGO	Name	Explanation
coursera	Coursera	Free and paid both courses available. More than 4,350 online courses, 350 projects, 500 specializations, 40 certificates, and 25 degrees are available. Data science, information technology, artificial intelligence, and computer science are among the many subjects covered, as are digital marketing, social sciences, arts, and humanities. numerous others

	EdX	Undergraduate, graduate, and master's level courses and program are available, as well as professional certification and executive education program. It does not provide certificates for archived courses; however, verified certificates for specific courses are available for a fee
	Udemy	It provides more than 2 lakh courses in photography commercial, design, development, music, marketing, information technology and personal development, software, it is a paid platform, the courses are starting at Rs 360.
	My Great Learning	Great Learning is the part of BYJU'S. It is a leading worldwide EdTech organizations for online professional and higher education, offering industry-applicable blended program. These programs are having collaboration with organizations such as MIT Professional Education, IIT Bombay, IIT Madras, IIT Bombay, etc.
	Unacademic	India's first female IPS officer- Kiran Bedi, has completed her graduation of Unacademy. This app offers over 2400 video lectures and specialized courses on various competitive exams, which have benefited over 300,000 students from all over the country. It has supported students in enlightening their writing skills, language abilities, and information
	Adda 247	Adda 247 was founded in 2016 with the goal of preparing students for government exams such as bank exams (SBI, RBI, IBPS, etc.), SSC, Railways, Defense Exams Teaching Exams. This app offers Online Classes, On-Demand Video Courses, Mock Tests, eBooks & Books, and assistance throughout the exam cycle. This mobile app is the second largest ed-tech platform in India.
	GradeUp	GradeUp is a Times Internet Group initiative. Exam groups such as SSC, NEET, UPSC, Banking, JEE, GATE, Defense, and State level exams, Railways, Teaching, With the help of quizzes and mock test, students can collectively learn, ask queries, and solve each other's problems.
	Sololearn	This app has the most comprehensive collection of code learning content, ranging from beginner to expert, and it is completely free. It will assist in learning languages such as HTML5, CSS3, JavaScript, Python, Java, C++, C, C#, PHP, SQL, Algorithms & Data Structures. Users can use a free code editor provided by Sololearn. On a daily basis, the Sololearn community posts new content.

❖ Overseas Education is the Attraction of Today's Generation

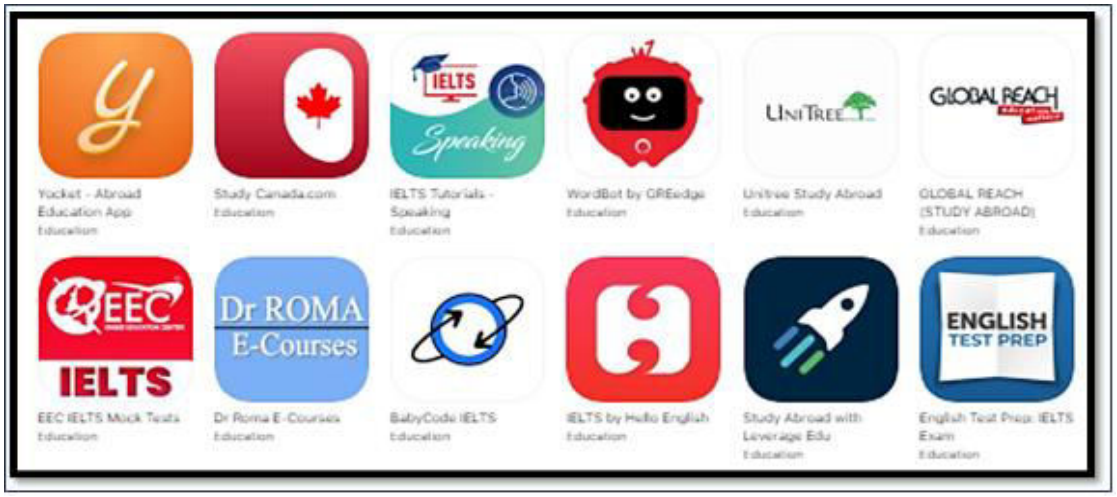
According to the researcher's survey in 2021-22 students are interested in studying abroad. Today's generation thinks that overseas study means more opportunities to learn and enhance themselves for learning and even there are many good opportunities of jobs, so they prefer overseas studies. Some popular countries which are chosen by Indian students are as follows



Students who want to study abroad face numerous challenges. It is common for students to be perplexed about visa application procedures and, for that matter, course selection. Some companies are creating the most recent app that can keep students up to date on the most recent overseas education news, policies, and regulations. The multi-featured app would aid in gaining a thorough understanding of the courses and procedures in Australia, New Zealand, and Canada, etc.

These apps include information about all of the courses available in the aforementioned countries. They also provide regular updates and announcements on any new developments in the field of international education.

They are reliable, useful, and trusted, the ideal place to begin research and understand the process for studying in the United States, United Kingdom, Australia, Canada, Germany, the Netherlands, and many other countries.



CONCLUSION

Web-based learning systems will be the future of education in the coming years. The government should broaden the scope of online education and raise awareness among various segments of society. In a country like India, where there is diversity in language, religion, age, and knowledge, the marketing of an E-Learning system is critical. E-Learning Providers will gain new customers as a result of increased marketing. Because of the rapid growth of internet, mobile phone, and other electronic gadget users, we can predict that traditional learning systems will be replaced by E-Learning systems in the near future. Not only will online education benefit students, teachers, and professionals, but it will also provide a diverse opportunity for corporations to expand their business opportunities.

The goal of education is to empower people to improve the world in which they live.

Technology has evolved into a necessity of the hour. It is difficult to imagine a college or university education without the use of digital resources that provide a variety of educational and academic information. Online learning can be the best mode of teaching if it is accessible to all sections of society; however, it can pose a threat if certain sections of society are unable to access this facility, resulting in exclusion. As a result, it is critical to recognize the importance of online education and plan interventions that priorities' greater inclusivity, connectivity, and equitability.

It is critical that colleges and universities understand the students' experiences and issues, and that they prepare for the future and design the study pattern in such a way that all students benefit.

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RECENT TRENDS IN HIGHER EDUCATION OF ECONOMIC

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ABSTRACT
This article is devoted to the recent trends of economics subject in higher education. In this research the author show the analysis of global trends in the world and Russian education that are important for improving the professional training of graduates at the Universities of Economics. They focused on the current socioeconomic demands on higher economic education, the characteristics of graduate formation as a product of the educational process, and the future orientations of economic education modernization based on information technology.

Keywords: economic education, technologization, knowledge, , informatization, activity based learning.

INTRODUCTION
While economics is usually cited as an important component of citizenship education in both the general and academic press, it has long been a contentious and debated subject in schools. Recent developments in economic education are reflections of long-standing concerns about the role of economic knowledge in citizen education and how best to equip teachers with economic knowledge and materials. Measures taken during the epidemic do not address the core reasons of higher education's difficulties. Institutions must undergo meaningful transformation, moving toward active learning and imparting skills that will be useful in the future. Formative assessment is more effective than high-stakes assessments in terms of equipping students with the skills they need to succeed.

Trends That Will Shape the Future of Higher Education in Economics

We've started to see examples of actual reform in the last year, tackling the core causes of the education crisis. In 2022, we expect four higher education trends to emerge.

1. Learning from Everywhere
Other kinds of learning, such as blended learning and elearning, are included in the phrase "online learning." Learning results across the education spectrum have suffered as a result of schools and universities around the world hastily pivoting to online instruction. Students learning at their own pace and conducting science experiments in their kitchens had some advantages. In other words, learning does not require the speaker and the student to be in the same room. Online learning's inherent characteristics, as well as technology improvements, explain why it is becoming so popular. Hybrid learning entails not just mixing virtual and physical classrooms, but also allows for genuinely immersive and experience learning, allowing students to apply classroom concepts in the real world.

Instead of adopting a "learn from anywhere" strategy (which provides flexibility), educational institutions should adopt a "learn from everywhere" strategy (providing immersion). Along with the advancement of online learning, it is projected that young people will demonstrate an interest in studying a variety of languages.

2. Replacing Lectures With Activity Based Learning
Lectures are both a great teaching tool and an ineffective learning tool. Professors have been utilising them for centuries as a cost-effective technique of imparting their expertise to pupils at universities and colleges.

The process of learning through doing is known as activity-based learning. Activity-based learning encourages students to actively participate in their own learning experience through practical tasks such as problem-solving and independent exploration, rather than merely listening and taking notes. By using activity-based strategies to encourage children to explore, experiment, and learn on their own, such as:

Topic Title	**Active Learning Strategies**
1. Property Rights in a Market Economy	Students accept a lower or larger reward for acquiring rare objects depending on whether or not property rights are explicitly specified.
2. The Economic Way of Thinking: Activities to Demonstrate Marginal Analysis	In an activity to demonstrate diminishing marginal value, a student drinks water.
3. Economic Activity in a Circular Flow	Study about the circular flow of money and resources, students take on the roles of households or enterprises.
4. Economic Decision Making	Students work in groups to allocate a scarce item using a decision-making model that shows the opportunity costs of several options.
5. Fiscal Policy: A Two-Act Play	Students act out a scenario demonstrating the effects of expansionary and contractionary fiscal policies.
6. The Invention Convention	Students create a product in groups. They then market it and figure out how much it will cost, how much it will make, and how much it will make.
7. The Role of Government in a Market Economy	Students volunteer to pay for information that is both a private and a public good.
8. Money and Inflation	To figure out what causes inflation, students compete in two rounds of an auction.
9. How to Solve Mysteries Using Economic Reasoning	Students use economic reasoning techniques to find answers to seemingly enigmatic economic questions.
10. Why People Trade	Students decide whether or not to trade small goods voluntarily and learn about the benefits of free trade.
11. A Market in Wheat	To discover the equilibrium price, students act as buyers or sellers in a simulated market.
12. Productivity	As they write books in groups, students learn about the benefits of specialisation and capital investment.
13. Trade in a Global Economy and Comparative Advantage	Students act out a scenario that demonstrates absolute and comparative advantage.

Source: Economics in Action: 14 Greatest Hits for Teaching High School Economics (NCEE 2003)

3. Use of Computer Technology in Economic Education

As students get access to nearly limitless sources of data, the efficiency of technology holds out the potential of greater economic education. Teachers who are dubious of their economic knowledge are able to discover answers to inquiries relatively instantaneously. Most importantly, when time is limited, teachers will be able to obtain lesson plans without having to go through multiple sources of material.

The Internet connection that many teachers and students now have has changed economic education. Students now have rapid access to information that was unthinkable only five years ago. Teachers, for example, can go to http://www.3.mgmt.purdue.edu/icee/ and fill in their

information. on their computer and go to the "Indiana Council for Economic Education" (ICEE) webpage, where they can get additional information about the World Wide Web.

The Internet isn't the only place to learn about economics. The National Council on Economic Education's Library of Materials is available to classroom teachers through "Virtual Economics," a CD-ROM product. Teachers will be able to access lesson plans by grade level and content using "Virtual Economics." Teachers will also be able to print off the majority of these materials for use in the classroom. Teachers might get multiple explanations for concepts they don't understand or find difficult to teach from the programmes.

CONCLUSION

Economic knowledge is an important part of citizenship education. There are no silver bullets to solve the problems that contribute to economic ignorance: secondary teachers who all too often only have the minimum state requirements in economics; elementary teachers who frequently do not complete any undergraduate economics courses; and a curriculum that focuses on history, political science, and geography. Recent trends in economic education, on the other hand, provide cause for optimism. Not only are educators emphasising the relevance of economics in personal and commercial decisions, but they also appear to be having meaningful discussions about the interplay between economic systems, democratic governance, and civic education. This bodes well for the future of economics as a basic component of democratic civic education.

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RECENT TRENDS IN LANGUAGE LEARNING AT HIGHER EDUCATION

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ABSTRACT
The study of the English Language is going through changes throughout India and the world. The changing scenario offers students more openings, greater self-confidence, and out-of-the-box ways to better hone their linguistic skills. The current trends include the use of new technologies in language teaching or learning is a trend that is catching up fast. Greater use of social media to establish a connection with students is on the rise. The growing phenomenon of globalization, liberalization, and privatization has been immensely influencing linguistic skills.

The Higher Education sector in India is very vast. The role of language in national development is well established. The objectives of language learning can be achieved only through a qualitative change in the system. The output of education should be multidimensional and with full global competitiveness. However, it needs to realize that the graduates have lack practical knowledge. The practically oriented language acquisition. Few points regarding new trends in higher education language learning described briefly in this paper. The approach behind it is to learn and study the new and upcoming trends in higher education.

Keywords: Challenges and Drawbacks Improvement, Competitive Environment & Emerging Trends, Mass messaging alert programs, Social Media Platforms, Texting Applications, Virtual Platforms.

INTRODUCTION
With the evolution, of human beings, the basic needs which have been enlarged. Earlier, food, shelter, and clothing formed the basic needs of human beings. However, with the advancement in the contemporary era, another important factor that was added up to the list of basic needs was education. It is through education only that transmission of tradition and culture, running of politics and economy is made possible. With a number of educational options existing before the students at present, newer trends are seen to emerge in the field of education that has entirely changed the traditional system of education prevalent in India. Many career alternatives, which were previously not regarded as important or popular are now among the sought-after career options for students. Nowadays English language programs are emerging fast, thereby depicting the deviation from the older trends.

OBJECTIVE
The objective of this paper is an effort to learn and study the new trends in higher education language learning.

METHODOLOGY
The secondary data is used to learn more about the new trends in education. E-resources and articles have been referred.

DISCUSSION

Future Higher Education Trends
The continuing coronavirus outbreak has us questioning practically every aspect of our existence. Higher education is examining the structure, procedure, and sustainability in order to cope with the current crisis circumstances – and even rise above- the problems within available resources.

Faced with the pandemic's global effects, such as school closures, social alienation, public health concerns, unemployment increases, housing instability, and food insecurity, innovative schools and universities have had to pivot through costly operational obstacles. To go beyond mere experimentation, post-secondary institutions are letting go of old habits, balancing immediate requirements, and learning lessons while prioritizing them quickly!

Consequently, a new educational environment is forming, establishing expectations for a post-pandemic society and requiring academics to be more innovative.

Language Acquisition

Language needs to acquire cautiously. This will enhance the individual capabilities and power of students. It is the process by which society deliberately transmits its accumulated knowledge, skill, and values from one generation to another. In fact, education is any act or experience that has a formative effect on the mind, character, or physical ability of an individual. Finally, it enables them to benefit from the various networks, which can also be valuable support throughout professional life.

Top-of-the-Line, Game-Changing Educational Technology

The academic experience has developed and adapted in the same way that people have during the pandemic. Institutions need trustworthy technology, such as strong systems and secure networks, to give students with education accessible from anywhere in the new world of high-volume, remote learning.

Hence, teachers' commitment to invest in user-friendly technology for a smooth experience might help overcome time, technological, and location barriers to language learning throughout the digital move to huge virtual learning.

Faculty training and development must be included in the digital delivery of education so that all tech-related questions may be answered swiftly and easily. Whether it has to inform students about COVID-19 or to give "coming attractions" for their future employment, some of the innovative solutions need to be utilized to combat the pandemic's effects.

Do Not Mask Your Mental Illness: Mental Health Activism and Awareness

The COVID-19 pandemic's social isolation and alienation have aggravated pre-existing mental health issues. The distinctions between education, work, and personal life have eroded, producing severe psychological anguish in many parts of the world.

Burnout and uncertainty are all too authentic and compartmentalizing between the sofa and the classroom has grown less prevalent. As a result, the inexorable change in everyday conditions has resulted in an increase in the number of pupils requesting assistance. Institutions are devising innovative student's engagement strategies, such as presenting inclusive virtual events that bring together people with similar interests and identities during periods of social isolation.

CONCLUSION

It is concluded that the new trends are about to come further. Teachers and students are adapting and getting updates to the new trends in higher education for language learning. In this paper, an attempt has made to analyze the trends in language education, problems, and issues relating to teaching methods that leads to the growth of learning management system by reaching the demands of industries and even the education institutions need to strive to achieve a balance between the education cost and the quality. One of the major criticisms is the gap between theory and practice. Colleges and universities may enhance their services through various quality programs. A student's creativity mostly depends upon his or her experience and acquired skills, which is relating to his or her effective language learning. I hope that our main aim should be quality education through activity-based language learning.

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RECENT TRENDS OF IT IN COVID-19 ON HIGHER EDUCATION

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ABSTRACT
The rate of change brought about by new technologies has a significant impact on education. Over the years, India's higher education has seen impressive growth in information technology. Current emerging technologies are challenging the traditional teaching and learning process, and a new educational model is being implemented to manage the teaching and learning process. In and of itself, information technology plays an important role in the field of study. Information technology has a significant impact on all curriculum areas.

The Covid-19 pandemic began in the year 2020. Schools and colleges are being closed around the world as a result of the pandemic. Over 1.2 billion children are not in school around the world. In Covid-19, information technology is crucial to education. Students in Covid-19 can continue their studies with the assistance of information technologies.

Secondary data for this study was gathered from various websites, books, and research papers. This article analyses and summarizes data.

Keywords: Information technology, Education, Recent trends, Higher education, Emerging technology.

INTRODUCTION
"I believe that the integration of information technology in education will be further accelerated and that online education will eventually become an integral component of school education," Wang Tao, Vice President of Tencent Cloud and Vice President of Tencent Education.

The government of digital India has begun computer education in the first grade. Students study using a variety of online applications. The admission process for higher education (graduation and post-graduation) is based on an online website. Degree students use information technology from the time they enroll until they graduate.

India has the world's largest higher education system, with 1,000 universities and 40,000 colleges. India's higher education system is about to undergo a massive shift. One of the reasons why our higher education system has undergone such drastic changes is because of a pandemic. Second, the New Education Policy (NEP) 2020 will have a significant impact on India's higher education system. So, here are some forthcoming trends to be aware of.

Presentation in Power Point:
Teachers nowadays use a variety of online applications to assign homework and administer class tests. PPT presentations are also used by teachers during lectures.

The following are some advantages of using PowerPoint presentations in the classroom:

1. To improve students' concentration
2. To increase the visual impact
3. Using various learning styles
4. Extremely adaptable tool
5. Creating interactive presentations with text, audio, video, and images

Google Classroom:
Google Classroom is the most widely used online tool for teaching and learning. Google Classroom is a piece of free software created by Google. The primary function of Google Classroom is to allow teachers and students to share files. Teachers can use Google Classroom to create, distribute, and grade student assignments.

1. Effective communication and collaboration
2. Accelerate the assignment process
3. A simple and easy-to-use interface
4. Simplicity of use
5. Available on all devices
6. An excellent discussion system

Top 10 Current Educational Technology Trends for 2020-21
Educators nowadays use cutting-edge teaching methods. The following is a list of educational trends that are both new and important. You can select the most appropriate technology for teaching or training from this list. The top ten most recent educational technology trends that are must-know when diving into this industry.

1. Elearning
Because of the rapid spread of COVID-19 and the closure of schools and colleges, distance learning will be the most popular education technology in 2020. As a result, there is a growing demand for online educational platforms. ELearning is education or training that is delivered using various electronic devices. Online activities based on slides can be used. It could also be an online course that assists students in gaining knowledge. Employees can be trained in necessary skills by trainers using online platforms.

Educational content is delivered to learners via computers, laptops, tablets, or smartphones in eLearning. It saves time and opens up many possibilities for interactive learning. Not only are you saving time, but you're also opening up new opportunities for interactive learning. eLearning also encourages students to make their own decisions about what they want to learn.

Nowadays, online learning platforms offer a plethora of outstanding features. You can teach your students via live streaming or various online video conferencing apps such as Zoom, Google Meet, or Microsoft Teams. You can also use recorded methodologies with a variety of media and digital functions to capture the necessary knowledge.

2. Video-Assisted Learning
Video-assisted learning has grown in popularity in the classroom in recent years. The video is no longer being shown on television; instead, it is being shown in a classroom. There are various types of videos available on the internet and digital devices.

This trend is also gaining traction in higher education, where students learn through computer screens. Videos, particularly animated videos, can greatly enhance lessons and make content more understandable. It improves student outcomes while reducing teacher workload.

3. Library on the Internet
Internets offer a wide range of operational and experimental services. In recent years, students have primarily used online libraries. This online library contains a wealth of information for students.

The majority of study material in higher education is available in online libraries. They need to make use of the new multimedia technologies to communicate ideas, describe projects, and order information in their work.

4. Blockchain Technology

The Distributed Ledger Technology (DLT) of Blockchain provides numerous educational benefits. It provides more benefits for data storage. As the volume of data increases by the day, managing storage becomes increasingly difficult. Concurrently, the data will be encrypted for security reasons before being distributed across multiple computers in the system. It decentralizes and transacts data in a transparent manner.

Blockchain technology is used in Massive Open Online Courses (MOOCs) and ePortfolios to validate skills and knowledge. Students pursuing higher education will benefit more from these online courses. Furthermore, it can help student applicants publish their performance after finishing their higher education and looking for work.

5. Artificial Intelligence (Ai)

AI is the "in thing" in the US EdTech market right now. People predict that by 2021, AI will be the dominant trend, growing by more than 45 percent. So, why is the trend exploding in one of the world's largest EdTech markets? First and foremost, AI can automate basic educational activities such as grading. Teachers can now automate the grading of multiple-choice and fill-in-the-blank questions. As a result, automated grading of student writing might not be far behind.

Furthermore, AI has the potential to benefit both students and teachers. For example, when teachers are too busy to help everyone, students could seek assistance from AI tutors. Furthermore, AI-powered programs can provide useful feedback to both students and teachers. That is why some schools use AI systems to monitor student progress and alert teachers when there may be a problem with students' performance. As a result, it's not a stretch to imagine AI as a useful tool for in-class instruction. Meanwhile, why not use AI to help your students get more out of their educational experience?

6. Learning Analytics

The current landscape of learning analytics has grown dramatically, particularly in higher education. Learning analytics enables educators to measure and report on student learning using only the internet. As a result, they will be able to better understand and optimize learning.

Teachers can improve their students' knowledge and skill acquisition by reading insights from their students' learning processes. Teachers, for example, can see what type of information (text, images, infographics, or videos) students prefer and use it more frequently in subsequent lessons. Furthermore, teachers can identify which pieces of knowledge were not effectively delivered and improve the next time. Furthermore, learning analytics assists educators in identifying groups of students who may be experiencing academic or behavioral difficulties. Teachers could benefit from this. Teachers could develop a way to help students reach their full potential.

7. Immersive Learning with VR and AR

Since the introduction of Virtual Reality (VR) and Augmented Reality (AR) to education, the classroom learning experience has changed dramatically. The increased demand for experiential learning propels the advancement of learning with VR and AR.

Learning has become much more interactive than traditional methods thanks to the use of virtual reality and augmented reality. As a result, they aid in the explanation of complex concepts that plain images or even hands-on experiments in a lab cannot demonstrate to students. Virtual reality and augmented reality allow students to practice real-world surgeries in a low-risk environment. With the help of VR and AR, students can carry out complex experiments.

8. Steam

STEM-based programmes have been replaced by STEAM-based programmes as the most recent EdTech breakthrough. This new EdTech movement integrates meaningful Science, Technology, Engineering, Art (the new element), and Math material to solve real-world problems through hands-on learning experiences and creative design.

The first advantage of STEAM is that it encourages students to become more curious about the world around them. Furthermore, it provides a safe environment for students to express and experiment with their ideas while thinking outside the box.

9. Social Media in Learning

Students in higher education are increasingly using social media to learn. Every student spends a significant amount of time on social media. Why don't we make it a powerful tool for enhancing learning?

This is how the idea of using social media for education came about. Many educational institutions have begun to use social media as a means of communication, allowing students to easily interact with one another. Students can easily share study materials, hold group discussions, and comment on others' posts. Some organizations create educational videos that are worth sharing and post them on YouTube so that people can easily find access and share them with their friends.

Significance of IT in education any time learning

The rate at which knowledge is imparted in this day and age of computers and web networks is extremely rapid, and anyone can be educated. Because of the growth of information technology, one can study whenever he wants, day or night, and whether he is in India or the United States.

Multimedia Approach to Education

Audio-Visual Education is a multi-sensory approach to learning that entails the planning, preparation, and use of technologies and materials for instructional objectives that incorporate sight, sound, or both. Still and motion images, filmstrips, television, transparencies, audiotapes, records, teaching machines, computers, and video discs are among the devices employed. Audio-visual education has progressed in lockstep with technology and learning theory improvements.

Some are wondering if online learning acceptance will continue post-pandemic, and how such a move will affect the global education sector, given the abrupt shift away from the classroom in many regions of the world.

Video Conferencing Applications

In 2020, all schools and colleges will close and continue teaching by using different online meeting applications. With the help of various video conferencing applications students have continued their education.

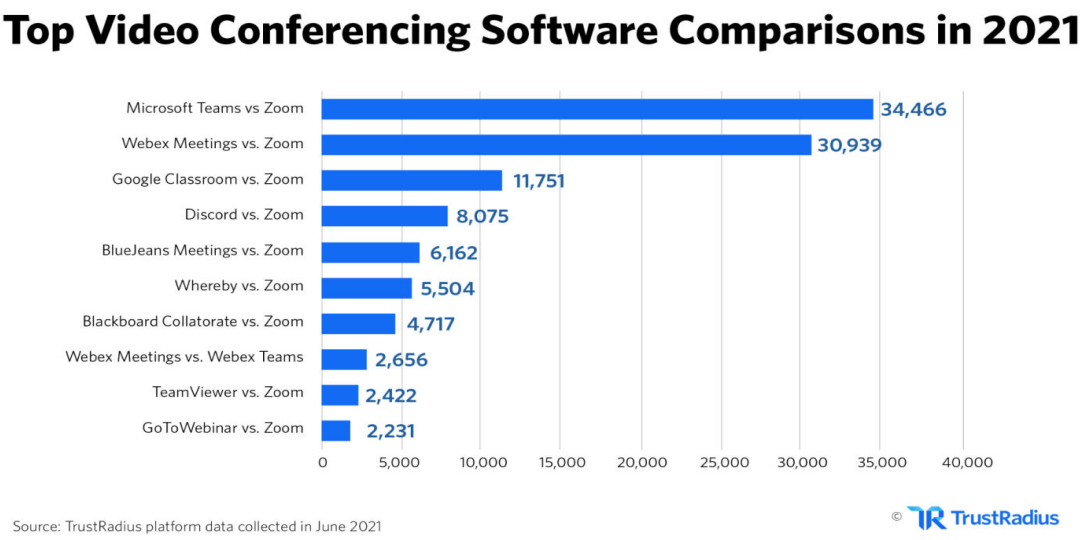

Fig 1.1 Top video conferencing software comparisons in 2021. [1]

Market share report of top video conferencing software in 2021 states that Zoom application dominates 50% of video conferencing market in 2021. Next popular after Zoom is Microsoft Team with 23% market share, Webex meeting with 11%, TeamViewer has 8% and Google Meet which commands 4% market share. Based on that report, Zoom is the most popular meeting application in 2021. Over 90,000 schools used Zoom at the height of the pandemic. [1]

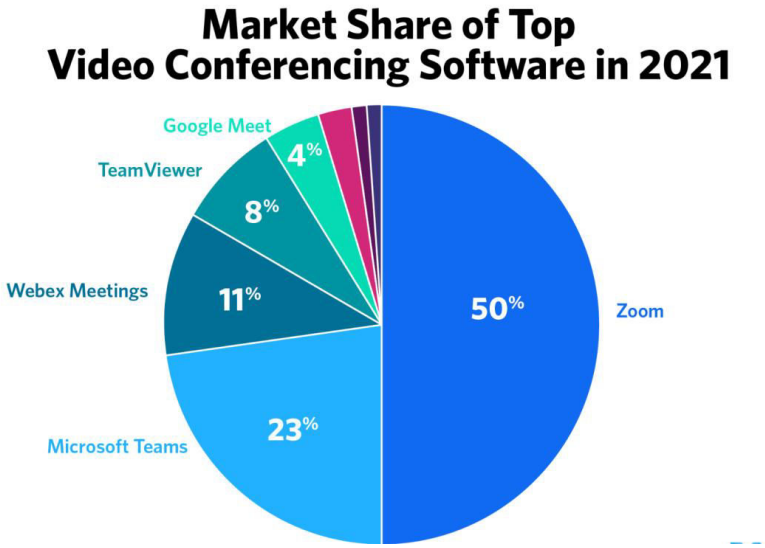

Fig. 1.2 Market share of top video conferencing software in 2021. [1]

RESEARCH METHODOLOGY & DATA COLLECTION

Exploratory research methodology is used for this article. Data was collected from different websites, books and blogs from the internet. Various online reports are also considered for this research. Collected data is analyzed and comes to a conclusion.

CONCLUSION

The use of IT is required in today's information technology era. Students had continued their studies in Covid-19 pandemic situations by using various video conferencing applications. According to a market share report, Zoom will be the most popular meeting application in the

online teaching-learning process in 2021. Based on that preliminary research, we conclude that information technology plays a critical role in higher education. 2021. [1]

After the United States and China, India has the world's third-largest higher education system. India's higher education sector is currently confronted with challenges of expansion, excellence, and inclusion. There are disparities between rural and urban areas, as well as disparities between religious groups, interstate variations, disparities between social groups within religion, disparities between castes, and disparities between income and occupation groups. In 2021, the most significant barrier to online teaching-learning will be network issues in rural India. Based on that preliminary research, we conclude that information technology plays a critical role in higher education.

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RECENT TECHNOLOGY TRENDS IN HIGHER EDUCATION

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ABSTRACT
The COVID issue has had a significant impact on the education sector. Technology adoption has risen dramatically in higher education during this period. Various new technologies were developed. Some of them are summarised here. It includes Learning Management System, Conducting Online Evaluations, Video based Learning, Podcasting, Performance Monitoring using Big Data, Study by own choice, Artificial Intelligence, Internet of things (IoT), virtual reality.

Innovative trends will not only assist educational institutions improve the quality of education, but they will also help students grasp concepts better, recall information more rapidly, and retain information for longer periods of time.

Keywords: Technology trends, innovations, development of Higher Education.

OBJECTIVES
a) To learn how the use of technology in higher education is growing.

b) To comprehend the various forms of technology that can be used to improve student and teacher performance.

INTRODUCTION
Educational technology has the potential to help overcome current limitations to offering high-quality education to people all around the globe. Students' imaginations will be widened and their grasp will be improved thanks to educational technology. The education sector, as well as individuals such as students, teachers, managers, and parents, will profit greatly from current and future educational technology advances. As a result, we've produced a list of some of the most important trends and technologies that will shape the year ahead.

Due to the growing pandemic, school systems all around the world have been forced to rely on technological developments to keep the world moving ahead. Everything comes to a halt during a pandemic, yet technology does not. It is evolving and improving to meet the needs of the users. Higher education has had a significant impact on the pandemic, but with to technological advancements, higher education institutions are able to restore balance to the educational system. Let’s see some of the best trends in technology in Higher education.

1. Learning Management System
A learning management system (LMS) is an e-learning software application that manages learning materials supply, administration, automation, and analytics. As a result, an LMS is a well-organized set of software that supports the complete online learning ecosystem.

An LMS is made up of three terms in the broadest sense:

Learning: An LMS manages the delivery, administration, automation, and analytics of learning materials. All of this is done with one clear goal in mind: to achieve learning objectives.

Management: The LMS is critical for document and database management. An LMS is doomed to fail without well-executed information management.

The LMS system as a whole, which manages all incoming and outgoing learning data inside a single ecosystem, is referred to as the system.

In a nutshell, a well-designed LMS can help you with things like:

- Assignments, quizzes, examinations, and more are delivered and tracked.
- Managing social learning forums, message boards, and other forms of communication.
- Learning analytics and tracking of student progress.
- Reminders to pupils are sent out automatically.
- Comprehensive reporting based on learning objectives.
- Online course information is delivered in both asynchronous and synchronous modes.
- Recommendations for learning materials based on student profiles and skill levels.

2. Conducting Online Evaluations

The evaluation procedure is one of the most important success criteria for student evaluation and overall education delivery. Exams have always been held in a pen-and-paper atmosphere. The majority of higher education institutions rely on manual review of answer sheets.

Platforms that can help institutes administer online exams are assisting students by automating and simplifying the examination and entire evaluation process. Online evaluations can help shorten the time it takes to complete an examination.

With the majority of people throughout the world surrendering to their fate of remaining indoors, a number of organisations have developed systems for conducting examinations online. Online proctoring has resulted from the digitization of the previously established approach of administering exams offline.

This was one of the key higher education trends in 2020-21, and it's still going strong this year.

Many algorithms have been devised, particularly with the use of Artificial Intelligence, to ensure that student misbehaviour is not tolerated. Automated proctors with AI support, as well as chat boxes.

Some of the technologies that fall under the umbrella of AI in the education industry include taking photos of pupils as they write tests, among other things. Another feature that can be utilised to double-check the data is facial recognition.

3. Video based Learning

Video is quickly becoming the de facto medium for learning. Students will rather watch videos than read long words for a better learning and knowledge retention process.

New technology and penetration Users are anticipated to consume more video as a result of advancements such as smart televisions and Android-powered televisions. Many new internet-based devices are being developed, which is assisting in the quick growth of this trend.

Higher education institutions are anticipated to invest in interactive educational videos in the future years to make learning more engaging. Video-based learning is also scalable and may be used over and over again. As a result, a learner can watch the same video multiple times until he or she fully comprehends the topic.

You can prepare numerous types of videos for higher education, which are given below.

- Videos that are educational or based on a specific topic
- Videos about technology including screenshots and graphics, as well as a description
- Videos for the Classroom

There are a number of video preparation tools available that can help speed up the video production process. These videos will allow the management to generate visually appealing videos.

To keep up with changing trends, higher education institutions should implement a video-based learning procedure. This will not only improve learning and teaching methods, but it will also save a lot of money.

Students can also be encouraged to enrol in online learning classes in order to gain knowledge, speed up the learning process, and gain a better understanding of the subject.

4. Listening to podcasts

Podcasts aren't exactly new. They've been around for quite a while. So, how does podcasting fit into the burgeoning digital trend of education? Podcasts are a collection of audio recordings that may be downloaded and played on a variety of devices via the internet. Since their inception, they've been steadily growing.

In the year 2019, the global podcasting industry was estimated to be worth roughly USD 9.28 billion. Between 2020 and 2028, it is predicted to increase at a compound annual growth rate (CAGR) of 27.5 percent.

The fact that you may multitask while listening to a podcast about Edtech Trends is what drives the market growth for podcasts.

5. Performance Monitoring using Big Data

Educators and decision-makers are using data analytics programmes to bridge the gap between present difficulties in the education business that demand immediate solutions and futuristic prospects that can change the game in order to move their institutions forward.

Students pursuing higher education benefit greatly from analysis using virtual machines or data analytics, not only in terms of tests but also in terms of daily campus life.

It can affect curriculum structure, instruction delivery, and student learning in real time, allowing for adjustment and improvement. It can also reveal critical trends that influence current and future resource requirements.

It can also lead to a 61 percent boost in graduation rates and a 47 percent increase in real-time curricula adjustment.

According to the report, 44 percent of professors believe that big data is an important instrument for monitoring the institution's performance, and 22 percent believe that regular scans might reveal potential problems in the administration.

This technology can be used to keep track of students' records and data, saving the university time. Exact feedback on their examinations, attendance, and behaviour, among other things.

The lack of human mistake is the primary benefit of adopting data analytics, according to pure facts. With immersive technology in education, statistical models can be used to predict a student's future performance based on previous historical data.

6. Study by Own Choice

Self-paced learning is a method of instruction that allows students to work at their own pace, as rapidly or as slowly as they like. They are not required to learn everything in one sitting and may return to the topic as needed.

Although self-paced learning was available in the past (you could buy a self-learning book or listen to recorded lessons), it has truly taken off with the emergence of e-learning. Learners can watch and engage with learning material at their own pace with e-learning, especially through

pre-written or pre-recorded course content, and instructional designers have a plethora of great digital tools at their disposal to ensure that the material sticks–from responsive quizzes to mobile flashcards.

Various courses and certification programmes are being developed by higher education institutions that are completely taught online. Students can watch recorded lectures, talk with professors in real time, and learn from anywhere. If they are included in the courses, they can also take the exams from their preferred locations.

Higher education institutions are anticipated to spend a substantial amount of money on online learning in the coming year rather than on traditional classroom facilities.

7. Artificial Intelligence

Artificial intelligence (AI) is a computer programme that simulates human intelligence so that it can think and act like a person. It's a piece of software that allows a computer to think like a person. Artificial Intelligence (AI) aspires to imitate human behaviour. AI has a wide range of uses and applications in a variety of fields, including education.

Facial recognition is one of the most often used features. It has proven to be beneficial in protecting campus infrastructure against illegal access for any size company. Many useful AI implementations have been found in the education sector. Exam security applications include detecting cheating during online tests, AI-powered auto proctoring, and chatbots, among others. Exams can be conducted without the need for physical human intervention in the traditional physical invigilation procedure, thanks to technological advancements.

AI-based auto proctoring can be used to invigilate online tests in a variety of ways.

8. Internet of Things, (IoT)

The Internet of Things (IoT) is a new technological paradigm that is steadily being adopted by the education sector, allowing us to link numerous objects around us via software, electronics, and other means.

They are designed to exchange and compile any type of data without the need for human participation. It is utilised in the education business for facial detection, monitoring student vehicles, and other purposes.

A "smart school" is a school that employs IoT. They choose smart devices that utilise WiFi networks on campus to receive and provide instructions for a suitable level of individualised learning.

9. Virtual Reality

If you're a staunch humanitarian who can't stand the sight of a frog being dissected open, you'll love this new fad! The ultimate immersive and engaging learning environment is Virtual Reality (VR).

Students and educators can conduct advanced science experiments in virtual reality science labs right from their desktops using VR Labs. VR Labs for higher education allow students to interact with objects and truly comprehend the science behind them, rather than simply reading about them in a book.

Students can learn about activities that are either too complicated, too expensive, or too risky to conduct in a typical lab.

Wearing a VR Headset is enough to transfer you to a whole new dimension of learning, whether you're exploring space, the insides of a human body, the pyramids of Egypt, or a simple chemistry experiment.

Technology is the ultimate key to deep, conceptual learning, and the advantages of virtual reality in education take it to the next level by not only providing a completely new user experience but also making it enjoyable.

CONCLUSION

It is past time for higher education institutions to begin focusing on changing trends and adapting to new technology in order to make education more exciting, relevant, and useful. With swift adaptation of the latest technological trends, higher education institutions can boost their brand image. Adapting creative trends will not only assist educational institutions improve the quality of education, but it will also help students grasp concepts better, recall information more rapidly, and retain information for longer periods of time.

Adopting those technologies in little steps can go a long way toward boosting higher education's integration with industry-relevant information. These educational technology developments will positively disrupt higher education by improving and making it far better than it is now.

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A SURVEY OF SURVEY ON TOPIC "GOOGLE FORMS CONTRIBUTION IN E-LEARNING" DURING COVID-19 LOCKDOWN PERIOD

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ABSTRACT
To prevent the spread of dangerous coronavirus (COVID -19), the government of India announces nationwide lockdown for different periods from 24th March 2020 to 31st May 2021. As a precautionary measure against COVID -19, the schools and colleges of India are closed down since March 2020. Therefore, during this lockdown period, students have only online classes, and online activities. Google Forms and technology are helping students in many ways. Also some challenges are faced by the students and teachers while using these applications. The main purpose of this study is to make a survey of GOOGLE Forms Contribution in E-Learning" During Covid-19 Lockdown Period by the teachers and students of Pune city during the lockdown period. The data was collected through Google form and statistically analyzed. Survey conducted in two angles from teachers and students. The outcomes show the Google forms contribution in E-learning by the teachers and students for various purposes.

Keywords: E-learning, Google Forms, Add-on, Technology

INTRODUCTION
Google Forms is a Google application for creating data collection forms. Google Forms can be used by students and teachers to create surveys, quizzes, feedback, and event registration sheets. The web-based form can be shared with respondents by sending a link, sending an email, or embedding it in a web page or blog post. The information gathered through the form is usually saved in a spreadsheet. In the market other online survey apps are available, but Google Forms is a great free option[1]. Google Forms is a web-based application developed by Google that allows users to create and analyze data collection forms. The information collected through the form will be saved in a spreadsheet. Google Forms used to create an online survey, with responses collected in an online spreadsheet. Create your survey and invite respondents by email. People answer your questions from almost any web browser - including mobile Smartphone and Tablet browsers. You view each response in a single row of a spreadsheet, with each question shown in a column .[2]

PROBLEM STATEMENT
To assess the use of Google Forms App usage by Teachers and college students during COVID-19 lockdown period

OBJECTIVES OF THE STUDY
1. To find out the purpose of using Google Forms.
2. To find out the popular Add-on of Google form
3. To assess the challenges faced by the teachers and students while using Google forms
4. To get the opinion of the Teachers and college students for more functionality of Google Forms in future.
5. To find weightage of Google Forms Role in Online Education.

Advantages and Disadvantages of Using Google Forms in E-Learning

Advantages of Using Google Forms

It is a free Google application that allows you to quickly and easily collect information. You can create surveys in minutes with Google forms to ask your clients or collaborators questions about your products or services. You only need a Google account to use this tool, the same one you use to access Gmail, YouTube, and Google Drive. The user interface is simple and straightforward. Google forms are easy to use so any user with an average computer knowledge can create forms using this tool. The assistant is simple to use. The What-You-See-Is-What-You-Get interface attracts users, makes it easy to drag and drop form elements and organize them based on requirements. You can add your header images and can change theme color and font style as well as own images as a background. Google forms stores the feedback received in Google sheets so we can analyze it in detail. The forms are integrated with Google spreadsheets so any time you can use a spreadsheet view of the collected data. The general settings of forms allows you to collect the recipient's email address and response limit the answers. You can also set a confirmation message. You can set forms as Quizzes and release marks as per your convenience, Immediately or later after manual review. For advanced users, the type of data that can be inserted into a field can be customized using regular expressions i.e response validation. This helps customize the form even more. Google forms allows us to preview the form, and will look before sending it over to the recipients. We can share the form via social networks like WhatsApp, YouTube, Facebook etc., by email, integrate it into our website or send the link or any other means. This is a free tool, you can create unlimited questions and answers at no cost and use different free add-on for more functionality.

Disadvantages of Using Google Forms

To use this tool, you must have access to the internet. Customization of the design is extremely limited. Advanced users can alter the design of the tool to use it for a wider range of purposes. There are some concerns about security. To increase the level of security, the user must create a strong password and protect it. There is no inbuilt add-on. Limited functionalities in free Add-ons.

METHODOLOGY

In this study, the teachers and students of Sarhad College of Arts, Commerce and Science, Pune are mainly focused on the survey. Some respondents are from other colleges of Maharashtra. Most of the participants from Graduation level as student or teaching staff at Graduation/post graduation level. Most teachers started to use Google forms from March 2020(early pandemic). The purpose of the study was to take surveys "Google forms contribution in e-learning" during covid-19 lockdown period by the teachers and students. The questionnaire was generated through Google form for data collection which was shared amongst the teachers and students through social media. The first section of the questionnaire consists of the details of participants followed by one more section. In the second section, 12 questions were asked to the teachers and students regarding use of Google forms in E-learning. Because of the survey, the popular Google form Add-on was identified and also the got to know percentage contribution of Google forms in online education. Total 65 teachers and 120 students gave the response for this survey. In survey 79% female teachers and 21 % male teachers and 55% female students and 45% male students participated

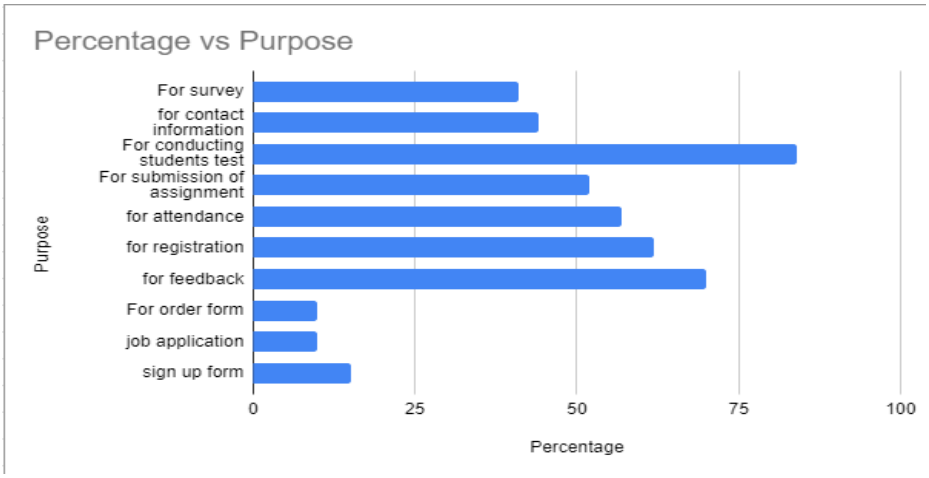
DATA ANALYSIS

1. Since when participants are using Google forms. 49% teachers used it before April 2020 and 51% after June 2020. Students started to use Google forms after October 2020.

2. Purpose of Using Google Forms.

This question gives information about different purposes and percentage use of Google form for that purpose. Teachers using google forms For survey- 41%, for contact information- 44%, For conducting students test- 84%, For submission of assignment-52%, for attendance-57%, for registration-62%, for feedback-70% , For order form-10%, job application-10%, sign up form-

15%. Students are also contributing and using Google forms to gain knowledge through E-learning.



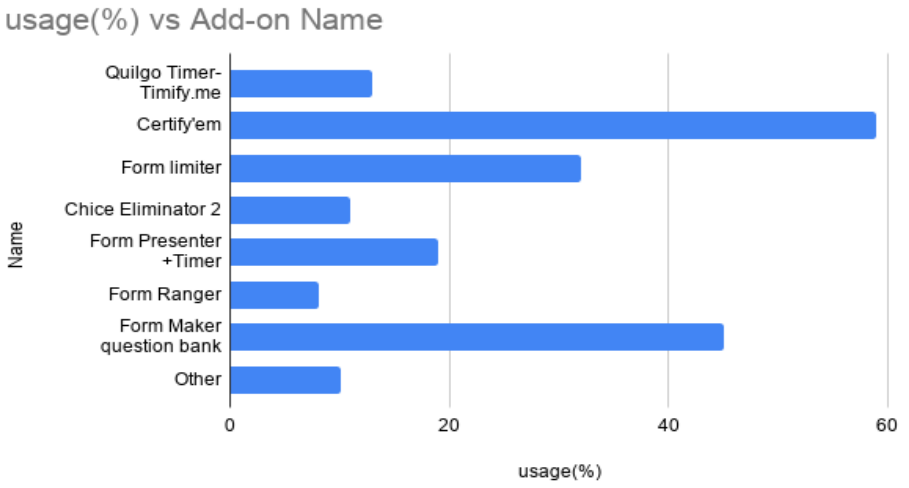
Graph 1: Purpose of Google form and percentage usage

3.Google Form Add-On Used By Teachers And Students.

With Google Forms add-ons, you can expand its functionality and streamline your workflow all at the same time. You need to follow some steps to install this-

Step 1: Click on the more option (three little dots) in the upper right-hand corner of the form window. Step 2: Click on "Add-ons" from drop down menu. Step 3: Select the add-on you want and click the "install" button. Step 4: Sign in to your Google account and click "Allow" by agreeing terms and condition. Step 5: Check and use your new add-on.

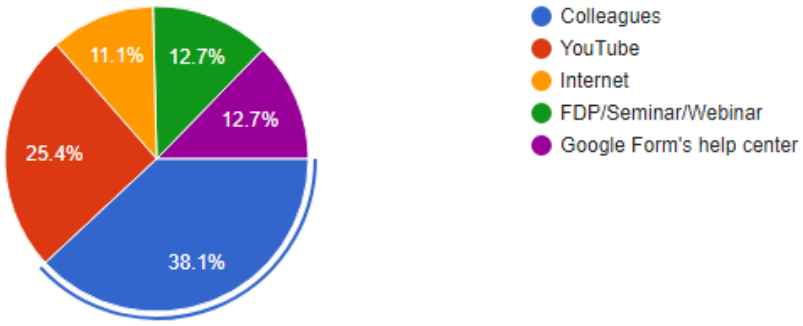
The add-on with percentage use, Quilgo Timer-Timify.me- 13%, Certify Em -59 % Form limiter-32%,Choice eliminator 2-11%, Form presenter+Timer-19%, Form Ranger-8%, Form Maker QuestionBank-45%, other-10%.



Graph 2: Add on percentage Usage and Add-on name

4. Where Do You Learn About Google Forms?

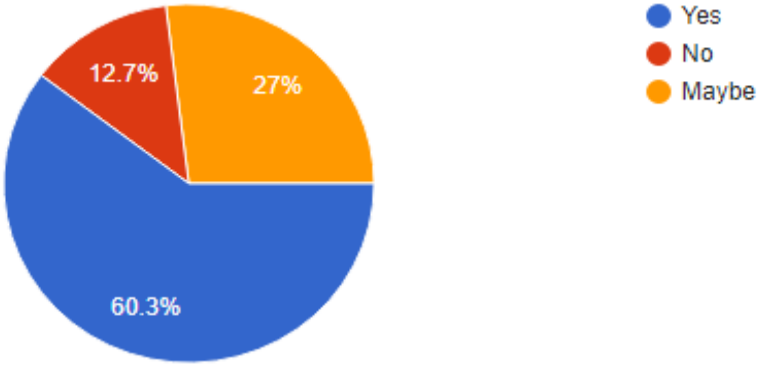
This question gives us the result of different sources from where teachers learn about Google Forms. Most of the teachers learnt it from colleagues.38.1% from colleagues, 25.4%- Youtube, 12.7% from Google forms help center, 12.7 –FDP/Seminar/webinar, 11.1% from Internet



Graph 3: Where participants learnt about Google forms.

5.The Result Of Faced Challenges And Support From Google Form Help Center.

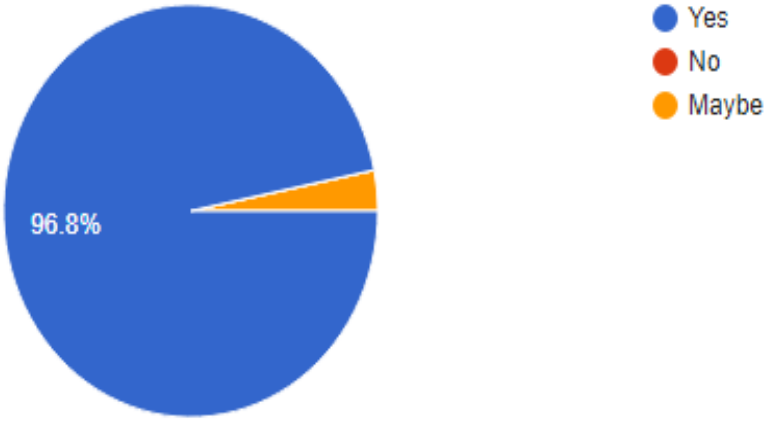
If anyone faces any difficulty regarding Google forms, they will get proper help from Google forms help center. 60.3% replies Yes they are getting help, 27% are not sure and 12.7% people saying no.



Graph 4: Support from google forms community to solve difficulty

6. Is Google Forms Really Helpful in Pandemic for Different Purposes?

This question will tell us the heart of research study. All teachers gave a positive response. All are agreeing as they proved the major role of Google forms in E-learning.



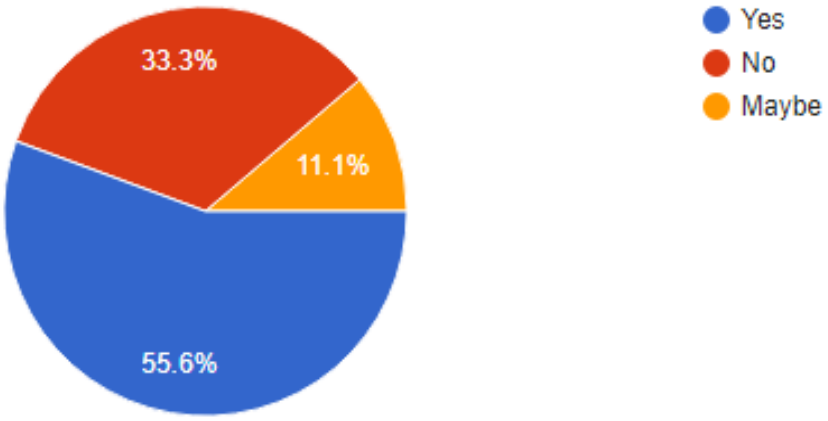
Graph 5: Google forms contribution during lockdown in E-learning

7. Why Teachers are Using Google Forms for Students?

Most of the teachers using Google forms to ask various types of questions (54%), Create Surveys to Meet Curriculum Objectives (52%), Apply Validation Options to Control Data Entry(28%), Create Professional Looking Forms using Themes (38%) , Multiple Ways to Administer Forms (39%).

8. Do You Think There is any Training needed on 'How to Use Google Forms effectively'?

This question tells about information of Google form training required or not. Because many of the people don't have an idea how to use and add more functionality. Need to provide training for Effective use of Google forms.

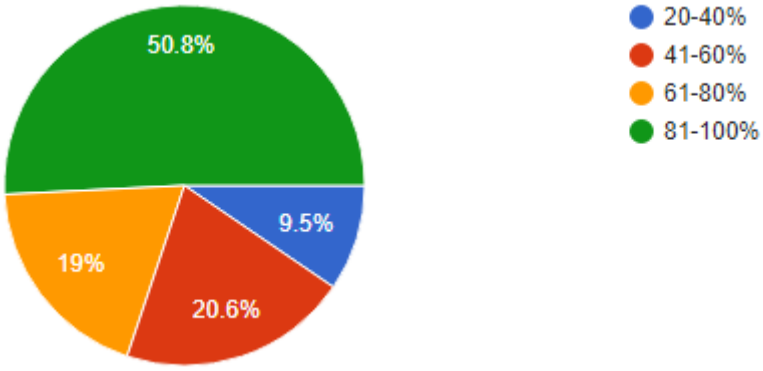


Graph 6: Training analysis

9. Any kind of difficulty do you encounter in using Google Forms? How many weightages can you give to Google Forms Role in Online Education?

Most people are not facing difficulty while using form. Few people are facing difficulties with Add-on.

Teachers agree as Google forms play an important role in online education. Most of the people giving 100% weightage to Google form.



Graph 7: Google form Weightage in online education

10. Which New Features Teacher's want in Existing Google Forms?

Most of the Teachers are satisfied with current functionality, but some teachers want following features in new versions

- Cross domain form upload, grid box, copy question with options into new form, make copy of whole forms.
- There Should be option of Filling the blank for MCQ type question when we collect MCQ questions
- Students cheating be avoided
- Add line separation tool while writing question

- Font variety, formatting of text, duplication should not be allowed.
- Writing text, drawing diagrams

CONCLUSION

Google Forms is a free online tool that teachers can use in the classroom to increase student participation, engage them in their learning, and assess their progress. Furthermore, It's simple to use and saves instructors time and paper when grading assignments.

From the survey, it is found that Google forms with their add-on plays an important role in E-learning. Teachers are using the Google forms for Survey, to conduct test, feedback with popular add-on Certify'em, Form maker and form limiter. Teachers are agreeing that Google forms play an up to 100% role in E-Learning. They need training to understand and use Google forms effectively for E-learning. Need to give some attention to Security, customization. Some Teachers are not satisfied with existing functionalities; they want advanced functionality. People are getting help from Form help center but all are not satisfied with that.Teachers are suggesting that they need inbuilt add-on, because everytime they don't want to search for a third party add-on.

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SMART STUDY USING AI SOFTWARE

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ABSTRACT
In this post, we'll look at five artificial intelligence (AI)-based education technologies that will rule the market by 2020. Although many educators believe that technology will not replace the need for teachers, they do agree that it will change how they operate and the educational best practises that should be followed. As a consequence of technological improvements, a number of sectors are undergoing changes. The internet and cell phones are two interconnected technologies that influence our daily lives. While psychologists, educators, and parents vary on the appropriate amount of screen usage for children,

Keywords: Education, intelligent tutoring, personalized learning ,Gradescope, Carnegie Learning, Inc., Thinkster Math, Duolingo, CTI, Brainly

INTRODUCTION
The existing educational system is sluggish, uniform, and places a low value on personal development.

It is solely based on the "one-size-fits-all" idea, in which kids with diverse interests and growth rates are grouped together to learn. In such an environment, teachers find it difficult to recognise and address students' educational needs, especially when class numbers are large. Incorporating innovative Artificial Intelligence techniques into the teaching and learning process can close these gaps. Artificial intelligence is a branch of computer science that focuses on the development of intelligent robots that can do tasks that would normally need human intelligence, such as vision, speech recognition, decision-making, and language translation. In the learning process, artificial intelligence (AI) is applied. The goals of individual students or their cultural origins

These tools might collect data on how kids learn, assess it, and send out alarms if particular students are not progressing as expected. When this data is combined with knowledge about students' behavioural tendencies, it is possible to glean helpful insights on how kids learn. Based on the subject being taught and the student's learning ability, a personalised learning system would recommend an alternative learning technique.

For example, if a student excels in history, such a learning system may encourage self-paced learning, but in mathematics, it may recommend teacher-led learning. Teachers may provide students tailored assignments, tutorials, and practise activities using these data-driven learning tools. A collection of AI methods such as machine learning, deep learning, natural language processing, and speech recognition are at the heart of these personalised systems. When combined with traditional teaching approaches, these AI tools have the potential to transform the quality, delivery, and character of education. The characteristics of Artificial Intelligence building blocks are initially examined in this study. It also goes through the history and advantages of employing AI in teaching.

This research focuses on finding AI-powered learning systems that have the potential to reshape the teaching and learning environment. AI technologies and approaches are already being used in a number of applications. This study examines the properties of a few prominent AI-driven smart education apps that address learning difficulties. The article also makes recommendations on how AI may be used in education in the future.

Educational Benefits of Artificial Intelligence

Artificial Intelligence technologies and strategies can help teachers improve their abilities while also revolutionising the educational process. "AI will improve education in many ways, but offering more individualised learning for children will be the greatest benefit," says Bill Gates, the founder of Microsoft and a strong supporter of AI in education. The following are some of the advantages of employing AI in education:

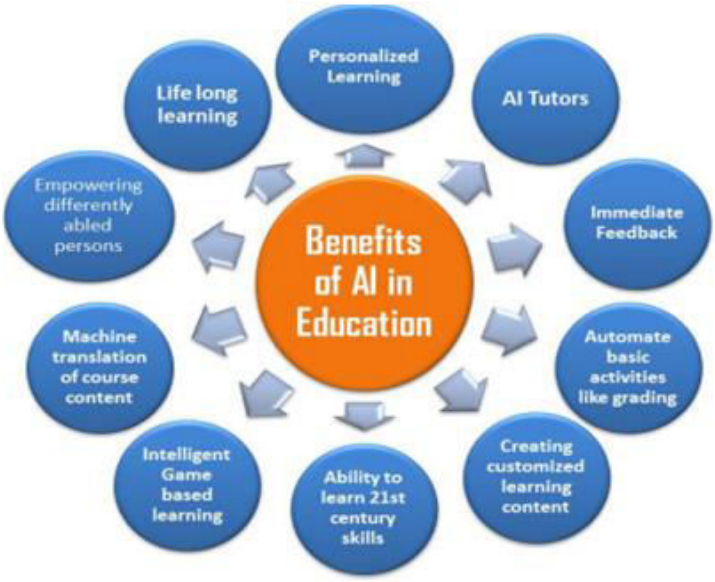


Figure 1: Benefits of AI in education

• **Personalized Learning-** AI is used in personalised education systems to create tailored educational routes based on a student's learning ability.

• **AI Tutors, Virtual Mentors, and Chatbots-** A number of highly skilled and ubiquitous AI tutors assist students in mastering various courses. Through vocal contact, these virtual mentors connect with a child's emotions, encourage problem-solving, and design far more tailored learning routes for each learner.

• **Immediate Feedback-** AI-enabled learning systems give students with step-by-step immediate feedback, allowing them to improve their performance. Furthermore, AI's capacity to evaluate massive volumes of real-time student performance data offers feedback to teachers, allowing them to better understand student performance and arrange more successful individualised learning strategies.

• **Automate fundamental tasks such as grading-** Grading student work takes a long time.

• **Creating personalised learning content-** AI assists teachers in creating course materials that are tailored to each student's learning capacity.

• **Ability to learn 21st-century skills-** The new AI-based learning environments place a strong emphasis on assessing students' ability to learn 21st-century abilities.

Kids' critical thinking and problem-solving abilities, as well as preparing them for success in college and in the workplace. TheseStudents benefit from systems that assist them develop self-direction, self-assessment, and collaboration skills.

• **Intelligent Game-**Based Learning Environments- Intelligent game-based learning environments incorporate a variety of technologies.commercial gaming technology with AI

methodologies to engage learners, enhance retention, and make the learning experience more enjoyable Learning is a pleasurable experience. It also employs data mining and machine learning to arrive at conclusions about the greatest approach for pupils to learn

• **Course content machine translation—**NLP is used in today's automatic language translation systems.

Empowering differently abled people- AI algorithms and virtual reality systems can help learners with special needs get more out of their education.

• **Lifelong and life-wide learning**- AI learning platforms are expanding options for continuous learning across the course of a person's life (lifelong) and in all facets of that life (lifewide).

Examples of Learning Systems Running On Ai

The potential for AI to enhance education is increasingly clear, and much research is being conducted in this area. A variety of AI systems are now commercially available that can simulate the impact of one-on-one tutoring by understanding a student's ability level and tailoring content to that level. In addition to correcting erroneous behaviour, some systems can comprehend how a student thinks during problem solving and give feedback and direction to the learner. AI is also being utilised in content distribution, where instructors may build a syllabus and then use AI to fill in the basic material of a book that carries the information.

Thinkster Math

is a math learning platform that combines a world-class curriculum with personalised instruction from actual, experienced teachers as well as Artificial Intelligence technology. Students can use Thinkster Math to practise their math skills. a variety of issues that are acceptable for their ability level It employs world-class educators as well as AI and machine learning.learning to envision a student's thought process while working on an issue The application of artificial intelligence methodsaids in improving the speed and effectiveness with which teachers can handle issue areas. Each time you use Thinkster Math, it gets better.By offering video support for stalled students as well as rapid, tailored feedback, students' reasoning processes can be improved.A component of the application allows parents to follow their children's development.

Content Technologies: Inc. (CTI) is a company that specialises in content creation.Deep Learning technology is being used by a firm to build and construct personalised furniture textbooks. The company has developed a set of intelligent content services for secondary schools. CTI's Cram101, for example.For instance, AI is used to assist distribute and break down textbook knowledge into easily digestible "smart" study guides.chapter summaries, true-false and multiple choice practise exams, and flashcards are all included. Educators then import By feeding their syllabi and materials into CTI's engine, the system reads, masters, and discovers new patterns.The algorithms then utilise the information they've gathered to produce textbooks and instructional materials based on the fundamental concepts. JustTheFacts101, another CTI product, can transform any textbook into a brief overview of the most important facts and concepts.

Duolingo

Is a free language learning programme that personalises learning using artificial intelligence approaches. Duolingo recognises language faults and assists users in correcting them using Automatic Speech Recognition (ASR) and Natural Language Processing (NLP). It also use machine learning to assess users' behaviour and development in order to create individualised lesson plans and to test new instructional tactics on a regular basis to determine their efficacy. Duolingo has three chatbots with whom users may converse and ask questions in order to learn French, Spanish, or German. The bots make use of artificial intelligence (AI), which enables the software to respond in a variety of ways to thousands of distinct responses.

Carnegie Learning, Inc.
Is a prominent provider of cutting-edge math products and services that have been scientifically validated. Carnegie Learning integrates cognitive and learning science and technology with practical instructions to help students acquire conceptual knowledge as well as more advanced learning abilities like as communication, cooperation, persistence, and critical thinking. The firm sells consumable textbooks and sophisticated software to students. Using AI and cognitive science, Carnegie Learning's "Mika" programme delivers tailored instruction and real-time feedback for pupils. The app is directed by each student's own learning process, keeping users informed of their daily progress and tailoring lessons to their personal needs.

Brainly
A social networking site for classroom questions that allows millions of students contribute, is experimenting with AI. Brainly allows users to ask homework problems and receive automated, verified replies from fellow students using Machine Learning algorithms to weed out junk. Students can even cooperate on the platform to come up with right solutions on their own. Brainly employs a team of over a thousand moderators to assist verify the questions and answers that users post on the site in order to ensure that it is presenting high-quality material. It personalises the networking elements of its platform with AI algorithms. It improves the user experience by suggesting friends based on areas where students want assistance.

Gradescope

What Exactly is It?
Gradescope is a feedback and evaluation tool designed to make grading exams, homework, and other assignments easier and faster. It allows teachers and graders to provide more detailed and fast feedback, and it employs dynamic rubrics to assist expedite time-consuming tasks. Gradescope can assist teachers in removing unintentional bias. It encourages grading uniformity by displaying contributions anonymously and defaulting to grading-by-question rather than grading-by-user.

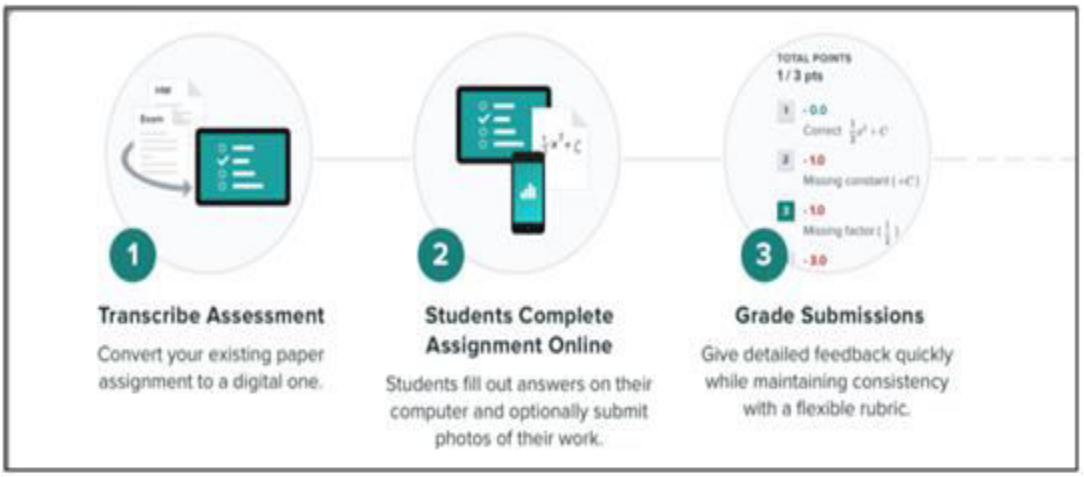
Gradescope can assist instructors in grading more quickly. The technology enables instructors to electronically mark handwritten assignments and examinations, making it excellent for STEM courses and languages. Gradescope is especially useful when there are a lot of equations, charts, or diagrams in homework or exam responses, or when language research demand understanding how to write foreign characters or symbols. Gradescope can also grade printed bubble sheets and assist in grading programming assignments at scale. Similar contributions will be grouped together by the system, making it faster and simpler to offer useful comments to each group at the same time.

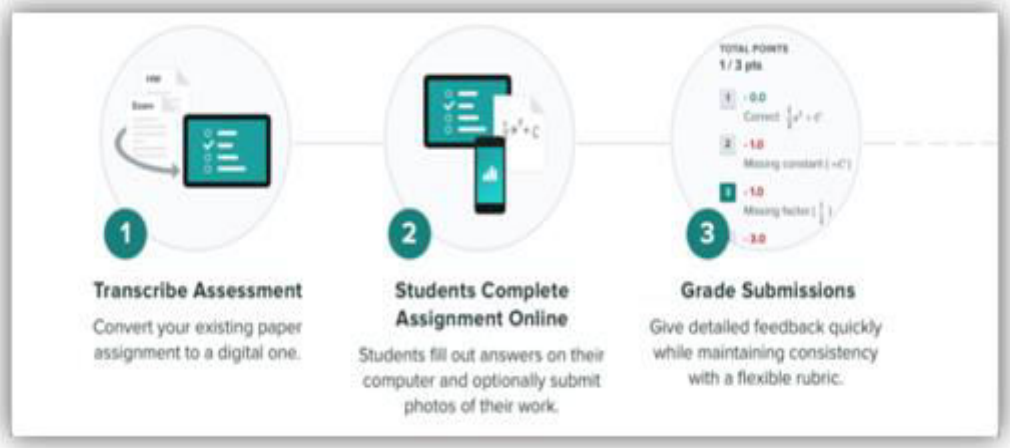
What is the Benefit of This?
The authors argue that the first three levels of feedback can be very effective in improving student learning, and they point out that there is a body of research that shows that providing written comments to students is more effective than assigning grades in improving learning, especially when the comments fall into the first category of feedback and are directly related to the task or product that the students have completed.

Hattie and Timperley identify four levels of feedback in their book The Power of Feedback:

1. Comments on the work or result ("You could provide more information regarding the Treaty of Versailles.")
2. Feedback on the process ("If you utilise the methods we discussed before, this page may make more sense.")

3. Self-regulation feedback ("You already know the important characteristics of an argument's introduction. Check to check if they've been included in your initial paragraph.")
4. Personal feedback ("You are a fantastic student." "You put in a lot of work.")





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RECENT TRENDS IN COMMERCE- FINANCIAL SERVICES

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ABSTRACT

The COVID-19 situation has impacted financial services tremendously. Businesses who can shift their business to online made were not much affected but the businesses who cannot shift online have suffered this pandemic. The financial services served the customers on online mood. Banking services in case of investment and facilitates provided to the customers.

Keywords: COVID -19, Financial services, Trends, Work, Adapt,Impact.

OBJECTIVES

1) 1. To study the trends of financial services.
2) 2. To study the impact of COVID-19 happened to financial services.
3) 3. To study the objectives of the financial services.
4) 4. To study the distinction between work from home and work from an office in financial services.

RESEARCH AND METHODOLOGY:-

For the research,the methodology researcher uses secondary data which is collected from the library, newspaper, and various websites.

FINANCIAL SERVICES

"The Financial Services Involving the Investment, Lending, and Management of Money and Assets"

Financial service is part of the financial system that provides different types of finance through various credit instruments, financial products, and services.

Role of Financial Services:-

- 1. Financial services help to expand the business.
- 2. Financial services give you a chance to establish or invent your own business.
- 3. Financial services provide easy trade.
- 4. Financial services provide money in the economy.
- 5.Financial services creates stability in the economy

Current Trends in Financial Services:-

1. Banking Goes Trend Cash With Digital Encashment:-

The banking services have drastically moved to digital platforms. The digital made were more comfortable for everyone in this pandemic situation. Every company would like to conduct business online as it was mandatory in today's world.

2. Focus on Digital Transformation:-

Financial services are trying to adopt new technology as per the market requirements. Online banking transactions, online bill payment, and online business transactions.

3. Identify Growth for the Succeeding Generation:-

As the business is growing and lifestyles are changing there is growth in the economy. Customers are ready to adopt new changes and accept the growth of the economy.

4. Focus on Fraud:-

The growing technology has also been protected and secured by various websites. This decreases the security threat in the minds of people. The protection can be given as passwords, patterns, pins, face identification, and many more.

5. Improved Customer Experience:-

Customers' reviews, surveys, and ratings help the financial services to get better expectations and fulfill the needs of the customers. This helps the financial services to make improvements in their services and gives better service.

Stock Market:-

Financial services also include the stock market. In the pandemic situation Stock Market has been boomed as people sitting at home invested in the stock market and earned money by sitting home with no time limit. As the people were not able to keep eye on the stock market. By sitting at home they were able to focus on the stock market.

Pandemic Situation Changed Work from Office to Work from Home in Financial Services:-

1) Work From Home:-

- Work from home gives employees the freedom they wanted to do the work on theirschedule.
- Employees can do their work in time with more efficiency and less workload
- Employees can work where ever they wanted to work on the couch, atthe dining table, in the cafe.
- Work-life balance – work from home helps the employees to maintain work and spend their time with their family members.
- Work from home creates less stress inemployees' life as they get the flexibility of working hours.

2. Work from Office:

- Work from the office helps to manage time, be productive, and relax once the work is done.
- Work from the office creates interpersonal relationships and communication between employees.
- Working from the office increases the opportunity of learning and growing new things and learning new things.
- Work from the office motivates the employees to grow and adapting new things.
- Working from the office helps the employees to discuss various topics immediately and take decisions without wasting time.

In Future Trends

The financial services should be prepared with new technology and adapt it. Long-termstrategiesare made.The online mode should be made comfortable so that the employees can adapt to the new situation and the use of technology financial services should deal with any situation or unforeseen condition.

CONCLUSION

According to the ongoing situation, financial services have to boom their business and adapted work from home situation. The above research says that people have learned to work in online moods. Many of the financial services have earned more profit rather in offline or office mode.

Every banking sector changed itsmethods of treating customers and executed various plans which can be understood by the customers easily to online mood.

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RECENT TRENDS AND FUTURE SCOPE IN NANO SCIENCE AND NANOTECHNOLOGY

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ABSTRACT
Nanotechnology has triggered public attention and is being praised as the key technology of the 21st century. Nanotechnology is the infrastructure of functionalities at the atomic level, with a focus on trying to control and exploit matter frameworks on a large scale below 100 m. Nanomaterials are the newest hot topic with significant progress. Presently, it is something from clothes to food, and should be encouraged more for our future and for more breakthroughs in our lives today. In this research chapter, I described the issue of nanomaterials, including its history, applications, risks, and development in India.

Keywords: Nano Science , Nanotechnology and Nanomaterial.

INTRODUCTION

1. Definition of Technology
Material deception on atoms or molecules, molecular and supramolecular layers to at least one size range of 1 to 100 nanometers **[1].**

2. The History of Nanotechnology
The history of nanotechnology documents the evolution of constructs as well as research investigations that fall under the broad category of nanomaterials. These are tracked in the history of nanotechnology. The 1980s saw the overview of nanomaterials as a result of the merging of investigational breakthroughs, including the advent of the stereomicroscope in 1981 as well as the revelation of porphyrins in 1985. In the mid-2000s, commercial nanomaterials gained popularity.**[2]**

3. The Current State of Nanotechnology:
Nanotechnology apparently took off over the last ten years, owing to the development of new instruments that allow scientists to observe and manipulate matter at the nanoscale. Scanning tunneling microscopy, magnetic force microscopy, and scanning electron microscopy all allow scientists to observe events at the nanoscale.Simultaneously, economic demands in the electronics industry have forced the development of new lithographic techniques that will continue to reduce the size and cost of features. Until recently, researchers were unable to learn more about the nanoscale due to the absence of adequate equipment. more as Galileo's information was hampered by his story's technology. Despite the fact that a good device for noticing, controlling, and assessing events on this scale has been developed, we will make even more breakthroughs and abilities.At the moment, scientists are particularly interested in particular nanomaterials and carbon nanotubes. Nanoparticles are extremely small wires, with diameters as small as one nanometer. According to scientists, these can also be used to create minor circuitry for microelectronics as well as other digital equipment.**[3]**

Nanomaterials have surpassed nanowires in popularity. We are still gaining knowledge about either of these frameworks, but what we've discovered here has been interesting. A nanocomposite is a nanosized cylinder of unsaturated carbon. Acceptance of a sheet of hydrocarbon chains in the shape of a hexagon Carbon nanotubes have overtaken nanowires in terms of popularity. We're still going to learn a lot. You could create nanofibers by trying to stretch that sheet into a cylinder. The properties of nanotubes are determined by how the sheet is rolled. In other words, even though all carbon nanotubes are made of carbon, how the individual

atoms are aligned can make a big difference in how they appear. When a construction material is put under stress, it releases an epoxy that fixes any ruptures. Instead, a nanomaterial coating is used.

1. **Passive Nanostructure:**-Ingredients would then benefit from the static nanoparticles like nanoparticles and micro-layers during the first period. Tio2, for example, is widely used in skincare products thanks to its capability to soak up and recognise light sources. When degraded into nanomaterial, it becomes sensitive to light, removing the white body lotion looks compared with sustainable creams. Nanoparticles are much tougher and more durable, but only a small percentage of the weight. Tennis rackets containing them claim to provide increased stiffness without adding weight.
2. **Active Nanostructures:** Active nanomaterials change their state while in use, responding predictably to their surroundings. Nanoparticles may try out tumors before releasing a nanoelectromechanical narcotic with an attached device.

When an ingrained building material detects strain, it releases an adhesive that refurbishes whatever breakages it may have. In addition, a layer of nanomaterial may respond to the presence of sunlight by emitting an electrical charge that powers an appliance. Products in this stage require a better understanding of how a nanomaterial's structure affects its properties or the process of designing unique materials.

They also raise concerns about advanced manufacturing and deployment. System of nanosystemsAt this stage, nanotool assemblies work together to work together as a team. Getting the main components to cooperate within a network and possibly exchange information is a significant challenge. This disables their ability to reproduce. Significant advancements in robotics, biotechnology, and next-generation information systems will arise across product lines at this stage.

4. Nanomaterials :(Nanoceramic Powder Form):

Nano ceramic powders make up a significant portion of all nanostructured materials. They account for more than half of all nanostructured materials. B. Nanotubes – Power lines or electronics – Long-lasting, high-thermal-conductivity materialsC. Nanocomposites are polymer-based composites with nano-sized fillers.Nano ceramics are commercially available as granules or water colloids. • The most commercially important nano inorganic materials are silica (SiO2), titanic (TiO2), alumina (Al2O3), iron oxide (Fe3O4, Fe2O3), zinc oxide (ZnO), ceria (CeO2), and cubic zirconia (ZrO2).• Mixed oxides and titivates – indium-tin oxide (In2O3-SnO2 or ITO), antimony-tin oxide (ATO), titanium dioxide (tio2) have a long advertising history.Applications: Because nanotechnology is an interdisciplinary field, it has three widely overlapping areas.

5. Applications:

I) Nano Biotechnology Drug Administration New Drug /Gene Therapy Formulations:-

In tissue engineering the Application of Nanomaterial-Based Scaffolds for Tissue Reproduction and RepairNewer drug delivery systems based on biotechnology and medical treatment applications are being tested for diseases such as cancer, diabetes, fungal infections, viral infections, and gene therapy.

Ii) Nanobiotechnology and App Treatment:-

The primary benefits of this mode of treatment are drug targeting and an improved safety profile. As contrast agents, fluorescent dyes, and magnetic nanoparticles, nanotechnology has also found applications in diagnostic medicine.

Carbon-based nanomaterials such as nanotubes may have this property, making them very useful as actuators or sensors in a variety of medical devices. Their potential use as sensors, for example, is another potentially valuable feature. For example, in anesthesia, CO2 monitoring.

Nanowires:-Nanowires are distinguished from nanotubes by the absence of an inner cavity. Semiconducting silicon-based nanowires are showing promise for virus detection in solutions, and their capabilities in such application areas may outperform those of other methods.

Materials **w**ith nanoporous pores. Nano porous materials, such as carbon-, silicon-, ceramic-, or polymer-based materials with holes in the 100 nm range, have a significantly increased surface area and can have extremely useful catalytic, adsorbent, and absorbent properties. These could have useful applications in implant technology or drug delivery.

Iii) Electronics Applications:-
Electronics applications have pushed the microelectronics industry into the nano world and the search for alternative materials to replace silicon. nanomaterials, such as one-dimensional carbon nanotubes and two-dimensional (2D) graphene.

Carbon nanotube electronics:-Electronics made from carbon nanotubes. A single-walled carbon nanotube (SWNT) is formed when a material made of graphene starts rolling into a tube. As a result, SWNTs maintain graphene's attractive electronic properties, but their cylinder format makes them a more readily available choice for trying to form the channel in field-effect transistors. These transistors have higher electron mobility than their silicon-based counterparts, allowing for higher current densities while dissipating heat generated by their operation more efficiently.

Spintronics: Spintronics has the potential to deliver nanoscale memory and logic devices that process data faster, use less power, and store more data in less space. The main achievement of spintronics was the expansion of hard disc capacities to the gigabyte and terabyte ranges by utilizing giant magnetoresistance (GMR) and tunnel magnetoresistance (TMR) effects that are only effective at the nanoscale.

Iv) Nanotechnology in Paints and Coatings:
The color and coating industry is expanding all over the world. Paints and coatings seem to have the potential to provide all the desirable properties in paints and coatings. With nanoscale level silver, a new paint technology combats bacterial and fungal growth. Silver nanoparticles in wall paint prevent mold and mildew growth inside buildings and on exterior walls.

V) Textile and Clothing Nanotechnology:
The wave of nanomaterials has revealed enormous potential in the textile and clothing industries, which are typically very traditional. Antibacterial, UV protection, easy cleaning, water and stain repellency, and anti-odor properties distinguish it.

Vi) Food Science and Nanotechnology:
Nanotechnology is accessible to be used in agriculture and food production in the form of nanosensors for crop growth monitoring and pest control through early detection of plant diseases. They can also enhance the mechanical properties.

Vii) Catalysis and Nanotechnology:
Catalysis is a critical application for metal nanoparticles. Because of their large surface area, nanomaterials have a lot of potential as catalysts. available for chemical transformation of substrates.

Viii) Military Applications:-
The military can benefit from research in the following areas: nanotechnology • Armor Fabrics/Materials • Robotics • Security • Weapons Detection and Defense• Automobiles—Fuel

economy-Soldier protection vests that are waterproof and bulletproof. Prof. Karen Gleason created one of the first innovations to come out of the center. Using a technique known as chemical vapor deposition, she and her colleagues were able to create ultra hydrophobic (waterproof) surfaces (CVD). They could deposit nanolayers of Teflon (the same stuff that's on your frying pan) on Kevlar panels, which are used to make bullet-proof vests, using CVD. Figure 6 shows a water-resistant vest. applications, according to the researchers, armor would be wired with tiny circuits. When current is applied through the wires, the armour stiffens; when the current is removed, the armour reverts to its liquid, flexible state. Depending on the type of particles used, different types of armor technology can be developed to adapt to soldiers in various types of battle conditions. Soldiers' agility could be improved by nanotechnology.

6. Products of Nanotechnology:

I) Cancer Treatments with Smart Drugs:
A significant amount of research is being devoted to cancer detection and cure, involving a variety of different nanotechnologies. One of the primary goals of using nanotechnology in medicine is to develop devices that can operate inside the body. Current cancer treatments, such as radiation and chemotherapy, are invasive and have debilitating side effects. Both cancerous and healthy cells are killed by these treatments.

Ii) Cutting-Edge Materials:
Researchers have created materials that can mimic the microscopic elastic hairs that line the gecko's feet due to the animal's ability to stick to surfaces and walk up walls with ease.

Iii) Metamaterials:
(Controlling light flow) Nanotechnology's ability to create new materials that bend light "in an almost arbitrary way," enabling "applications that were previously thought impossible," has enabled a whole new field of scientific research known as transformation optics.These applications include an "electromagnetic cloak" that bends light around itself. A "hyperlens" that could be added to conventional microscopes, allowing them to see viruses and possibly DNA molecules at the nanoscale.

Iv) Energy Production and Consumption.
Generations of nano-based sensors, catalysts, and materials have already resulted in significant energy savings, and further progress is expected. ConocoPhillips recently awarded a three-year, $1.22 million contract to the University of Kansas.Reduce costs and enable energy processes that would not be possible otherwise in the renewable-energy sector. By developing new and less expensive manufacturing techniques, as well as new methods of generating high-surface-area structures, optimizing sensitivity, and increasing spectral absorbency, nanotechnology is transforming photovoltaic cells. Other applications in the renewable-energy sector include the use of nanoscale surface properties and novel nanofabrication techniques to increase electricity production in hydrogen fuel cells. At the laboratory scale, most renewable energy technologies can be made more efficient by utilizing various forms of nanotechnology.

7) Future Applications of Nanotechnology:
On the one hand, there is a tendency to underestimate a technology's impact and rate of development. Nanotechnology development has already outpaced predictions made when the NNI (National Nanotechnology Initiative) was established in 2000. At the time, the emphasis was on the impact nanotechnology might have in the next 20–30 years. According to Lux Research, nanotechnology will be used in $3.1 trillion worth of manufactured goods by 2015, accounting for 11% of all manufacturing jobs worldwide. Molecular spectroscopy: This stage entails the intelligent design of molecular and atomic devices, which results in "unprecedented understanding and control over the basic building blocks of all natural and man-made things. A number of assumptions appear to be driving predictions of a singularity. The first is that

continuing material demands and competitive pressures will propel technology forward. Second, at some point in the future, artificial intelligence will have advanced to the point where computers will be able to perform tasks that humans cannot. In other words, intelligent machines begin to make discoveries that are too complex for humans to comprehend. Although science advances quickly, technology and daily life are likely to change at a much slower pace for a variety of reasons. For starters, it takes time for scientific discoveries to be incorporated into new products, particularly when the market for those products is uncertain. Second, both individuals and institutions can be extremely resistant to change. Because new technology frequently necessitates significant organizational change and cost in order to have its full impact, the social impact of new discoveries may be delayed **[4].** Computer technology.

8) Risks of Nanotechnology:

They are thought to pose the greater risk because: -They are relatively cheap and can be manufactured in large quantities; -They are already used in consumer products; -Their properties can be very different from the larger forms of the material they are made from; -They can be highly reactive; -The particles frequently have unknown toxicity; -Their toxicity can be difficult to quantify; -They can disperse easily in air or water; As other forms of nanotechnology become more common and nanoparticles become better understood, the importance of nanoparticles as the most potentially hazardous type may change in the future. Initial studies revealed that some nanoparticles are acutely toxic when compared to larger particles made of the same material. They may occur in humans, though no human studies have been conducted to confirm this. Nanoparticles can enter the body in a variety of ways. For medicinal purposes,

9) India's Nanotechnology:

It has primarily been led by the government. National policymakers are largely in charge of promoting nanotechnology and capacity-building initiatives such as investments, infrastructure development, and the facilitation of public-private partnerships. Several government departments and agencies, including the DST, DBT, DIT, CSIR, ICMR, DAE, DRDO, and MNRE, have been supporting nanoscience and technology in various ways. These initiatives have grown not only at the national level but also at the state level, with states such as Karnataka, Tamil Nadu, and Haryana taking a very proactive approach. These initiatives have grown not only at the national level but also at the state level, with states such as Karnataka, Tamil Nadu, and Haryana taking a very proactive approach. It has been characterized by an emphasis on fundamental research, some support for application development, interdisciplinary and interdisciplinary research, a lack of emphasis on risk-related fields of nanotechnology, and, in some cases, intersecting R & D focus. This could result in redundant R & D efforts and a waste of financial and human resources in an already expensive domain. Other related issues include a lack of coordination, information flow, and overlapping mandates and jurisdictions. Due to the inability to leverage existing capacity, expertise, and initiatives, an insufficient flow of information between policymakers and the scientific population, as well as among policymakers, acts as a barrier to developing real capacity. Indeed, public-funded projects have been critical in the development of nanomaterial-based water filters (IIT Chennai, ARCI) as well as tuberculosis (CSIO) and typhoid (DRDO) diagnostic kits. The primary agency involved in the development of nanoscience and nanotechnology is promoting S&T activities.The ``Centers of Excellence (CoE) for Nanoscience and Technology" established by DST under the NSTI are the most prominent.

Seven "Centers for Nanotechnology" were also established, which could focus on R & D in specific dimensions or niche areas such as nano electronics (IIT Bombay) or nanoscale phenomena in biological systems and materials (Tata Institute of Fundamental Research-TIFR). The "Centers" aim to conduct R&D in order to develop specific applications in a set amount of time. A new "Center for Computational Materials Science" has been established as well.

CONCLUSION

Nano science does have the possibility of being used in a multitude of sectors, such as paints and coatings, textiles and clothing, cosmetics, food science, catalysis, and so on. Furthermore, nanotechnology provides new ways to enhance how we measure, monitor, and manage. Nanotechnology has emerged as a rapidly expanding and changing field. New generations of nanomaterials will emerge, bringing with them new and possibly unanticipated issues. Nanotechnology is the wave of the future in advanced development. It is in everything today, from clothes to foods, and it should be promoted more for our future and for more advancements in our current lives.

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NEW TRENDS IN ASTRONOMY EDUCATION: POLICY IN TEACHING AND LEARNING ASTRONOMY

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ABSTRACT
The application of a concept known as "educational science maps" to astronomy education is described in this research chapter. Scales of educational science maps and scales of integration are introduced using the example of geographical maps. Scale A indicates the level of branches and fields of astronomy and astrophysics in astronomy education, where links between various astronomical disciplines are depicted. Scale B denotes the degree of hypotheses and theories that encompass a considerable portion of an astronomical area. Scale C denotes the level of internal hierarchies and structures, including the "geography" and "anatomy" of the material systems and objects required for a certain astronomical field, as well as the main notions and concepts employed.

Keywords: Mapping, Astronomy education.

1. INTRODUCTION
If you overhear a group of senior students conversing, one of them might comment, "Our instructors have stuffed us full, but what does it all mean?" Many students majoring in astronomy or astrophysics are unable to see how all of the information they have been provided on a certain field of astronomy fits into the larger picture of astronomy. Furthermore, even astronomy graduates frequently struggle to comprehend and conceptualize their area of astronomy and astronomical pursuits. Students' perceptions of astronomy are similar to those of metro (subway)commuters. At one station, you come out to the surface and see a lovely square with monuments and buildings all around you; at the next station, you see a park and a river. But where do you draw the line? What streets, roads, or paths run between these locations? Each paper or module in tertiary astronomy education is like a metro station. Students' knowledge is sporad;c, they lack a long-term grasp of astronomy concepts, let alone the capacity to apply them. Our kids require a city map as well as an astronomical map.

2. CONCEPT MAPPING
Knowledge is made up of concepts and their interactions, just as words and things are made up of atoms. The main distinction between a so-called genius and an average learner is that the genius has the ability to apply higher-order concepts to make sense of larger pieces of data. As educators, our job is to empower students by assisting them in developing the ability to organise and generalize knowledge structures. **[1]**

In systems theory, rich picture diagrams, flow charts, influence diagrams, precedence diagrams, and other practical techniques to conceptualize knowledge are available. Novak's concept map, which is extensively used in primary and secondary scientific teaching, is one excellent learning tool for encouraging students to engage in systems thinking and "deep" learning approaches.

Concept maps have been used successfully in tertiary science education, particularly as a brainstorming tool in group work. However, when utilized as a teaching/learning or curriculum design tool, concept maps' in-tended "liberty" (amorphousness and arbitrariness of structure, mingling of conceptions, objects, and theories in one map), while useful in a brainstorming scenario, becomes a negative.

3) Theory of General Systems

Concept maps benefit from the order, rigor, and structure provided by general systems theory (GST) as a theoretical tool for representing the levels and hierarchies associated with science-based knowledge (Gulyaev & Stonyer, 2002). GST is a tool for specifying systems and describing their interrelationships as well as identifying knowledge gaps. GST gives a framework for conceptualizing the subject, which is critical for us as tertiary science and astronomy educators. It also provides a framework for teaching astronomy that is based on conceptual understanding continuity rather than the logical yet reductionist structure of astronomy seen in many publications and curricula. As a result, GST provides a foundation for a comprehensive approach to astronomy education at the collegiate level.

For basic disciplines of science, GST establishes a hierarchy of levels of complexity. In order to develop this technique, we use the analogy of geographical maps to identify the three main "scales" that are required for scientific maps.

They are:

1. The scale of branches and fields of science and astronomy, where intercon-nections between various disciplines are shown.

2. A wide range of theories and hypotheses that cover a large portion of astronomy and astrophysics.

3.The structural and hierarchical scale, which includes the geography and anatomy of a field's major material systems and objects, as well as the main methods, thoughts, and concepts it employs.

Teaching and Learning Astronomy with a "Mapping" Strategy

Following Fig shows A "Mapping" Strategy in Teaching and Learning Astronomy

Figure 1.Possible interconnections of astronomy with other fields of science. Corresponding branches of astronomy arising from these interconnections are shown as linking words.

4. Practical Examples of Astronomy Map Scales

Astronomy can be seen as both an independent science with its own tasks, concepts, and methods, as well as a derivative science that draws on data and concepts from physics, chemistry, earth science, and other disciplines. Interactions between astronomy and other branches of research are possible.

Students interested in pursuing a career in astrophysics should be informed of the steps they must take to become astrophysicists. Of course, it is physics and mathematics, but there are also astronomical fundamentals in modern astrophysics. They are required for astrophysicists.

Astrophysics is divided into several branches and sub-disciplines. They are classified according to the research methodologies (IR astronomy, neutrino astronomy, etc.) and the research object(s) (solar physics, cosmology, stellar astrophysics, and so on).

(a) Stellar astrophysics as a whole, which aids in the establishment of the cosmic distance scale, the measurement of star ages, and stellar clustering. Interpretation of fluctuations in stellar chemical compositions and stellar variability

(b) Stellar atmospheres theory, which converts observational data into a set of physical properties of a star, fi, M, M, v p, H, etc.

(c) Theoretical modeling of stellar structure and evolution for varied masses and chemical compositions of stars, which provides stellar astrophysics with a mathematical model of stellar structure and evolution.

Science (astronomy) maps can be extremely useful on their own. A hypothetical "gap" in knowledge can be identified by looking at the cube of theories. The question, "What type of theory should be in the hidden corner of the cube?" can be used as a conversation starter in the classroom. Students can come up with their own names for this non-existent theory, such as "non-relativistic quantum theory of gravity."

The hierarchy of material structures in the Universe is represented by the structure scale ladder. To begin with, it is a system since each element (step) of the ladder serves as a foundation for a higher structural element. Another trait that distinguishes this hierarchical system as a system is the mutual connection of the highest and lowest elements; the structure, properties, and evolution of the entire material world are determined by the qualities of elementary particles (the Universe). The anthropic principle is a philosophical concept that underpins this link. **[2]**

5. India's Current status of Astronomy Education

I) The IUCAA will host an international office in India to promote and formalize astronomy education.

II) India will be among seven countries to house an Office of Astronomy for Education (OAE) assigned by the International Astronomical Union (IAU).

III) According to a recent announcement, the Pune-based Inter University Center for Astronomy and Astrophysics (IUCAA) and the TIFR-Homi Bhabha Center for Science Education (HBCSE) will jointly spearhead the activities of this office, which became operational at IUCAA in April.

Astronomers, scientists, and science outreach experts in this field in India will work towards designing curricula, developing teacher training modules, and organizing workshops in teaching astronomy at schools and other activities towards improving astronomy education in the country and neighboring countries.

6. Top Astrophysics Colleges in India

1. AryaBhatta Research Institute of Observational Sciences, Nainital
2. The Indian Institute of Astrophysics (Bangalore)
3. The Indian Institute of Science Education and Research
4. The Indian Institute of Space Science and Technology, Thiruvananthapuram
5. Physical Research Laboratory, Ahmedabad
6. Raman Research Institute, Bangalore
7. Pune National Center of Radio Astronomy

CONCLUSION

There is a lot of talk these days about students' poor preparation and the frightening prevalence of scientific illiteracy at all levels of society. The fragmented nature of education bears a large share of the blame. I feel that the mapping technique outlined in this study is a viable means of transitioning from fragmentary (reductionist) to integrated (systems) teaching**.[3]** Experts in certain domains of astronomy and astrophysics must conceptualize and define how maps of their fields may be constructed so that science and astronomy educators can better use them in developing their practice.

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RECENT TRENDS IN ROBOTICS

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ABSTRACT
This document talks about recent trends in robotics and artificial intelligence. It reveals information about terminology regarding robots and robotics. This technology is required for a variety of scientific purposes, including space engineering, army defense work, hazardous tasks, and many others. This paper talks about various institutes for a career in robotics as an applied science. And the scope of this in various fields.

Keywords: Robotics, Controls in Robotics, Artificial Intelligence etc.

1) INTRODUCTION
Robotics is a discipline of applied science whose popular notions are based on theatre, fiction, and film rather than science. The term "robot" was originally used in 1921 by the Czech playwright Karel Capek in his play "Rossum's Universal Robots," in which robots were devices that looked like humans but worked extremely hard. In 1942, science fiction writer Isaac Asimov invented the term "robotics," which refers to the study of robots, in his tale "Runaround," in which he proposed three "laws" of robotics**.** On the one hand, robotics uses natural terminology derived from human anatomy to assess the effectiveness of a current system. On the other hand, a myth has been formed in the imaginations of laypeople about human-like devices known as robots, whose cleverness is astounding. The name "robot" appeal up photos of a metallic human with incredible strength in many people's minds, and seeing an actual robot would be disheartening. Of course, in terms of basic mechanical architecture, an actual industrial robot can resemble a human arm. The mobility capabilities of a six-degrees-of-freedom PUMA robot, for example, can be compared to the movements of a human arm's shoulder, elbow, and wrist. Many other robots, on the other hand, deviate from this similarity to varying degrees depending on their construction, despite the fact that they do the same tasks as PUMA. The manipulator, controller, sensors, and actuators, the four main parts of a robot, are functionally similar to the arm, brain, sense organs, and muscles (though not in appearance).

A robot is a "reprogrammable multifunctional manipulator," according to the Robot Institute of America's standard definition. Hard automation systems and numerically controlled (NC) equipment are not included in this definition of robotics. Tele operators, sometimes known as tele robots, are likewise on the borderline. The first tele robot to handle radioactive material (WWII), the first served electric-powered tele operators (1947–48), NC machines (1952), the first reprogrammable robot (1954), and the installation of the first robot have all contributed to the development of robotics in the previous 50 years (1961). By the 1970s, robotics had established itself as a distinct field of research. Robots are now used for a variety of tasks, including handling, spray painting, s assembly, machining, and more.

Let us have a look at some recent trends in robotic research and applications, which can be classified under the following general headings:

1.1 Needless Robots:
Six degrees of freedom is theoretically enough to handle three separate translations and rotations in space. Extra standard of independence are necessary, however, due to the architecture of a robot arm and the limits of workspace, dexterity, and obstacles.. Additional degrees of freedom can be provided in the robot arm with extra joints and links, just as a person employs additional freedoms of the body to augment the capabilities of the arm for enhancing reach, manipulating objects comfortably, and reaching below the table or around the corner

objects. These robots are known as "redundant robots" because they employ more inputs than required and are used to improve workspace and avoid singularities and impediments. With a redundant robot, a specific location can be reached in an endless number of ways; the problem of redundancy resolution, which is solved by optimizing performance, is to choose one of those infinite methods**.**

1.2. Space Robots:

Unlike robots on Earth, space robots are light, can handle larger masses, and have a unique feature in that their frames are not fixed, but float with the rest of the robot, along with the space vehicle.

1.3. Robots that Are Flexible:

All solid bodies are flexible in some way. In traditional robot manipulator modelling, the robot's connections are assumed to be stiff, and deflections must be insignificant from the standpoint of positional precision. As a result, the links must be designed to be stronger and heavier than necessary. However, it is not necessary from a physical standpoint, and we should not mind if the links are flexible all in all they are within elastic bounds and their behavior is known. So, recently, there's been a lot of interest in working with flexible robots and taking advantage of their light weight by including their flexibility into the mathematical model, which, of course, complicates the system dynamics—a price to pay for the advantage obtained.

1.4. Parallel-Actuated and Closed-Loop Robots:

Traditional serial chain robots have a lower load-carrying capacity due to their cantilever structure. Off-base actions exacerbate the problem and make the robot bulkier. As a result, serial robots flex under heavy loads and vibrate at high rates. Despite having a huge workspace, they have weak positioning capabilities. Parallel-actuated and closed-loop robots, which have gained considerable research interest in the last 15 years, provide an option where high load carrying capacity and precision positioning are of primary concern.. The Stewart platform, a six-degrees-of-freedom parallel manipulator with six extensible legs with spherical socket at the ends and six linear actuators extending the legs, is the most well-known of the parallel manipulators. In general, parallel robots have high structural stiffness and load-carrying capability, as well as good positioning capabilities and low vibration. However, they usually have limited workspaces, and studying and analyzing their kinematics and dynamics is rather difficult. Parallel robots are commonly used in applications requiring high load capacity and accurate positioning, such as manufacturing workstations, dexterous wrists, and micromanipulators. The notion of parallel actuation has applications in cooperative robotics and multi-finger gripping and manipulation.

1.5. Walking Robots:

Mobile robots can move their bodies over long distances to transport objects, whereas manipulation robots handle objects by utilizing the freedom afforded at their joints. Trains, autos, and animals are all common modes of transportation in everyday life. We also have tracked, wheeled, and legged vehicles in robotics. Though each has its own set of uses, walking machines have sparked the most research interest due to their adaptability in dealing with terrain abnormalities and increased mobility, with the seniority of education focusing on machines that walk on two to six legs. Most of these walking machines have only succeeded in laboratory settings and have yet to make a breakthrough on entirely unstructured ground, but efforts in this direction hold a lot of promise. BARC recently produced a six-legged walking machine that debuted at the National Convention on Industrial Problems in Machines and Mechanisms in 1994) that walks forward and turns, but at a slow pace. Biped locomotion is a difficult subject of study since it creates stability problems, as the equilibrium of a body with less than three supports is fragile. Humans' ease of biped movement can be linked to their erect body shape, the

extent and nature of the foot's surface, and a highly intelligent neural system, all of which are difficult to replicate in machines.

1 Traditional Robot Manipulator Control Strategies:-

Traditional robot manipulator control strategies are fully error-driven and perform poorly at high speeds when high dynamic forces act as disturbances. The current tendency is toward model-based control, in which the dynamic forces are incorporated into the control strategy as feedforward gains and feedback compensations, and the servo-controller is only required to handle external noise and other elements not included in the robot's dynamic model. The model-based control strategy, as expected, performs better but requires a greater computing load in real time. Adaptive control is a subset of model-based control that comes in handy when the robot's dynamic parameters are unknown a priori. During task execution, the controller adapts and enhances the values of the dynamic parameters.

2.1 Force Control: Most traditional control methods focus on position control. However, some jobs (such as washing a window pane) necessitate the maintenance of particular contact forces. In such applications, the current tendency is to regulate the force in such directions and position it in other directions. Compliance (flexibility) is becoming increasingly popular in control. If wrist compliance is supplied, the forces created by such faults tend to adjust the position if positional accuracy is poor**.**

2.2 Human Intelligence and Vision: Human intelligence is a delicate and profound trait that cannot be learned or taught (though it can be improved in breadth and application) and cannot be described just in terms of logic and knowledge. Knowledge, once again, is much more than a group of certitude. We can't expect actual "intelligence" in a robot right now in the sense of the robot's having true "understanding" because current "machine intelligence" is based on knowledge and logic coded in computers. Nonetheless, intelligent robots, as they are known, are a hot issue in robotics since they can execute a variety of jobs in a seemingly intelligent manner. Machine intelligence can be used for path planning and obstacle avoidance, for example, by keeping (and updating) a comprehensive CAD model of the working area so that the robot can man oeuvre around obstacles without colliding. In the same way that sight, hearing, and touch aid human intelligence in gaining information about the outside world, robots are outfitted with sensors (optical, ultrasonic, and tactile) for feedback. When a robot must work in an environment that is poorly structured or unstructured (the environment is unknown a priori), the robot's intelligence is heavily reliant on "vision," which is the process of extracting, analyzing, and interpreting information from two-dimensional images of the three-dimensional world. The most difficult task in image processing is scene interpretation, which necessitates the highest level of intelligence. Once this approach matures, the robots are projected to have remarkable decision-making capabilities. The ultimate goal for robotics is to design a structure with high-performance sensors and stereo vision that can work in an unstructured environment with rapid and unexpected changes in the scenario. Furthermore, with decision-making capabilities, a certain degree of fault-tolerance is needed so that it can complete tasks entrusted to it as long as they are physically achievable.

3 Top Robotics Colleges In India

1. The Indian Institute of Technology, Kanpur
2. BITS Pilani is number two.
3. Bangalore's Indian Institute of Science
4. Manipal Institute of Technology is number four.
5. Jadavpur University is ranked fifth.

6. Sixth, the Indian Institute of Information Technology in Allahabad.
7. Dr. Vishwanath Karad, MIT World Peace University, Pune
8. Kanchipuram's SRM Engineering College

CONCLUSION

The area of robotics is highly developed and highly demanding. Recent trends in robotics for doing high capacity work, doing hazardous work in factories and laboratories, in space engineering and for Army purposes, and various institutes are offering courses regarding robotics and artificial intelligence (AI).

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NEW BIOLOGY AND MEDICINE TRENDS USING LASER TECHNOLOGY

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ABSTRACT

In the previous fifty years, technology has advanced significantly, and its numerous applications have made it indispensable in everyday life. This technology, however, is still accessible for a variety of advancements. There is a special focus in the realm of medicine, for diagnostics and personalized therapy, as well as a research tool in biology, across numerous applications. While its applications in ophthalmology, dermatology, and surgery are now well-established, one of the most popular and intriguing features of laser technology in biology arose in the late 1990s with the invention of devices that could do tiny dissections employing biological tissues and a laser beam. Laser-associated microdissection is a procedure for isolating and extracting selected cells or groups of cells from complicated biological tissues that is quick and precise. The ability to recognise the involvement of a cell type in a normal physiological or disease process has been revolutionized by the molecular study of pathologically changed cells and tissues for DNA, RNA, and protein expression.

Along with traditional diagnostic and therapeutic approaches, another field of application contributes to the development of targeted treatments at the nanoscale level of laser technology, primarily in the field of cancer, leading to the development of new and innovative drug delivery and image-guided surgery strategies. The majority of these approaches will be discussed here, though not exhaustively.

Keywords:-Photo-ablation, Nanotechnology, Cancer, Laser, Biology, Microdissection, Molecular Biology, Forensic Science.

1. INTRODUCTION

Light-Amplified Stimulated Emission of radiation (Laser), unlike a conventional light beam, radiation is a monochromatic, coherent, and unidirectional light source. Lasers are commonly used in daily life for a multitude of purposes, including CD and DVD players, barcode scanners, entertainment, welding and cutting in industry, firefighting, and road and tunnel alignment. Lasers are diagnostic and therapeutic equipment in the medical profession, with a large number of applications. The laser, which allows for greater surgical precision and promotes healing time or cure, is less invasive. Traditional surgical techniques are often significantly more traumatic than this method. Lasers were first used in medicine to damage the retina in order to better understand ocular harm caused by unintentional exposure. A number of devices have been created since the first ruby laser. Biological tissue can be analyzed under a microscope after immunohistochemistry or crushed for additional molecular research for patient diagnosis and experimental experiments.

The technique of laser-assisted micro dissection (LAM) bridges the gap between these two methodologies. It reveals fresh information on molecular processes, genetic abnormalities, tumor biomarker discovery, and patient-specific therapy. The creation of nanoparticles that absorb light but are harmless to biological tissue has opened up new possibilities for delivering heat more precisely while causing minimum damage to healthy tissue. When a nanoparticle is exposed to a laser of sufficient wavelength, it can undergo a photothermal reaction, in which electronic oscillations at the particle surface are transformed into heat. **[1]**

A) Other Applications for Lasers:-

1. Lasers can also be utilized in dentistry (gum care and tooth decay treatment) and phlebology (varicose vein treatment).

2. In medical applications of lasers in ophthalmology, lasers are used. Its benefits have been established when it comes to the treatment of myopia and cataracts, allowing patients with visual impairments to regain clear vision while avoiding the stress of wearing glasses or contact lenses.

B) Using Lasers in Surgery Lasers are used in a variety of surgical procedures:-
Surgery offers the benefit of lowering infection risk and promoting recovery.

It is utilised in cosmetic surgery to eliminate cellulite and wrinkles on the skin's surface. It is frequently less intrusive than

2. What Does a Laser Consist of?
A laser is made out of a cavity with two mirrors at each end and a gain medium in the middle. The medium emits light when it is excited by an energy source, which flows between the mirrors and is amplified at each transmission. One of the mirrors is somewhat translucent to allow the laser beam to exit the chamber. Lasers are classified based on the type of the amplification medium: gas, liquid, or solid: Lasers that use gas (argon, krypton, etc.) The laser is a powerful tool. Krypton has similar applications as argon and is beneficial for controlling bleeding. The CO2 laser is a type of gas laser. The laser beam is created by the gas being excited. The wavelength of this radiation is in the inaudible region (infrared laser to 1060 nm). Depending on how they're used, these sorts of lasers will have different impacts. It contains ablative qualities that have important biological consequences, such as a volatilization impact on the epidermis' surface and a heat action that can shorten collagen fibers (a tightening effect on the skin). These qualities are employed in the treatment of acne scars of various types, as well as to promote healing and a rejuvenating effect on the face. In ophthalmology, the CO2 laser appears to be most commonly used to vaporize lym-phangioma and capillary hemangiomas, as well as to provide hemostasis in patients with bleeding disorders. Krypton lasers have similar applications as argon lasers and are beneficial for limiting hemorrhage. The CO2 laser is a type of gas laser. The laser beam is created by the gas being excited. The wavelength of this radiation is in the inaudible region (infrared laser to 1060 nm). Depending on how they're used, these sorts of lasers will have different impacts. It contains ablative qualities that have important biological consequences, such as a volatilization impact on the epidermis' surface and a heat action that can shorten collagen fibers (a tightening effect on the skin). Acne scars are dealt with these qualities.**[2]**

3. Lasers for Liquid Dye:-
Dye lasers work by activating a liquid dye to emit light. Between 550 and 590 nm, they are generally "tunable." Their light can be seen. Dye lasers are frequently used in vascular indications, including the treatment of children's angiomas and newborns, spider naevi therapy, and rosacea treatment. This type of laser is used less commonly in other disorders, including psoriasis, where it is beneficial against fresh lesions. Solid-State Lasers (SSLs) are lasers that are made of solid A crystal (ruby, sapphire, or titanium), glass (Neodymium glass), or ceramic is used as the medium.diodes, such as those found in CDs.

4. Laser Alexandrite:-
The alexandrite laser works by generating light from an alexandrite crystal. The light has been calibrated to a 755-nanometer wavelength (deep red). Melanin in the skin, particularly in the hair, absorbs a lot of light at this wavelength. This feature is used to heat the hair and assist in its destruction. Eyebrow laser hair removal can cause ocular damage and should be avoided.

5. Lasers Made of YAG (Ytterbium Arsenide):-
These are Yttrium Aluminum Garnets. YAG lasers produce exposure periods in the nanosecond range. These lasers are intended for the removal of age spots and tattoos. In the infrared spectrum, the wavelength of the **Neodymium-doped YAG (Nd: YAG) laser** is 1064

nanometers. The Nd: YAG laser can penetrate deep into the skin and has a wide range of uses.

It allows for the aesthetic treatment of skin veins, acne, rosacea, warts, and birthmarks. Photorejuvenation characteristics are also present in these lasers. Erbium-doped YAG (Er YAG) lasers are superior to CO2 lasers in terms of abrasion resistance. The wavelength of the light produced is 2940 nm. They are used in photo rejuvenation, resurfacing, acne, scars, warts, and dentistry because they have a wavelength affinity with water (absorption peak = 3000 nm). This allows for the effective ablation of hard dental tissues while avoiding micro- and macro fractures.The Potassium Titanyl Phosphate (KTP) laser is a type of YAG laser. It's an Nd: YAG laser with a crystal capable of dividing the wavelength in half.

The KTP laser then emits light with a 532 nanometer wavelength (yellow green). Although the mechanism of KTP laser ablation is unknown, it has been demonstrated to be effective in treating both vascular and neurological conditions. It has indications for the treatment of superficial pigmented lesions, pregnancy masks (melisma), dermatitis ocher, some drug-induced pigmentation, scarring, and ulcers. The laser diode is made up of a diode, which is a light-producing electrical component.

6. Biological Tissue Effects of Lasers:-

The template is now ready to be placed on the paper after the text update is completed. Duplicate the template file using the command Save as, then name your manuscript according to the naming convention recommended by your publication. Then, in your prepared text file, highlight all of the contents of this freshly formed file. Now it's time to style your paper. Effects of Heat The laser's effect on biological tissue is the consequence of light being converted to heat, heat being transferred, and the tissue reacting to the temperature and duration of the heating. This interaction causes the tissue volume to be distorted or destroyed.

A. The Thermal Effects:-

The thermal effects of the laser create coagulation necrosis, as in the treatment of angiomas with the Nd: YAG laser, or volatilization, as in relation to the treatment of skin lesions with the CO2 laser, based on the degree to which time has been heated and the heating period.

B. Machines' Effects

They are made with lasers that emit extremely short pulses on very small surfaces, in the nanosecond to picosecond range, causing a damaging shock wave that is primarily induced by the mechanism of explosive vaporization of the target, as used to treat hemangiomas. The vessels of the angioma erupt in this situation, causing vessel wall rupture and bleeding.

When huge pigment pieces rupture and give birth to smaller fragments during tattoo removal, this is also what happens, an effect that necessitates high-energy photons with extremely brief pulses (wavelength less than 300 nm) (10 ns to 100 ns). It causes a clean tissue ablation with no thermal lesions. Photo-ablation is the most current clinical application of light-tissue interaction. It's utilised to treat corneal diseases like ulcers and scarring, and its application in keratorefractive surgery is fast evolving. The procedure is carried out under local anesthetic (using topical drops).

Cutting a corneal flap surface is the first stage of the technique (90 to 180 micrometers). A microkeratome, a small and extremely complex mechanical instrument, was the most popular means of cutting the corneal flap until the early 2000s. The initial, extremely delicate cutting phase is currently being performed with a femtosecond laser. The corneal flap is a type of corneal flap that is used to protect the cut in about ten seconds, after which an excimer laser is used to execute the refractive sculpture. A chemical reaction allows excimer lasers to exist. Excimer lasers are driven by an excimer, which is a short-lived dimeric or heterodimeric molecule with at least one atom in an excited electronic state. They are often used LASIK

(Laser Assisted in Situ Keratomileusis) is a common excimer molecule, including fluorine (which emits at 157 nm) and noble gas compounds (Argon at 193 nm, Krypton-223 nm, etc.). The femtosecond laser is the new scalpel for biologists. They have become more comfortable with technology since 2000, which has opened those exciting opportunities in the life sciences. Effects of Light on the Body They are made with lasers that emit extremely short pulses on very small surfaces, in the nanosecond to picosecond range, causing a damaging shock wave that is primarily induced by the mechanism of explosive vaporization of the target, as used to treat hemangiomas. The vessels of the angioma erupt in this situation, causing vessel wall rupture and bleeding. When huge pigment pieces rupture and give birth to smaller fragments during tattoo removal, this is also what happens.

7. Applications of Biological Tissue:-

In biology, lasers with wavelengths in the infrared or ultraviolet region are utilized. They can work in either a continuous or a pulse mode. The laser beam's high power density and exact position make it well suited for cutting living tissue. Existing photons will be destroyed due to the high concentration of photons.

A. Imagery Utilization:-

Photo acoustic imaging (PAI), Optical Coherence Tomography (OCT), and Surface-Enhanced Raman Scattering are examples of high-resolution optoacoustic imaging techniques with a wide range of applications (SERS).

B.Optical Coherence Tomography

Optical Coherence Tomography is a type of imaging that uses light to reveal the structure of the body. **OCT** is an optical coherence tomography technique that generates cross-sectional images of tissues (epidermis, retina, retinal nerve fiber layer, coronary arteries, and so on) using near-infrared light (Near-IR). Near-IR excitation radiation is very valuable in biomedical studies because it allows for deeper tissue penetration depths (1–2 mm) and resolution (about 1–10 micrometers) while producing less fluorescence background than visible radiation.

The OCT system consists of a light source (ultra-short pulsed laser, super continuous laser, or super luminescent diode), an interferometer, and a microscope that distributes light and collects reflection from the objects being studied. OCT is a diagnostic technique for visualizing living tissues and cells in animals that is frequently used in cardiology, ophthalmology, dermatology, and other medical fields like dentistry. When molecules are adsorbed on or near nanometer-sized structures of special metals such as gold and silver, surface-enhanced Raman scattering (SERS) spectroscopy is a plasmonics-based spectroscopic technique that combines laser spectroscopy with the unique optical properties of metallic nanostructures, resulting in strongly increased Raman signals. SERS imaging uses plasmatic gold nanoparticles of various forms (Nano flowers, Nano stars, Nano rods, Nano shells, or Nano cages) as probes, which could open up new therapeutic imaging paths**.[3]**

India's Top Laser Technology Colleges In 2022

1. Guindy College of Engineering

2. Pt. RaviShankar Shukla University, Raipur.

3. Devi Ahilya Vishwavidyalaya, Indore.

CONCLUSIONS

Quantum dots, which are tiny light-emitting particles of a nanometer size that are helpful for highly sensitive cellular applications, are an important nanostructure. imaging, magnetic nanoparticles used in clinical applications, polymeric particles to encapsulate therapeutic molecules, and metallic nanoparticles. The advancement of nanotechnology has changed the way drugs are administered. By specifically targeting diseased tissues and cells, the design of

nanoparticle suspensions loaded with medications can improve the therapeutic index of many chemicals (increased solubility, improved efficiency, and lower toxicity).

They allow not only for the administration of the active substance but also its regulated release in response to an external stimulus. Nanotheranostic refers to an additional experimental strategy that gives nanoparticles dual functionality by linking a drug, the therapy, with an imaging agent, the diagnostic vector, allowing for personalized patient treatments. Huang et al. have demonstrated this in vivo.

The use of lasers has sparked interest thanks to cutting-edge technology such as laser microdissection and/or photoablation, which enables understanding of the physiological pathways in the genesis of disease at various levels of expression. The findings will aid in the development of nanotechnology in conjunction with technical breakthroughs in the field of imaging, which will aid not only in diagnosis but also in the possible application of less invasive treatment regimens. Nanomedicine is a promising new type of medicine that can treat malignancies, infectious infections, and diagnose disorders.

Important findings have already passed the stage of new engineering, and medications to treat ovarian cancer (Doxil®), Kaposi sarcoma (Daunoxome®), and infectious disorders (Ambisome®) are already available to patients.

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PROSPECTUS FOR THE FUTURE AND RECENT TRENDS IN SMART MATERIALS

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ABSTRACT
Smart materials are a category of advanced materials that includes a number of different types of materials. Smart materials alter one or more of their properties when subjected to external stimuli (shape, color, size, etc.). These materials are more adaptable than typical dumb materials and perform better. Because of their built-in sensing and actuation capabilities, they are termed "smart." As indicated by papers and books, many researchers have become increasingly interested in discovering innovative applications of smart and composite materials. Smart structures of today are light in weight, biocompatible, simple, small, and safe, with excellent mechanical qualities. All of these features can be maintained by smart and composite materials. The current state and prospectus for smart materials in a number of applications are examined in this research chapter.

Keywords: Smart Materials, Sensors, and Actuators.

1. INTRODUCTION
Smart materials are those that can transform at least one of their natural properties impressively when external stimuli are applied in a controlled way. Temperature, moisture, stress, pH, electric fields, magnetic fields, and other external stimuli are examples of external stimuli. Smart materials are utilized for detecting and actuating functions, perceiving changes in the environment and responding by modifying one or more of their property coefficients. It can modify its detection and

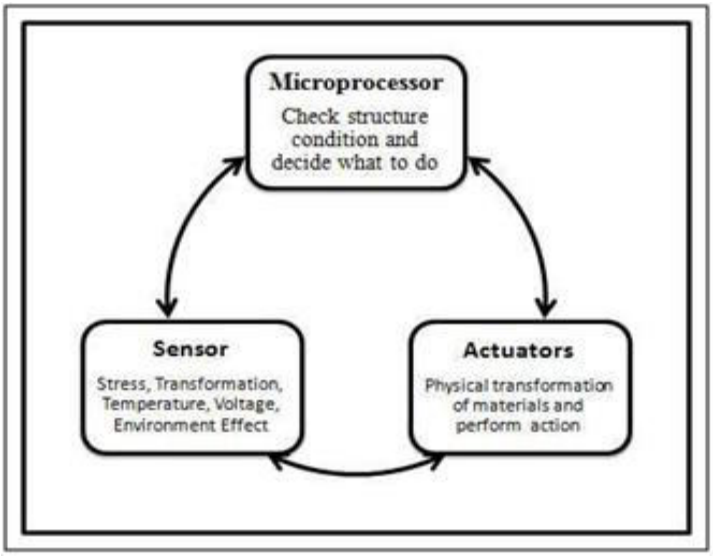

Figure 1: Depicts the operational concept of a smart composite material.

Activation capacities in time and space to optimize behavior in this way **[1]**. As demonstrated in fig. 1, smart materials become smarter with age due to a feedback system.

A sensor element, a control unit, and an actuation element are the three essential components of a smart material, as indicated in the diagram above (1). The sensing element detects environmental variables, and if the values surpass the threshold values, the actuator's actuating element fires, supplying the energy required to alter the values of the sensed environmental

variable. The smart material actuator provides this additional energy. This injection process must be properly managed, necessitating the use of a robust and dependable control unit in the smart material system. Piezo-composite materials have been used as sensors and actuators in ultrasonic transducers and vibration energy reaping systems **[1].**

Metal and polymer matrices are mixed with smart materials to create smart composite composites. Smart composite materials have various technical obstacles as compared to smart materials, such as homogenous mixing, interfacial attachment, and property characterization. Composite materials based on nanotechnology will be used to manufacture more plastic-based constructions in the future.**[2,3]**

2. What are Smart Materials?

Smart materials are advanced materials that can sense environmental signals and actuate themselves to perform a specific activity. The adjectives "smart," "intelligent," and even "adaptive" are used to describe those materials, which include sensors and actuators. They also have a number of distinctive features that set them apart from other materials, including [4, 5]

- Immediacy: they respond to external influences quickly;
- Transiency: they can respond to diverse stimuli and be in many states.
- Self-awareness (intelligence): this ability is inherent in matter.
- The selectivity of a reaction refers to how distinct and predictable it is.
- Directness: both the act and the reaction are accumulated in the same location.

There are two types of smart materials: passive and active. Passive smart materials, such as fiber optics, are materials that can transport specific forms of energy, such as electromagnetic waves. Active smart materials are likewise classified into two categories. The first category includes items that can change their properties when exposed to external factors, such as photochromic glasses that change color when exposed to sunlight [3]. The other categories can change energy from one form to another, including thermal, chemical, nuclear, mechanical, electrical, and optical.

3. Smart Material Classification

Smart materials come in a variety of shapes and sizes. Each type has unique properties that can be modified. The following are several types of smart materials. **[4]**

3.1 Materials with Piezoelectric Properties

Piezoelectric materials (mostly crystals) produce an electric voltage when they are stressed. On the contrary, when a voltage is applied across a piezoelectric material, it causes the shape to alter. Piezoelectric materials are small and lightweight. Microelectronics, optics, biology, medicine, and mechanical engineering all employ them **[7]**. Piezoelectric devices can operate as frequency and electric potential transducers.

3.2 Materials with Electrostrictive Properties

Electrostrictive materials change size in reaction to an electric field. When an electric field is applied, ions are displaced from their original positions, increasing their size. This property is also demonstrated by piezoelectric materials, but there are some significant distinctions between them.

3.3 Magnetostrictive Materials

Magnetostriction is a phenomenon in which a magnetic field changes the size of a ferromagnetic material. These materials can be classified as either positive or negative magnetostrictive. As a result of the biasing magnetic field, they can either stretch or compress. These materials are a type of smart material that can switch between magnetic and elastic states and convert energy.

As a result, magnetostrictive materials and devices based on them are commonly referred to as transducers.

3.4 Smas (Shape Memory Alloys)

This is a type of thermally activated adaptive material that can transfer thermal energy to mechanical work. These are one-of-a-kind metal alloys. These materials have a high power-to-volume ratio. They're well-known for their amazing thermo-mechanical capabilities, memory foam effect, and damping capacity. This can be seen in nickel-titanium alloys (NiTi). In some situations, SMA's extraordinary elasticity is used **[8]**. After stress-induced alterations, this property allows the smart material to revert towards its original dimension.

3.5 Chromogenic Substances

A family of smart materials that change color in response to changes in environmental circumstances can be found among smart materials. They can revert to their original color when the effect has gone. Because changing the color of one's skin is a camouflage tactic used by chameleons, materials that exhibit this capacity are frequently referred to as "chameleon materials" **[4]**. The reversibility of color change depends on specific physical characteristics for each family.

3.6 Materials that are Ph Sensitive

pH-sensitive polymers are a type of smart material that can alter color in reaction to changes in pH level. They might be acidic or basic, and they react with their polar opposite. They are now used in a variety of fields, including medicine for medication delivery, surface improvement, and filtering. One of the best pH indicators utilized in relevant sensors is halochromic materials **[4].**

3.7 Magneto rheological and Electrorheological Fluids are discussed in Section

Magnetorheological Fluids (MRFs) are viscoelastic fluids that are non-Newtonian in nature with suspended iron particles that can vary in viscosity and thickness when you apply a magnetic field. There are a plethora of wonderful engineering and technological prospects for MRFs. They can be utilized to defend structures from earthquakes **[4].**

Electrorheological fluid (EMF) is a non-Newtonian viscoelastic fluid with disordered suspended particles, similar to magnetorheological fluid. When you apply an electric field to an EMF, the suspended particles adhere to one another and form chains in the same direction as the electric field is applied. EMF and MRF can both be employed in smart application systems.

4. Applications of Smart Materials

4.1 Shape-Memory Alloys:-

When some materials are bent beyond their elasticity, they remain in the same position and shape. However, some materials manufactured from a part of memory alloy regain their elasticity when heated to a specific temperature and revert to their former shape. This property is perfect for making spectacle frames because it allows them to return to their former shape after being bent in hot water. SMAs are employed in a variety of sectors, such as tubes, spectacle frames, wires, dental wires, and ribbons, as well as fire security and protection systems. **[1]**

4.2 Aerospace Applications:-

Because of their light weight and high rigidity, thin-walled constructions are commonly utilized in airplane structures. Active control of wideband excitations, deicing of aircraft surfaces, and vibration management in aviation components all use smart materials **[1].**

These structures have a higher level of analysis and complexity than traditional structures. There are many more factors that influence their behavior, such as warping, ovaling, and so on.

Furthermore, thin-walled aircraft structures produce two motions: first, torsional motion, and second, bending motion. A bending motion causes torsional motion, while an axial load causes bending motion.

4.3 Wind Power Generation:-

Turbine blades play a critical function in wind turbines, and they must maintain an optimal cross-section for aerodynamic efficiency in order to create the most torque to drive the generators. The wind turbine's efficiency is influenced by the blade's material, shape, and angle. As a result, the material used for turbine blades is extremely important in wind turbines. High stiffness, low density, and long fatigue life are all advantages of smart materials. Composite materials are utilized in the development of wind energy **[1].** Hybrid fibers, such as carbon and glass, are increasingly widely utilized in blade manufacturing.

4.4 Thermoplastic Application:-

Thermoplastics are classified into two groups: thermoset and thermoplastics. The main advantages of thermoplastic over thermoset are recyclability and biocompatibility. Thermoplastics are materials that are made up of polymers that are bonded together by intermolecular interactions. It has the simplest molecular structure with chemically independent macromolecules. They are softened or melted, then shaped, molded, welded, and cooled to solidify them. Multiple heating and cooling cycles can be repeated without causing damage. Reprocessing and recycling are possible **[1]**.

4.5 Civil Construction

Telecom Applications Civil construction can be damaged by earthquakes, cyclones, explosions, and other natural catastrophes. These types of loads either permanently collapse the structure or cause substantial damage to it. It is possible to reconstruct the structure when the damage is minor **[1].** One of the most cost-effective and efficient ways to repair damaged buildings is with Fiber Reinforced Plastics (FRP).

Because the demand for power transmission as well as data transmission is growing in the telecommunications industry, individuals are turning to hybrid cables. A complex and adaptable cabling option for network equipment with OFC cables within built power transmission is the hybrid aerial-underground cable. There has been a long-term demand for hybrid composite cables, especially for power transfer in always-on (interrupt-free) telecom applications.

4.6 Power-Generating Sidewalks:-

Special tiles composed of piezoelectric materials could confirm the harvesting of clean energy from people's footsteps. Because piezoelectric materials create electricity by a dynamic force, they can be utilized to power some pedestrian amenities.

4.7 Biomedical Application

Physicians must diagnose several organs inside the human body in order to pinpoint the true location of the ailment. In today's world, an inchworm robot based on SMA actuators can be used for colonoscopy. When it passes through the colon, it may be easily tracked. The robot grew longer as the SMA-actuators expanded. Some of these actuators are also employed to secure the robot against the wall. The robot can move forward or backward one step **[4].**

4.8 A Bioengineered Robotic Hand

Smart materials can also be used to recreate missing human bodies that can perform their functions easily and accurately. A bioengineered mechanical hand is one example of a product made with SMAs. It's a small, light, and powerful technology that can be applied to create artificial muscles. Aluminum and SMAs make up its fingers [4].

4.9 A Magneto rheological Shock Absorber:-

Magnetorheological Shock Absorbers are damper systems that incorporate both a spring and a shock absorber. They are a crucial part of almost every car since they serve to decrease the effect of incoming shocks. They can also protect all elements of the vehicle and give the driver and passengers a relaxing experience **[4].**

5. Difficulty and Prospects for the Future

The ultimate goal of each new composite smart material is to combine two or more single smart materials to synergistically use the finest qualities of their separate elements. As a result, smart composite materials are on the verge of meeting all of the requirements **[1].**

Smart materials have certain drawbacks, such as being more expensive, having low energy efficiency, requiring complex regulation, and having limited bandwidth. Smart and smart composite materials will be increasingly used as sensors and actuators in the IT, automobile, space, and military industries in the future for product reduction and intelligence. MEMS/NEMS technology, in particular, will be accepted as an unavoidable fabrication process.

CONCLUSION

Smart materials technology is, by definition, a very interdisciplinary field. It includes applied sciences and engineering such as aeronautics and mechanical engineering, as well as basic sciences such as physics, chemistry, mechanics, computing, and electronics. Smart materials and structures are among the most promising inventions for increased lifespan efficiency and reliability. The ultimate goals of study in this discipline are to understand and regulate the content and microstructure of new materials, which is crucial for the production of smart materials. New and advanced materials will undeniably increase our standard of living.

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FUTURE TRENDS AND ADVANCE SENSOR TECHNOLOGY

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ABSTRACT
Unique signal processing technologies, high-speed and low-cost electronic circuits, and improved signal processing manufacturing processes have all assisted recent breakthroughs in sensor technology. The synergetic interaction of new breakthroughs in various sectors yields promising technical solutions that improve technical product quality, reliability, and economic efficiency.

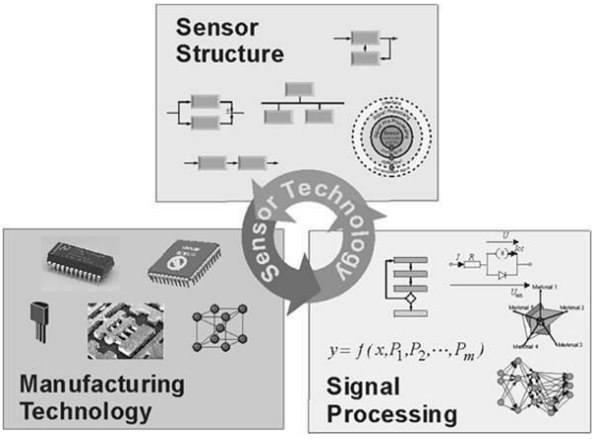
We will provide an overview of the key developments in methodologies, structures, manufacturing technologies, and signal processing that characterize today's sensors and sensor systems using selected examples. The most well-known type of future development tendencies is explored.

Keywords:-Future trends in sensor signal processing, sensor technology, and smart sensors.

I) INTRODUCTION
In market competition, product quality and reliability must be implemented on a continual basis. Sensor systems are being used in whole new ways as the demand for automation, security, and comfort grows. In most applications, the number of sensor systems required and their diversity are constantly rising.

To meet the increasing demands, sensor system designers must develop fresh techniques and solutions that take advantage of recent scientific and technological advances. Sensors and sensor systems work by combining sensor structure, manufacturing technologies, and signal processing algorithms to perform their functions.

II) SENSOR STRUCTURE
Sensor systems are being used in whole new ways as the demand for automation, security, and comfort grows. In most applications, the number of sensor systems required and their diversity are constantly rising. The measured quantity can be computed using digital signal processing while manufacturing variance is taken into account. influences, factors, and aging processes. decisive fields for the development of sensor technology. Signal processing is progressively transferred from the upper system level to the sensor level thanks to low-cost analog-to-digital converters. New ways of improving sensor quality are being developed as a result of the many digital signal processing facilities**. [1]**



Decisive Fields for the Development of Sensor Technology

Calibration and consideration of a variety of impacts, such as manufacturing variance or cross sensitivity, becomes a straightforward procedure. Other functionalities, such as online self-test or self-calibration, are increasingly being incorporated into systems, enhancing system reliability and lowering installation and maintenance costs. The construction of a sensor with self-monitoring differs from the usual structure in the sense that it considers supplemental knowledge in addition to the actual measurement data. Generally, specific relationships requiring the comparison of the real output to the expected value according to a previously known relationship can be used to assess the status of the sensor system. Regarding the sensor behavior and the expected confidence limits of sensor properties, For example, closed-loop acceleration sensors compensate for the mass being subjected to an inertial force that is counteracted by an electrically generated restoring force. In order to determine sensor parameters, self-tests can be carried out using restoring forces with well-known values. Genuine sensor outputs can be determined by fixing well-known inputs, which are also used in a self-calibration procedure.

Aging effects can be corrected through self-calibration, ensuring that established measurement accuracy limitations are maintained during the operation time. The trend toward sensors with built-in self-testing or self-calibration functions has resulted in the development of completely calibration-free sensor systems. A unique sensor method has been established in recent research dealing with temperature measurement based on p-n junctions **[2]**, in which temperature may be determined without the use of any external sensor calibrations during production or maintenance processes.

The model of the characteristic represents a priori knowledge about sensor behavior in this scenario. One uncertain parameter, among others, is temperature. The measured voltages at various supply currents are fitted to the characteristic model, allowing temperature and all unknown parameters in the characteristic model to be determined online at the same time.

III) Sensor-Based Technology:-

Many recent improvements in sensor technology have been made possible primarily through the use of microtechnologies. High-volume manufacturing systems with tiny dimensions, lower power consumption, and improved reliability are now possible thanks to these new technologies. As a result, realized microsystems are able to merge. Sensors, actuators, mechanical, and electronic units. They provide low-cost solutions that were not realizable with microelectronic systems. Their development presents unique challenges for device modeling, microfabrication, material, and packaging technologies.systems are now commonplace in automobiles, color printers, mobile phones, and medical devices. Pressure, angular rate, and acceleration sensors are the most common micromachined sensors.

They made it possible for low-cost airbag systems and catalytic converters to be widely used. One of the most popular and important microtechnologies for sensor systems is silicon micromachining. The outstanding features of silicon, such as the lack of hysteresis errors, as well as earlier developments in the discipline of microelectronics, have enabled this significant scientific advancement. In bulk micromachining, both wet and dry methods are used to build the substrate.

Bulk micromachining has the benefits of good etching selectivity and dependability. The etching speed in an isotropic procedure is unaffected by the substrate's direction. In this instance, the number of device configurations available is limited, and the silicon material may not be used to its full potential. The etching speed in an anisotropic technique is orientation dependent. The created structures in bulk micromachining have a high aspect ratio from the

start. This indicates that the structure's height is greater than the structure's minimal lateral dimension.

This attribute has a number of benefits for sensor performance, including higher sensitivity, displacement, mechanical robustness, and reduced noise. Surface micromachining creates three-dimensional mechanical structures by depositing and selectively removing sacrificial layers (e.g., SiO) that separate the different layers in the structure. Etching with reactive ions (RIE) has recently allowed for the cost-effective production of structures with a larger aspect ratio of 30.

IV) Signal Processing

Signal processing is tasked with determining the measured quantity from the measured data in the face of all inescapable variables such as manufacturing variance, influencing factors, and aging processes, which all contribute to systematic measurement errors. Individual Sensor Signal Processing While the sensor element can give a weak signal, the sent signal should have a high signal level and possibly appropriate values in order to reach superior units undisturbed and ease the following calculations. **[1]**

As a result, the sensor signal should be preprocessed in general. Several critical activities, such as signal amplification, scaling, linearization, conversion, and conjunctions with other components in a chain, parallel, or closed-loop structure, might be accomplished **(Fig. 1)**. Giant magneto resistance (GMR) elements, for example, can measure an angle with high precision. These elements have the unique ability to measure the direction of a magnetic field regardless of its amplitude.

In this case, the signal from the sensor must be increased in general and the temperature effect corrected. Analog signal processing in a half or full bridge circuit with GMR elements with different preference magnetizations performs the actual angle calculation. Local digitization of the signal from the sensor is a common procedure today. Aside from the higher system disburden, local signal digitization offers the benefit of allowing measurement data to be transferred without significant precision loss regardless of the distance between the sensor and the higher processing unit.

Signal processing is progressively being moved from hardware to software, making it easier to enhance measurement precision. Instead of using a simple parameterization, it can be used for mechanical or electrical trimming processes used to account for manufacturing differences. Sensor behavior can be modeled physically or mathematically to account for influencing effects and produce more exact measurements.

The ability to apply the development of improved signal processing techniques leads to the development of entirely new sensors based on well-known principles. However, technological issues such as manufacturing variance or a low signal level precluded them from being used effectively for measurements. Multisensory Signal Processing is a term that refers to the processing of data from multiple sensors. Single sensor systems, on the other hand, can only provide a partial picture of the status of the environment, whereas multisensory systems incorporate data from numerous comparable and/or dissimilar sensors. Multisensory systems are designed to produce synergetic effects that improve the quality and availability of information regarding the current status of affairs in a measurement environment.

The goal of signal processing in multisensory systems is to obtain predetermined information, such as a judgment or a quantity measurement, from a set of collected data. Data collected by a multisensory system provides, in most cases, a level of precision or reliability that a single sensor could not provide. Ultrasonic detectors, for example, are extremely sensitive to noise, thermally induced air turbulence, and the movement of hanging curtains and plants when used for presence detection.

Microwave detectors: it's also possible to use them to find out what's going on in the presence of other electromagnetic fields or detect movements outside the viewed room (mobile telephones, etc.). Because of the distinct ways in which both detectors are influenced by disturbances, the combination of both detectors and the application of tailored signal processing achieves improved detection reliability. In general, advanced signal processing methods based on data fusion are used and can enhance Measurement accuracy higher than with simpler threshold-based algorithms**.[3]**

In order to assure the correct calculation of the required measurement values or judgments, the multisensory data fusion method should be individually built in each case, taking into account the unique circumstances of the target application. The inclusion of numerous low-cost sensors in a multisensory system, for example, can significantly increase the accuracy and reliability of gas concentration measurements. The cross sensitivity of the sensors as well as the effects of influence elements such as temperature, humidity, or pressure, are important circumstances for data fusion in this scenario. In general, separate sensors should be used to monitor the key influencing factors.

The reactivity of the multisensory system to various lead gases is investigated using calibration operations. The sensor combination for data fusion is determined based on the sensor reaction **[5].** In this way, even if the individual sensors have flaws, an accurate concentration measurement can be made and categorized using a neural network in order to determine which class the measured data belongs to and whether or not an alarm should be delivered to the user's fire brigade.

V) Trends in Future Sensor Technology sensor Technology

is evolving at a rapid pace as a result of market-economic aspects, general customer requests, and specific Multisensory systems have become indispensable in hazard warning applications such as free-range protection due to the high level of reliability required via video signal evaluation, identification of lying people, and early fire detection. In sensor arrays, such as optical scattered light detectors and gas sensors, have been proposed in order to detect fires early by recognising fire signatures from observed sensor responses. Signal processing should have the ability to distinguish between fire, not-fire, and disturbing event conditions. In order to minimize the dimensionality of the measurement space and extract appropriate information describing fire scenarios, a feature extraction unit is required. The traits that have been extracted are A.

VI) Miniaturization Trend:-

Microsystem technology miniaturization is a brilliant success story in current technology. Shorter response times are frequently achieved when characteristic dimensions are reduced, allowing for higher signal creation and processing speeds. Because of the better integration rate, lower power consumption, and increased dependability, it often saves money.

Miniaturization Smaller shapes and higher precision are becoming increasingly important in all domains of application where market acceptability of unique items is becoming more important. The miniaturization tendency in development goes on within nanotechnologies, which will allow access to still smaller dimensions. For example, health care gadgets can be used to monitor important human parameters such that an emergency call can be made automatically in the event of the observed person's unconsciousness. For acceptance by users, the device should be light and provide unhindered mobility.

The user should be allowed to dismiss the message and to live normally without being obliged to take it off in any situation during the whole day. The concept of the MIT-ring as a highly miniaturized solution fulfills the requirements for this special application. A light-emitting diode in the ring sends light into the observed person's finger on a constant basis. By analyzing the

reflected light, the ring can assess the pulse rate, the probable heart state, and possibly the blood pressure. Blood pressure By means Signals can be sent using an integrated antenna and the target apps' needs.

In the future, higher-performance measurement methods, new production technologies, and techniques for advanced signal processing will be used to reduce costs and enhance accuracy and speed. The growing need for environmental protection necessitates the creation of extremely trustworthy sensors. As a result, maintenance-free sensors A major theme will be devices with a long life expectancy and minimal electric power usage. The most important developments in sensor technology are miniaturization and the growing use of multisensory and wireless systems. a signal receiver in the vicinity of B. The use of multisensory is becoming more common.**[4]**

VII) The Use of Multi-Sensors is Increasing

Multisensory systems are becoming more widely used in a variety of applications **[5].** Their applications include everything from monitoring and automating manufacturing processes to robots, automotive applications, smart homes, and more. The key development trends in sensor technology are miniaturization and the growing use of multisensory and wireless systems. A signal receiver in the vicinity of B. The use of multisensory is becoming more common. Multisensory systems are becoming more prevalent in a wide range of applications **[5].**

Their applications include everything from monitoring and automating manufacturing processes to robots, automotive applications, smart homes, and more. Miniaturization and the expanding usage of multisensory and wireless systems are two significant development areas in sensor technology. In the vicinity of B, there is a signal receiver. Multisensory games are becoming increasingly popular. Multisensory systems are increasingly common in a number of applications. Their applications range from manufacturing process monitoring and automation to robotics, automotive applications, smart homes, and more.Multisensory system development trends are moving toward modular systems, which can be easily expanded with new units without disrupting existing functionalities.

VIII) Trends in Wireless Systems:-

Wireless System Trends The electric wiring of spatially distributed systems grows complex and presents issues in the system's handling due to the large number of components that are necessary to accomplish the desired functionality. Wireless technology adoption delivers increased convenience while also drastically lowering costs. Sensors that can be utilized wirelessly have the advantage of being able to be put almost anywhere and hence record the measured quantity. Wireless sensors can communicate over ultrasonic or infrared signals.

Surface acoustic wave devices (SAW transponders), for example, can be used to identify objects and monitor physical, chemical, and biological characteristics like temperature, pressure, torque, acceleration, or humidity **[6]**. Because of wireless sensors, energy-autonomous sensors will become more popular; wires are no longer required, even for power supply **[6].**This type of sensor is required in a variety of applications where large distances must be bridged or a large number of people must be transported, and scattered components must be used.

IX) Closing Remarks

Sensor technology benefits from the synergistic combination of manufacturing and signal processing approaches. New sensors offer potential technical solutions that can help increase the quality, reliability, and economic efficiency of technical products dramatically. The development of new sensors necessitates an interdisciplinary effort involving significant expertise from academia and industry.

Sensor systems will be built in the future as part of an integrated design process that includes not only technological considerations but also the design of specific production stages and signal processing algorithms.

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TRENDS AND STATUS IN NUCLEAR EDUCATION

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ABSTRACT
The goal of this paper is to aid in the creation of nuclear education policies and nuclear knowledge management operations strategies as part of the overall operation. This includes addressing key issues of nuclear education as well as national and regional needs. Promoting strong regional or inter-regional nuclear education networks. The harmonisation of curricula in nuclear education and training programs; addressing the use of National best practises for nuclear facilities to enhance education, capability, and research addressing nuclear education; and sharing and analysing information to make it more accessible Nuclear education furthers development.

Keywords: - Networks; Education and training quality; Human resource development; Cooperation Between educational and training institutions; Utilization of technology

1. INTRODUCTION

BACKGROUND
In December 1953 President Dwight D. Eisenhower's Atoms for a Peace plan, which he submitted to the United Nations, the peaceful use of nuclear technology paved the way for all over the world. In many countries, dedicated training institutions and programmers were quickly established with the goal of a well-educated developing and highly trained workforce capable of safely and successfully applying the technology.

Robust nuclear programs are now available in many countries, contemplating the establishment of a national nuclear program for the first time by others. In 30 nations, there are around 440 nuclear power facilities in operation. Powered by nuclear reactors over 400 ships additionally, and nearly 300 research reactors are in operation in 50 nations. These facilities provide radioisotopes for medical diagnosis and cancer treatment, as well as a learning environment for students and neutrons for researchers. a global nuclear renaissance is currently underway according to some analysts, with around 55 new reactors under construction and 110 more planned. Nuclear programs are fledgling in some other countries.

To function competently, nuclear personnel must have access to the proper degree of education and training throughout their careers. The level and type of employment is determined by the amount of training and education required for each worker. This is required to maintain competency, ensure the safe use of nuclear applications, the general public and protect workers, and the environment. In addition, new approaches must be learned through training and instruction. Non-nuclear professionals working in the nuclear industry are also aware that they require some nuclear training and education. Competency is described as having the necessary degree of knowledge and abilities, as well as the required professional attitude, to do work efficiently and safely.

Based on the engagement of government, academia, and industry, a simple model can be developed. Education, industry, and government must work together closely, through local/national training schools and technical colleges. Even though this report and its annexes focus on education rather than training, it emphasizes the need for collaboration and coordination between the education and training sectors in ensuring a sufficient supply of workers.

The functioning of industry and academia through policies and funds is supported by government and developments. Although the interaction of government policies with universities and industry varies by country. The interdependencies between these factors are depicted in Figure 1. Academia is largely responsible for enhancing students' knowledge through education. Successful students will receive certifications, diplomas, or degrees and will be able to work in the industry or for other organizations after graduation. The industry is responsible for providing training that results in incapable workers with the development of necessary skills. Competent workers are frequently recognized for their abilities through the use of qualification cards or licenses.

Most countries have identified close collaboration between business, universities, and government as a critical aspect in boosting nuclear education and attracting young talent. Communication between academia and industry benefits both parties in a variety of ways. For starters, university graduates' knowledge and abilities are more closely aligned with business needs, allowing industrial training to be more focused on specific industry needs. Second, potential areas of collaboration can be more clearly recognized.

1.1 SCOPE

1) Needs for nuclear engineers, including.

2) Educational systems and educational institutions involved in nuclear education.

3) Foreign student enrolments.

4) The role of research and experimental facilities.

5) Cooperation collaborations of academia with industry and government.

6) National and international cooperation and educational networks.

1.2 STRUCTURE

The first section of this study gives background information on nuclear education efforts, as well as a summary of best practices, conclusions, and suggestions; the second section contains country reports on nuclear education in the Member States. These reports feature an overview of each Member State's educational system, universities that offer nuclear education courses, and statistics on the courses and trends over the last few years. The country reports include collaboration with the government and research groups, as well as relationships between educational institutions and the nuclear sector.

2) Good Practices in Nuclear Education

Good nuclear education procedures have been identified and are summarized in the subcategories below:-

- Human resource development
- Education and training institution collaboration
- Networks
- Education and training of high quality
- The application of technology
- Outreach.

2.1 Human Resource Development

The majority of IAEA Member States are seeing increased demand for nuclear engineers and scientists. As a result, the advancement of nuclear technology necessitates and encourages the growth of human resources. Each Member State requires a continuous, consistent, and well-

managed HRD program:- Establish and maintain a pool of workers trained in diverse nuclear-related talents and Educated in nuclear-related subjects to assure continuity in the capacities, skills, and knowledge required throughout time.

The role of educational institutions in the workplace is to provide a well-educated and trained workforce. HRD, and its management, is a long-term process that balances supply and demand in terms of education, recruitment, and training requirements for industrial operations and innovation. The following points are highlighted about HRD in nuclear technology:-

[1] Technological advancement is a continual process that is necessary to keep NPPs and other facilities in good working order

[2] A steady supply of nuclear specialists will be required to keep NPPs and other facilities safe to operate

[3] In the coming decades, maintaining knowledge and competency in currently accessible technologies will be an important part of education, leading to the creation of enhanced and new nuclear technology application

[4] Basic nuclear understanding should also be taught in high school, according to the proposal

The safe and efficient operation of nuclear power plants and other nuclear R&D organizations depends on maintaining a qualified, competent workforce. Many countries, including Canada, the United States, and some European countries, will face considerable challenges in the coming years as a result of changing worker demographics and the risk of severe loss of critical experience and knowledge. This is backed up by the fact that the nuclear industry, including government and universities, has not hired many new graduates in the last two decades, and there has been little investment in university-based education and research, as well as nuclear component manufacturing and other aspects of nuclear infrastructure.

2.2 Cooperation between Education and Training Institutions

The distinctions between education and training are subtle, but they are significant. Education covers the necessity to preserve knowledge's fullness and continuity across generations. It's fundamentally a knowledge-based process, with academic institutions serving as providers and students serving as clients. Training is commonly believed to relate to the acquisition of a specific skill that, when combined with the necessary knowledge, produces the desired outcome. It is fundamentally an application-driven strategy that largely involves educating firms as suppliers and workers as customers.

The safe use of modern nuclear applications, as well as the protection of workers, the public, and the environment, necessitate maintaining a high level of nuclear skills. In R&D, current nuclear knowledge is also necessary for optimizing current and developing future technologies. A long-term education and training infrastructure is critical to maintaining a high level of knowledge in the future.

Most employees 'formal education stops after secondary or higher school unless they want to re-enter academia as adult students, according to the traditional paradigm. Workers can, however, enroll in part-time courses at HEIs subsidized by their employers or, increasingly, attend HEIs for continuing education.

2.2.1 Common Course Contents

Nuclear energy is a worldwide sector, with materials and people moving across countries on a regular basis . To facilitate this movement without the need for re-testing, awareness of content and commonality between universities, training courses, and nations is essential. In an ideal world, each university's course curricula would be made public, allowing the courses to be acknowledged as offering the required content for each level of achievement. This necessity is

shown by the Bologna Agreement, which mandates the use of the European Credit Transfer System.

In addition, the Asian Network has produced reference curricula for education and training in important nuclear domains to allow reciprocal recognition of credits, degrees, and certifications, among other things. The Institute for Nuclear Power Operations and the Nuclear Energy Institute, which represent the whole nuclear reactor community in the United States, have collaborated to create a uniform curriculum that can be used to educate and train future nuclear professionals.

2.2.2 Education and Training Need

Numerous critical components will enable the provision of nuclear worker education and training. These can be divided into three categories: financial assistance, facilities, and appropriately qualified educators. Wherever possible, funding support from governments or companies is essential, along with the parliamentary cross-party consensus. This will enable the nuclear industry to plan for the long term. As previously noted, the number of universities offering nuclear-related degrees, as well as the number of courses, is increasing. This is the case in the United Kingdom, where nuclear-related courses are either being restarted or being offered for the first time. Additionally, investments in facilities are being made to accommodate the increase in student numbers. This reflects explicit government pronouncements about nuclear energy's importance in their various countries. The age profile of nuclear professionals in the workplace is biased towards the conclusion of their careers. This has been known for several years, and business has been sending this message to higher education institutions, which, along with government pronouncements, permits universities to invest in new nuclear courses or the development of current ones.

These allow senior nuclear experts to provide lectures to nuclear courses that add value to the curriculum by demonstrating real-world nuclear processes and technologies.

2.2.3 Government, Academia, and Industry

Governments can help fund certain fields of research and education by directing funds to research initiatives or government ministries. Government support of HEIs also enables the establishment and maintenance of educational courses.

In some areas of nuclear technology, a level of expertise that can only be obtained through tertiary education is required. Because nuclear technology is used in the electricity industry as well as other fields such as medicine, agriculture, and national security, each government should encourage nuclear education at HEIs. Governments can fund certain fields of research and education through research projects or government ministries. Educational courses can also be founded and maintained using government financing for HEIs.

In some fields of nuclear technology, tertiary education is required. Because nuclear technology is used in the electricity sector as well as other fields such as medicine, agriculture, and national security, each government must encourage nuclear education at HEIs.Both of these approaches deny the industry the benefits of cooperating with universities, which include:

[1] The nuclear industry may be able to grant scholarships to students studying nuclear-related courses. This encourages the top students to pursue nuclear-related careers and promotes early engagement between students and industry.

[2] Students can apply for an internship with a nuclear corporation and gain hands-on experience at a nuclear licensed site, or they can be assigned diploma work that needs industry participation

[3] As a visiting professor/lecturer/researcher, practicing professionals might contribute to the development and/or delivery of courses and lectures at universities. This is a common practice in several countries. It has the benefit of transferring not only verbal but also implicit and tacit knowledge

Employees from the industry can be sent to colleges to help with educational advancements. Employees, for example, can enroll in short courses or day release courses for ongoing professional development, or they might enroll part-time to earn a formal certificate.

2.2.4 Governmental Administrative Support

National education is often regulated by legislation enacted by governments. In China, for example, the Academic Degree Committee of the State Council and the Ministry of Education are the government agencies in charge of education.

A government must engage in strategic energy planning that takes into account education, personnel, and infrastructure demands. It requires a comprehensive strategy to ensure that human resources are accessible to meet obligations and resolve lingering concerns. It should provide competitive support for young students and enough funding for nuclear research and development programs, including facility upgrading. Government administrative and financial assistance for the development of 'educational networks or bridges' between universities, businesses, and research institutes has proven to be very effective and should be encouraged in countries where such networks do not exist.

2.2.5 Student and Workforce Exchanges

The multiple network reports included in the various national reports that make up this publication demonstrate this. Student and workforce migration in the United States and other wealthy countries can provide a wealth of benefits to both the sending and receiving states or countries. There may be concerns about security and industrial secrecy between the countries involved, but the benefits of exchanging students and workers for the development and maintenance of knowledge in the field of nuclear education greatly exceed the negatives.

3) NETWORKS

The creation of networks is being used to facilitate the interchange of specialists and information as well as the full exploitation of facilities. Networking through educational institutions has long been recognised as an important technique for increasing capacity and making better use of educational resources. Networks have become an important part of nuclear knowledge management, with networks being built at all levels, including national, regional, and worldwide.

Universities are partnering through these networks to create shared platforms for master's degree education. Similar education networks must be established and supported in other parts of the world, such as Latin America and Africa. From this perspective, the establishment of the WNU was a positive step forward. Existing nuclear educational networks should be strengthened and expanded, and assistance for the creation of new networks should be encouraged.

4] QUALITY EDUCATION AND TRAINING

To offer the workforce of today and tomorrow, high-quality nuclear education and training are essential. A national accreditation mechanism should be in place to guarantee that each course's curriculum is of adequate quality to allow the qualification to be issued. The required high standard must be maintained and consistently applied, whether this accreditation is provided by national governments, as in the Russian Federation, Learned Societies, or the Accreditation Board for Engineering and Technology, as in the United Kingdom and the United States, respectively, or by some other means. With growing worker mobility, it is becoming clear that

an international strategy is needed to convince employers that qualifications are of comparable knowledge and skill levels.

The International Atomic Energy Agency has convened meetings to assess national curricula and standards to guarantee that they are comparable. This study can also be utilized by emerging nuclear states to improve the content and standards of their nuclear courses.

5] USE OF TECHNOLOGY

New teaching and training approaches have been developed as a result of the advancement of web technology and greater broadband access. Distance learning refers to when a student or employee does not need to attend a training facility or higher education institution but instead receives course materials online. Blended learning is a type of online learning that is combined with traditional classroom, tutorial, or laboratory teaching at a training institute or higher education institution.

Distance learning courses that are successful give the same course content to the same high standard as traditional methods. This is accomplished through a combination of lecture presentations with an audio commentary from the lecturer, lecturer video recordings, and online assignments. Parallel to this, online forums are set up to facilitate communication between instructors and students, as well as student-to-student conversation. This is the model that was utilized to successfully adapt the master's program in the United Kingdom.

Another way is to approve remote locations across the country where students can access their medical physics programmes, as the Georgia Institute of Technology in the United States has done. Distance learning medical students can use these distant facilities to fulfil clinical rotation requirements. control room operators at the UMass–Lowell Research Reactor, and gives the remote user the same look and feel as if they were in the control room. A typical personal computer serves as a web server, while a special-purpose software package accepts data from control room computers and delivers it in a web-based format.

6] OUTREACH

Outreach is the process by which universities, higher education institutions, training institutes, nuclear-licensing sites, corporations, learned societies, and other organisations reach out to the surrounding population, particularly secondary schools. The purpose of this outreach is to increase the number of students interested in nuclear science as well as science, technology, engineering, and mathematics courses at the tertiary level. The outreach approach understands that many students make their career decisions while still in school. Therefore, more exposure to nuclear technologies at that time will increase the likelihood of the student selecting a future in the nuclear business. In its most basic form, outreach entails a nuclear expert visiting a school to give a presentation, although this can be improved in a variety of ways.

Groups of students can be invited to university campuses for visits to infrastructure like university reactors. School groups or local science-focused societies can visit nuclear-licensed facilities with visitor centres. Engaging with teachers is also a wonderful idea. Professionals from academia and industry hold specialised teacher workshops in the United States. These programs are hosted by organizations such as the American Nuclear Society and the Health Physics Society in local schools or as part of regional and national conferences.

CONCLUSIONS

The nuclear power industry is facing substantial and potentially expanding personnel shortages. This is due to the need for both plant renovations and new nuclear power plants to meet rising energy demands. More expertise will be required to deal with the growing number of decommissioning projects and retire the ageing fleet of existing facilities. The nuclear sector could face major implications unless this scenario is effectively managed. In this context,

knowledge management is a critical component in ensuring the long-term viability of existing nuclear power plants. Furthermore, it is critical to apply current expertise to new design and construction projects as well as to develop innovative new technology for future nuclear sector needs. Education and training are used to develop and sustain nuclear expertise and competence.

The importance of training in knowledge management cannot be overstated. This is critical for maintaining the competencies required for the safe and successful implementation of nuclear technology. Industry participation in the educational process is critical. It cannot be contested that providing a sufficient quantity of workers with a suitable degree of competence at the appropriate time is in the industry's best interests. Companies and utilities, on the other hand, do not always appreciate the importance of assisting universities and other educational institutions in accomplishing this goal.

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ARTIFICIAL INTELLIGENCE BOOKKEEPING: THE FUTURE OF ACCOUNTING FOR BUSINESS

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ABSTRACT
Artificial Intelligence is now becoming a part of every sector of every industry. There is no stopping AI from becoming a part of our lives. AI gives accuracy, less errors and less time consumption in the accounting industry. AI cuts down on human error completely. By getting AI into the accounting systems the companies are increasing their profits as the expenses on human labour are decreasing. AI also shows reduction in the junior level accountant jobs as they are no longer needed due to AI.

Even though AI has taken over some part of our lives still human intelligence is needed to support AI as AI in itself cannot survive. The future of accounting is going to become completely AI and ML. So, to survive this the universities should consider including AI in their syllabus so that the students do not feel intimidated when they step into the corporate world.

Keywords: Artificial Intelligence (AI) , Bookkeeping , Accounting

INTRODUCTION
Bookkeeping is the recording of financial transactions that occur in the day-to-day life of a business. Bookkeeping is an integral part of accounting. The way bookkeeping is managed shows the overall accuracy of accounting process. Bookkeeping is the starting point of accounting. If the records of bookkeeping are kept correctly then all the statements at the end will match correctly.

Accounting is the next step after bookkeeping. Accounting is the language of finance. It helps to convey the financial position of a company to anyone who wishes to know. Accounting helps to translate the statements and other reports in readable form for common man. Bookkeeping records the transactions as and when they happen accounting on the other hand records them in a systematic and proper manner.

In today's world technology has become an integral part of the society. Even businesses have integrated technology into their operations to enhance efficiency and capabilities, accounting is no exception.

Artificial Intelligence (AI) is concerned with building smart machines which perform the tasks which need human intelligence. AI at first was mostly used in science fiction movies but nowadays the scope of AI is increasing amidst the Covid-19. Since the Covid-19 has put us all in our homes AI has been increasing its scope and now has taken part in bookkeeping as well.

"AI software will be in direct competition with a lot of people for jobs." As this quote written by Andrew Yan- Tak Ng suggests that even though AI is getting the world ahead technology wise it is going to result in people losing their jobs as AI will take the place of people.

REVIEW OF LITERATURE

1. **Jamal Mohammad, S., Khamees Hamad, A., Borgi, H., Ann Thu, p., Safdar Sial, M., & Abdallah Alhadidi, A. (2020). How Artificial Intelligence Changes the Future of Accounting.**

It explains the impact of artificial intelligence on the accounting professionals and how it changes the working of an accountant due to the rising use of artificial intelligence. The study also aims the effects of introduction of AI-based systems in the field of accounting.

2. **Eleonora P. Stancheva-Todorova (2018). How Artificial Intelligence is challenging Accounting Profession.**

This paper explains about the few challenges faced by the accounting professionals nowadays and also to shed light on some possible trends of its future development in the artificial intelligence context.

3. **Shi, Y. (2020). The Impact of Artificial Intelligence on the Accounting Industry.**

This paper explains about the challenges faced by accounting professionals and also shows suggestions on what the accounting professionals could do improve their capabilities so that their jobs are not in risk.

RESEARCH METHODOLOGY:

The study is based on secondary data. A survey of literature by eminent research scholars is done to get deep insights about the subject matter. Several published reports were also studied and websites were browsed during the study.

OBJECTIVES OF THE STUDY:

1. To study what recent trends has Artificial Intelligence (AI) brought regarding the field of Accountancy.
2. To study what will happen to the jobs of people in the future as AI increases.

HYPOTHESIS OF THE STUDY:

Artificial Intelligence (AI), is becoming the new common of the next generation. Even though it is taking us towards progression this can come back and bite us by taking our jobs as most people will not be able to handle so much change.

Key benefits from AI Accounting:

1. Faster and Improved Record Accuracy:

The main task of traditional accounting was bookkeeping done manually. This would take long as it was done by someone. This would take long and mistakes were also made. This would lead to time consumption at the end while making the financial statements.

In today's world where AI is present for bookkeeping recording transactions, keeping track of suppliers, maintaining supply chain management, tracking payments, sorting of accounts, reconciling statements all of this has become very easy and will all take place without any mistakes. As AI is not human it will not make any errors and all of the work will take place very smoothly and error free.

AI will lead to faster recording and will also complete it with complete accuracy as there will be no errors which in turn will cost less time and professionals will be able to give more time in the financial aspect of the business where heavy planning and discussions are needed.

2. Advanced Financial Insights & Timely Reporting:

The reports which are made monthly take a little time before delivering them as manually typing them and making corrections in it take up a little more time than expected. This leads to having some differences in the financial planning situation as the delay might cause company to lose a big deal.

On the other hand, AI will decrease the amount of time of monthly reports as AI will not make mistakes as any human would and it will also save up a lot of time which in return will help the financial team to concentrate on how to use the finance and where to use it. AI can help the

finance team to make financial decisions more quickly as AI will give real time reports. This will help the company to make decisions whether to invest the money, expand the business or to save it for further prospects.

AI might also give insights into the financial data of a business. Which can help directly in the company's sales or other activities the company might take part in. This will result in the growth of company and will also increase the goodwill in the market.

3. Cost Savings:

By using AI companies will save a lot of money as the day-to-day activities of a company will take place easily without errors saving the company a lot of time. As the saying goes "Time is Money", by using AI the company will save a lot of time as well as money.

AI can replace humans and make every aspect of the business faster and precise. Because of AI inefficiency will also decrease in the manufacturing end as all inventory will be precisely updated by the software leading to immense cost savings for the company.

4. Business Growth:

When using AI, the records are kept up to date. The effect of this is that business growth comes hand in hand with it. As all the records are available on real time basis, companies can react to plausible business opportunities and ventures quicker.

By creating a good and sound financial team with the help of AI they will gain the ability to control the businesses finances much better which will give financial transparency overall and help to cut down costs wherever necessary and would lead to efficient running of the company. "Estimates show that implementing AI within an accounting department can reduce costs by 80%."

The future of AI Bookkeeping:

AI is becoming widely accepted by everyone for bookkeeping and accountancy, it's still yet to build its place in the finance aspect of the business world as AI is not sufficient yet to take financial decisions. "By some estimates, the AI finance software market will grow to $10 billion in the next few years." Since the customer demand is so high for AI, the software is going under various innovations and development so as to match each individual's needs.

Even though the AI is a great technological advancement for the bookkeeping and accounting sector of the business AI can never be able to completely replace human intelligence. In the financial aspect of the business AI and human intelligence will always have to work together; as tax planning, making investments, expansion of the business, etc., such activities can only be done by human intelligence and not by AI. For these decisions one will always need a good amount of experience of working in the industry, you cannot simply depend on a software to make financial decisions as it does not understand the ups and downs of the market as a person who has been working in the industry would.

Saying all this AI will still benefit the company immensely. As when used correctly it will save a lot of time and money and increase the productivity level of any business. As AI will timely reports, and will provide access to real-time financial data.

What about Junior Level Jobs?

As the companies are heading for a more automated way of accounting and bookkeeping the junior level staff jobs might start to see a decrease as the jobs of the junior level staff will be taken over by AI. Since AI does these jobs more efficiently and quickly than any person. Where people require training to perform certain tasks which can require time AI needs no training and in return saves a lot of time and money for the company.

Only those individuals with high skills and the ability to update themselves will be able to stand the growing competition between AI and human intelligence.

AI And Human Intelligence Complementing Each Other in the Industry:

"In 2017, an Accenture study found that 68% of their clients preferred having access to both human advisors and robo-advisors, regardless of their seemingly equal performance."

Before we have seen AI only in science fiction movies, but slowly and steadily it has made its ways in the accounting and bookkeeping part of the business. This really helps the business in saving lots of time and money.

As the usage of AI is increasing it will take parts of accounting such as providing services to clients which would be generating reports, balance sheets, etc.

We already know that AI is nowadays largely used for making payments and receiving payments. Even though AI has achieved so much it still cannot do interpretation of the data that it has present with it. This where human intelligence outdoes AI. AI can only record data but it cannot interpret it. Human intelligence and AI need to go hand in hand in this situation. At the very end if the data is not interpreted properly there will be no use of AI.

At the end the job of an accountant is not to make the data entry but to interpret it. Where the company understands what it has been doing wrong. So, if recording is kept to be done by AI the accountant can shift its focus on deriving decisions based on the data present in front of it.

The Future of Accounting:

The future of accounting will be a part of AI and Machine Learning (ML). Having automated bookkeeping and accounting will not be a choice but a necessity in the coming years. All the people who would like to keep their jobs should update themselves.

Businesses of all sizes will be looking for those people who are in touch with the automated of accounting as businessmen will need to be a part of the competition. If their accounts are automated it will save them time at get to the results quicker.

If people want to henceforth keep their jobs as accountants should be ready to update themselves on the software and should embrace the change the world is making. Accepting the change is the only way accountants will survive in the industry otherwise they might be removed from the competitive corporate world.

Universities Incorporating Ai In Syllabus:

Since the usage of AI has increased in the entire commerce field universities have now started to incorporate AI into the syllabus so that the new graduates will not face any problems adopting to the world of AI in the business world. Adding AI to the syllabus also gives assurance to the children that they won't face problems searching for jobs or getting rejected because they do not what the new type of accounting and bookkeeping is. This helps the universities to help the new graduates to make them confident about themselves entering the job world.

CONCLUSION

AI is taking the world headstrong nowadays, it is not always easy to keep up with it. Before AI was only available in some sectors but now it is present in every sector. AI is now the normal for everything. Traditional accounting and bookkeeping still hold some value in some companies but 80 to 90% of the companies have opted to go with automated accounting as it helps them to save a lot of time and money.

Like the saying goes that "Every coin has two sides" there are a few flip sides to AI as well. Jobs which were easily available before are not so if you don not have the knowledge about AI

and ML. Keeping and updated knowledge about the software nowadays is a must. Without this it will not be easy as it was before.

Even though there are so many ways AI is superior to human intelligence but still it cannot completely eradicate the existence of human intelligence. It is inevitable that human intelligence and AI will have to work together in the accounting and bookkeeping world as one cannot survive without the other. Coexistence with AI is the only way forward for everybody.

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RECENT TRENDS IN BANKING - ONLINE PAYMENT SYSTEM: UPI PAYMENT

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ABSTRACT
Unified Payments Interface .Before the UPI payment system introduced, when the people need to do payment online they need to insert some details like bank account no , IFSC code etc. But to avoid to these process The NPCI create the new advanced net banking system and that known is Single Window Mobile Interface means UPI payment system. You can also pay the rent or any expenses ,you have to pay through the online mode by UPI net-banking system. UPI is the online payment method, it is introduced by NPCI .The Ful-form of NPCI is National Payment Corporation of India. UPI payment system is mobile's first platform. UPI payment provides an intelligent 2FA (2- Factor Authentication) process. It provides a P2P and P2M transactions. It is real time payment system. Prior to UPI the NEFT and IMPS these payment system are available for customer. UPI was first launched in 2016 , it was introduced by NPCI and launched by 21member bank from Raghuram G. Rajan, then RBI Governor.

Keywords: UPI,Online Payment System.

INTRODUCTION
The Ful-form of UPI payment system is Unified Payments Interface. It is a online payment system which is used by the customer or people to pay his/her bills, exps Or any type of payments. Anyone who have a bank account at any bank he or she can able to do payment through the UPI. It helps to do online transaction easy, it helps to make your payment easy, at any place, at any time with your bank account you can use your money to make payment, UPI is a way which helps you to purchased what you want or sale what you want at any time.

UPI is a online payment system which is mostly used by the third party like google pay, phone pay, etc., this system has more flexibility with payment, In all over india UPI BHIM payment system is most using system and people also like to use it cause through it make payment easily at any time , any situation, at any place. It has its own flexibility, which gives more benefites to us.

Keywords: UPI payment, phonepe, Neft Imps, NPCI, Bank and Finance

OBJECTIVES
1) To study on online net banking system.
2) To obtain knowledge and information about online payment system.

HYPOTHESIZE
1) In future, the UPI payment system can be have some new changes, if there are some new features are there or created.
2) If UPI payment system can get the advance features then it will be in new form.

REVIEW OF LITERATURE
1) Some people research on the New net-banking Or online payment system UPI payment system, They are research on it and find about the system. The information what they obtain from there own research on UPI. They wrote or published that information in there newspaper in there own words for the purpose to give information about new payment system to people.

2) The K. Suma Vally , K. Hemdivya (in 2018) and The Rahul Gochhwal (in 2017) these people are research on the new online payment system UPI payment and they publish there research in the news paper, according to there research the information they obtained is true and fair.

RESEARCH METHODOLOGY

A. Data Collection-

I. Primary Data: I have choose primary data through observation, through the knowledge which I have about UPI.

II. Secondary Data: I have collect secondary data through the websites, google, pdf, book.

Data Analysis

The UPI / BHIM app users are classified by the use of apps as per chart given below :

App (Respondance)	Percentage
A. Bank UPI app	10%
B. 3rd party app	72%
C. BHIM app	18%

As per the chart, it is the people used mostly some apps for UPI payments like PhonePe, Paytm, Amazon Pay, Google Pay, etc. The reason for the use of these app for UPI is the cashback and other cashback related offers given by the these apps providers to the people who use this system and the advertisement by them.

Interpretation Explanation: UPI helps to keep your money safe with the security of this online payment system that helps you to get a trusted security of your money there is no tension about theft or lose your money. It is such a real and great way of payment system in net banking.

FINDINGS

1. It is also observed that people or customer using UPI / BHIM but they are known by third party app.

2. It is found that it's settlement in bank account.

3. It is found that people are passionate real-time payments.

4. It is also observed that the most commonly used UPI /BHIM app are the 3rd party app like PhonePe.

5. It is also observed that the people most likely using this payment system to make payment because it’s safe and secure.

SUGGESTIONS

1. It has need to get more mobility with more useful changes or features.

2. Also want new updation of this.

CONCLUSION

As per the above study it shown that people or customers are extensively using these payment system on mobile phones. It is very useful tool for online transaction. This will help people or customer for digital payments without need of any complex mechanism. On your mobile online transaction option are available to pay for recharge,bill payments, rent, bank balance, etc., are available, bank and NPCI have to promote native BHIM app as 3rd party apps are more popular among the customer. It very useful app Or online payment system mostly used by the people to get easy or make easy and earlier transaction's benefits. Some people are also research on it to

get more information and reach it till the people because there is need to make per person Knowdgable about new technologies, new trend in commerce cause commerce is also a field which relatable with our daily basis transaction needs of the people.

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NEW TRENDS IN ENTERTAINMENT INDUSTRY (ANALYSIS OF FILMS, WEB SERIES)

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ABSTRACT
Everyone on this earth has their own different type of problems, stress and in those situations, people need to stay happy. On this basis, the entertainment industry plays the most important role in our life.While leaving in society everyday we reveal some new trends and follow those trends also. Trend is normal world in daily life. Now we will check some trends in entertainment industry.

Keywords-OTT - over the top, VFX - visual effects

• INTRODUCTION
Everyone on this earth has their own different type of problems, stress and in those situations, people need to stay happy. On this basis, the entertainment industry plays the most important role in our life. As we are heading towards our future entertainment industry is also changing its shape, so let's analyze how the industry is changing.

• OBJECTIVES
- To know about new trends in the entertainment industry with their effect on a society.
- How world is connecting with help of dubbing artist and subtitles?
- How society are reacting to this trends?

• HYPOTHESIS (ASSUMPTIONS)
- There is a hypothesis that the industry will change because of new technology in sound, camera, VFX.
- People might prefer to watch movies on OTT more than theaters.
- People may be watch more regional content than Hindi movies.
- Dubbing of Indian movies will take our movies on international level and dubbing of regional movies in Hindi or other languages will also increase number of audience.

• REVIEWLITERATURE

• Opinion of S.s. Rajamouli (Film maker) on OTT overtaking theaters
He said, "In late 80's and 90's black and white and colored TV came that was also a competition for theaters, television was a big success but at the same time theaters were also there. They both have segregated audience same will happen with OTT. But as compare to TV, OTT is growing with faster rate. Human being is a social animal he wants enjoy his entertainment with other. "

• Opinion of Ranbir Kapoor (Actor) on OTT overtaking theaters
He said," As an actor I think OTT are taking young audience away from theaters. When people can watch content at home why will they spend money for watching films in theater and he also said, films like Tamasha are not big budget, event movies that audience need watch in theaters

• Opinion of Rohan joshi (Comedian, Anchor)
In his opinion, Movies like Tamasha or small budget but worth watching movies are getting platform because of OTT.

• Opinion of Pratik Gandhi (Actor)
The actor feels both the mediums have their own charm. "Though OTT gives the ease and comfort of watching world class content from all over at home that too on demand, there will be lot of stories that would need to be experienced on big screen and community viewing. I am seeing OTT as a new avenue and not as a threat to cinemas,"

- **New Trnds**

• More Streaming Services Coming Out (Bibliography 1 and 2)
In December 2019 coronavirus suddenly breakdown in the whole world. There were so many countries on earth that were in lockdown for months. In this situation, people need entertainment by seating at home. So we have an option for this called OTT. Before the coronavirus, OTT platforms were also there but that took so much boom after a pandemic. As I mention in the review literature there are so many opinions on this topic. As per my opinion, these are some points about OTT vs theater.

- ✔ Every country has their own entertainment industry like Bollywood, Hollywood, Japanese, Korean, Chinese, Spanish.
- ✔ Nowadays people are so busy with their work so they prefer to watch on their phones or laptop.
- ✔ Suppose we spend Rs.500 to watch a movie in a theater but at the same time, we can so much content on Netflix for Rs.149 only. For people saving money is important.
- ✔ Better platform for animation and small-budget movies.
- ✔ Audiences can watch the content of any country by living in their own country.
- ✔ We can give so many examples of movies on the OTT platform like minnal murali, The serious man, LUDO, mini, Bhuj, Bachen Pandey, Laxmi Bomb Etc.

• Era of web series (Bibliography 1 and 2)

Nowadays every film industry in the world is putting their step into the world of web series where you can create a new world within 8 to 10 episodes.

- ✔ There are at least 40 streaming platforms in India for web series Example Netflix, Amazon Prime, Hotstar, zee, Mx player, voot ets
- ✔ Producers, Filmmakers can make their different world with a small budget and deliver to the whole world not just their country.
- ✔ South Korean entertainment industry created their category for their k-dramas with the help of these streaming platforms.
- ✔ With help of these platforms audience can watch those quality content which they can't see in past years like the American TV show FRIENDS.
- ✔ In India also new generation can experience our classic shows and movies from the past.
- ✔ Some worldwide famous web series Money heist, money heist, Squid game, Narcos, The Witcher, Stranger Things, Queen, Game of thrones, All of us are dead etc
- ✔ Delhi Crime, Sacred Games, Jamtara,21 Sarfarosh – Saragarhi 1897, Stories By Rabindranath Tagore, Bad Boy Billionaires, family man, Mirzapur, aani kay hav? Criminal justice many more .

• **VFX** (Bibliography 3,4,5)

With new technology we can create a whole different that we can just imagine.

- ✔ Every director wants to do creative things for his content. If he wants to take his actors to a different country but he can't because of corona so, he can appoint a VFX artist and he can take his artist to another country by shooting in his own country.
- ✔ Marvel production is an American company their movie Avenger endgame made a worldwide business of $2.797 billion. This movie and so many movies include VFX effects more than real places or movie sets.
- ✔ In some scenes like for war scene, Movement scene Etc. director need so many people that is impossible and costly also so they gave first choice to VFX.
- ✔ Indian VFX company Redchillies made Shahrukh Khan dwarf in his movie Zero and he looks like he is actual dwarf in real life, like this director will not have limits for his imagination.

• **Dubbing and Subtitles** (Bibliography 6)

There are too many languages in this world and there is so much quality content from this languages. But language is a barrier to connecting with this mcontent.

- ✔ India has 122 major languages and 1599 other languages which are a barrier for us.
- ✔ In India we dub every movie in Hindi, Telegu, Kannada, Tamil, English Etc.

- ✔ Korean, Japanese, Spanish, Chinese, Hollywood and other countries' content are dubbed in Hindi and English language.
- ✔ By way of dubbing and subtitles so much content is reaching so many people and countries and is increasing the audience of filmmakers so they also giving preference to dubbing in many languages.
- ✔ Dubbing industry is vast in size because every person in the film need to be dub and that creates employment for a voice artist.

• New **Trends through Society**

- ✔ People mostly young population of every country want to experience content of different countries. In India people are preferring quality content more than quantity.
- ✔ Now a day's Korean industry is in trend in so many countries. Korean content like Train to Busan, hellbound, ALL OF US ARE DEAD, Squid game are famous
- ✔ People preferring more regional content instead of Hindi content. latest example is Bollywood movie 83 and Tollywood movie pushpa both had clash on box office then Pushpa took over box office by attracting audience.

- **FINDING**

From above research I found points such as

- ✔ With help of these of this trends film makers can reach to worldwide audience in just Hour.
- ✔ People are changing their choices.
- ✔ Instead of putting efforts in creating set for movie director preferring VFX effects for that.
- ✔ Watching movies online is way cheaper than theater
- ✔ Dubbing of movies and web series attracting more worldwide audience and this is benefit for every entertainment industry.

- **CONCLUSION**

Human being is a social animal he need to change as per society same way content creator and film makers need to update their movies and shows for their audience.

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6) REFERENCE FOR VFX


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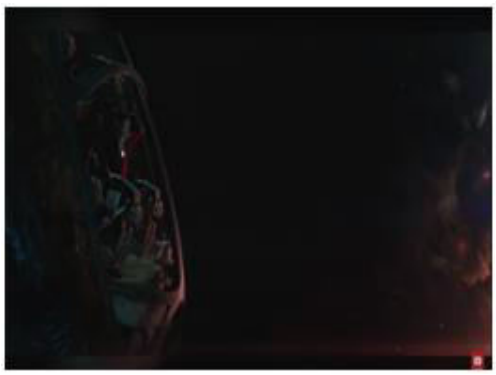


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STEPS INVOLVED IN FORMULATING CORPORATE STRATEGY

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ABSTRACT
This paper tries to develop a new approach for the study of corporate strategy.

Every company or organizations has certain goals or objectives set by the leads of the company.

Every company comes up with certain strategies to reach the set goals. The management sometimes due to unfavourable market conditions feel the need to get a change in the strategies set by them.

There has been a need for implementing new corporate strategies for the better of the companies because of changes in the economy.

The research paper is about formation of the corporate strategy and how does the change in the economy has affected companies to get a change in their strategies so that they can earn profits and not go into debts. Also, this paper will include how Covid pandemic has impacted companies and its policies and the need for including new strategies to let the corporate sustain.

Keywords Covid 19 Strategy Formation Business Economy Debts

INTRODUCTION
Strategy formulation is a process of selecting best suitable action to meet the organisations objectives and goals. The strategy plan helps an organisation to examine its resources, provide a financial plan and establish most appropriate action plan for increasing profits.

Strategy formulation requires a series of steps performed in certain order. The steps must be in order because they build one upon another. However, there are two ongoing processes during strategy development. Environmental scan and continuous implementation.

Environmental scanning is a process of paying attention to the external environment for and look for factors that may affect your organization's performance, or growth which will need to be addressed in the strategy formulation process For example, pay attention to what your competitors are doing throughout the process and adjust your strategic plan as needed.

Continuous implementation is simply implementing the strategy that must take place in order for the next step of the strategy formulation process to be undertaken. The rest of the strategy development should be done in order.

Strategies consume time, energy, and resources and must be carefully formulated. Once the strategy is in place, you need to ensure the best match between goals, resources, and human use. The ultimate goal of a developed strategy is to always provide outstanding value to customers.

In light of COVID-19's far-reaching impact on all areas of life, and especially on the economy and the corporate sector, the aim of the present study was to investigate the pandemic's effect on the strategy and the revenues of companies, and the extent to which adjustments or changes are essential to be made in these strategies in order to cope with the new challenges of this period.

In order to try to assess the COVID-19's impact and future consequences for the company, the study looks at whether, and to what extent, there were changes in the use of open innovation tools or implementing new strategies that would help company reach their goals

BACKGROUND

Every company needs to plan some strategies or rules to reach their desired objectives without having any trouble or loophole. They have to keep changing their strategies as per the changes in the economy or as per market demand and supply. In the current situation that is the Pandemic the companies have to come up with many policies with low budget as they were tempting on earning less.

CASE STUDY

eN Technologies Pvt Ltd has been keenly interested in a variety of strategies to achieve that goal:.

Financial Strategy: Many of its funding needs are met by funding from the business needs. In the subscription software and services industry, companies enjoy healthy cash flow because customers pay in advance. Occasionally, eN Technologies uses government levies to meet working capital needs, resulting in an additional interest of 1.5% per month and occasional fines from government agencies. eN Technologies effectively manages banking, payroll, and supplier payments through the HSBCNet facility, which is recognized as one of the best banking platforms in the world.

Marketing Strategy: Digital marketing only, designed by eN Technologies, has been targeting customers for the past three years through paid advertising campaigns by Google and Microsoft and a variety of organic search engine optimization techniques. eN Technologies serves potential and existing customers using a variety of social media platforms such as Facebook, YouTube, Twitter, Pinterest, blogs and news feeds. Notable in social media strategies is the lack of paid pushes on social media platforms. The reason for not doing paid pushes may be the fear of taking new risks that may not benefit the company to some extent, as they would otherwise.

METHODOLOGY

The following are the steps Involved in Formulation of Corporate strategy

- Setting of Objectives
- Opportunities and Risk
- Evaluate Alternative resource
- Evaluate Alternative
- Establish Strategies
- Implement and Evaluate strategy

As the pandemic resets key work trends, HR leaders need to rethink their workforce and employee planning, management, performance, and experience strategies.

Today, these leaders assess the impact of each HR trend on an organization's operations and strategic objectives, identify those that require immediate attention, and how these HR trends describe strategic objectives and plans prior to COVID 19. It is essential to evaluate whether it is changing to.

Impact of Covid 19 on the Corporate and Their Working

Increase in Remote Working

According to a recent Gartner survey, 48% of employees after COVID-19 may work remotely, at least for some time, from 30% before the pandemic. Investigate the key capabilities that employees need to collaborate digitally and prepare to adapt their experience strategies as the organization moves to more remote work. Consider whether and how you can move performance goals and employee reviews to a remote context.

Expanded Data Collection
According to Gartner analysis, 16% of employers use technology to virtually attend and leave work, track work computer usage, monitor employee email and internal communications / chat, and more. Some companies track productivity, while others monitor employee involvement and well-being to better understand the employee`s experience.

Expanded Employer Role as Social Safety
Pandemics fuel the tendency of employers to play a greater role in the financial, physical and mental well-being of employees. The use of such means can be a powerful tool for promoting physical health and improving the mental health of employees.

Separation of Critical Skills and Roles
Encourage personnel to increase vital talents that doubtlessly open up more than one possibility for his or her profession improvement, as opposed to making ready for a selected subsequent role. Offer more profession improvement aid to personnel in vital roles who lack vital talents.

De Humanization Of Employees
While some organizations have recognized the humanitarian crisis of the pandemic and prioritized the wellbeing of employees as people over employees as workers, others have pushed employees to work in conditions that are high risk with little support — treating them first as workers and second as people .

The Emergence of New Top Employers
Even before COVID19, organizations faced increasing employee transparency requirements. Employees and potential candidates determine the organization how they were treated during a pandemic. Balance the decisions made today to address the pressing concerns of a pandemic with the long-term implications for the hiring brand.

Increasing Organizational Complexity
After the global financial crisis, global M & A activities accelerated and many companies were nationalized to avoid collapse. As the pandemic subsides, M & A and nationalization of enterprises will accelerate as well. Companies focus on increasing geographic decentralization and investing in secondary markets to mitigate and manage risk in times of turmoil. This increasing complexity of scale and organizational management poses challenges for leaders as operating models evolve

RESULTS
This column summarise the findings published recently in the OECD Economic Outlook (OECD 2021), based on a large sample of non-financial companies operating in OECD countries and major non-OECD emerging-market economies. 1 It shows that the impact of the Covid-19 shock on firms` profitability and leverage has been highly affected. The Covid19 shock had a major negative impact on the profitability and leverage of companies around the world. Despite the intensity of the Covid19 shock, the sample shows a stable number of suffering companies, with a negative equity or interest coverage ratio measured in the proportion of companies with less than one.

In fact, the number of bankruptcies remains lower than during the global crisis, and in some developed countries it is even lower than in the pre-pandemic years. In stark contrast to the global crisis, we can also see how “risk” companies have survived the global crisis and the Covid 19 pandemic (Figure 2). During the global crisis, the riskiest companies in the most hit sectors experienced both a decline in access to credit (or debt) and a sharp decline in debt maturity structure. During Covid19, the same firms managed to raise a substantial amount of debt, without incurring any change in debt maturity, even though they faced a revenue shock of similar magnitude.

Changes in revenues and profits between FY 2019 and FY 2020, by sector

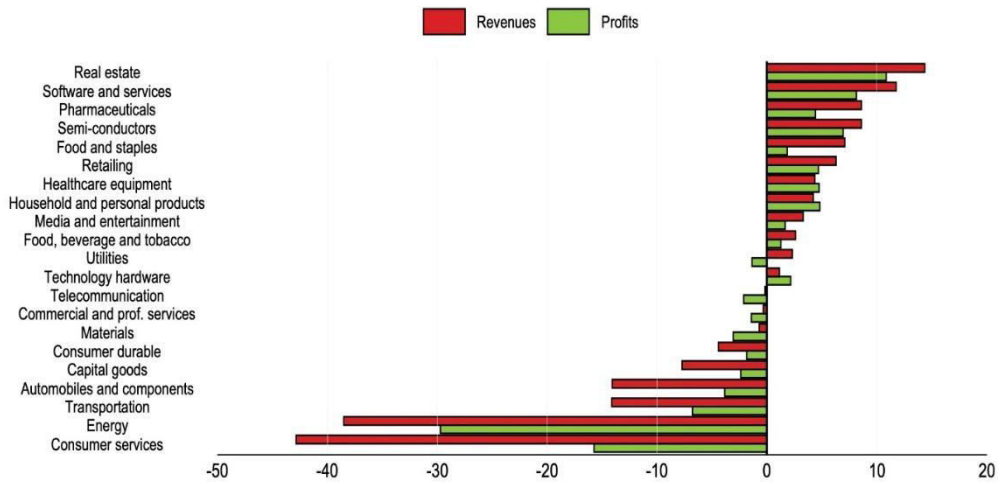
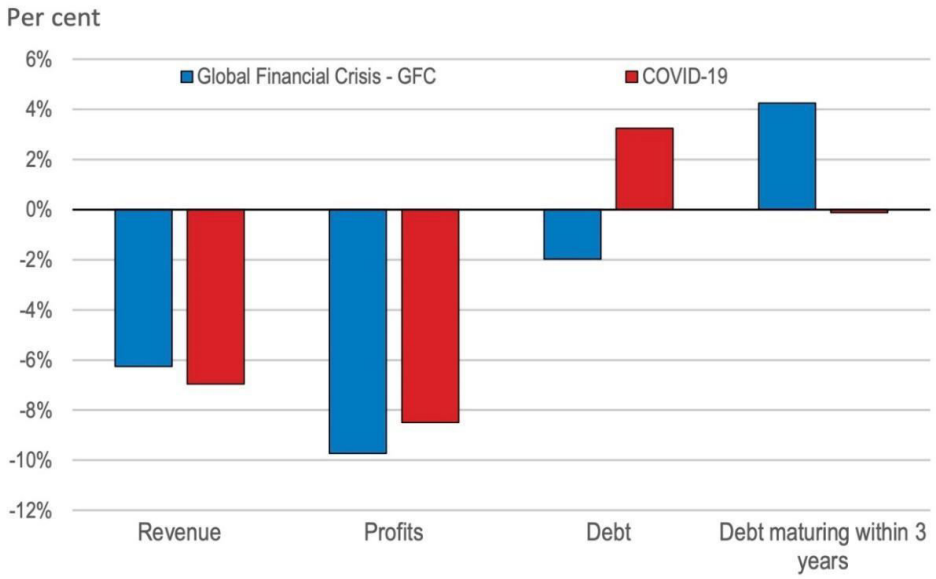


Figure 2 'Risky' firms fared better in the COVID-19 crisis than in the global crisis



Finally, this study can attribute this to the limitation of social distance. Changes in customer behavior; and finally, changes in strategic position assessments, along with a high level of uncertainty about the further progress of the pandemic

Challenges Ahead

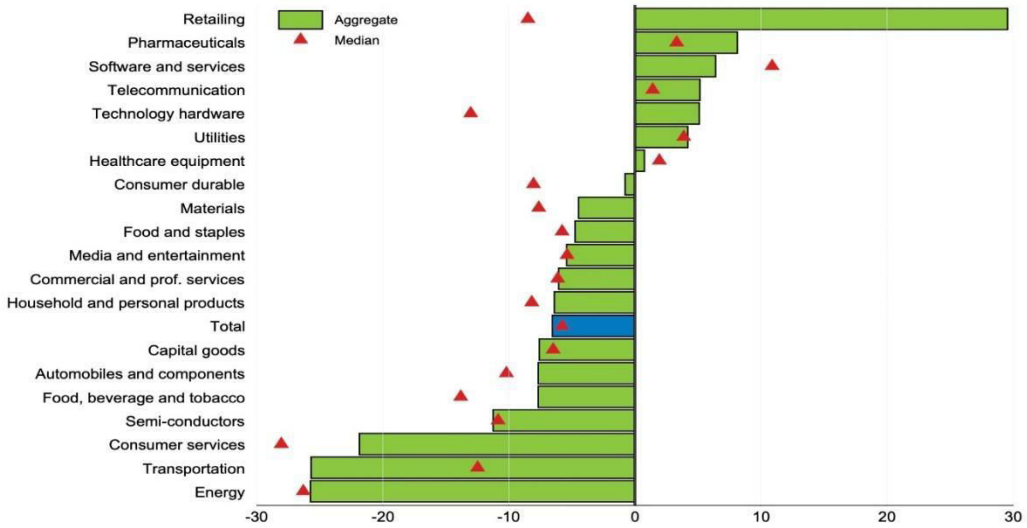
A complete picture will be available only once smaller (and more fragile) firms, which account for the bulk of the employment in OECD countries and are overrepresented in contact intensive industries, report their financial statements.

1) Debt Overhang and investment

For medium-sized and large companies, the total investment amount in FY2020 decreased by nearly 7% compared to FY2019 (Fig. 3). In contrast, companies in healthcare equipment, utilities, software services, telecom and pharmaceuticals have increased their capital investment.

On average, a percentage point increase in the equity (asset) leverage ratio between 2019 and 2020 was associated with a 2% (5%) drop in capital expenditures, suggesting that the persistence of a debt buildup strategy will ultimately weigh on investment in the medium term.

Figure 3: Change in capital expenditures by industry



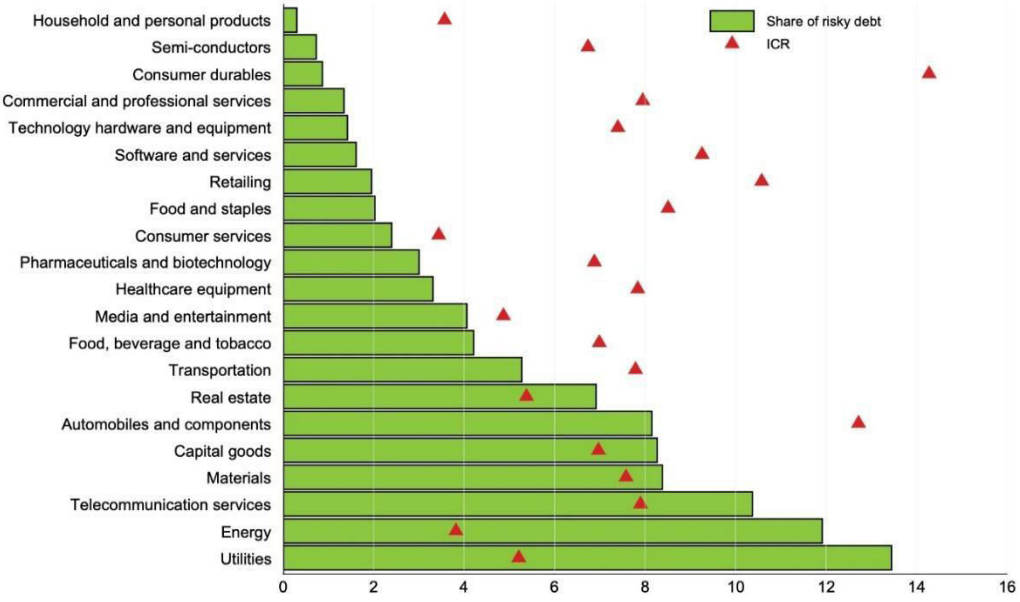
2) Zombification

The efficiency and size of public support to firms within the Covid-19 crisis has also reignited fears of `zombification`. By being too generous, policy support might actually keep some unviable firms alive – the so-called `zombies` keeping valuable resources removed from viable ones. The peculiar nature of the Covid 19 crisis also implies that a lot of firms could temporarily be classified as zombies after they are of course viable

3) Level and Quality of Corporate Credit

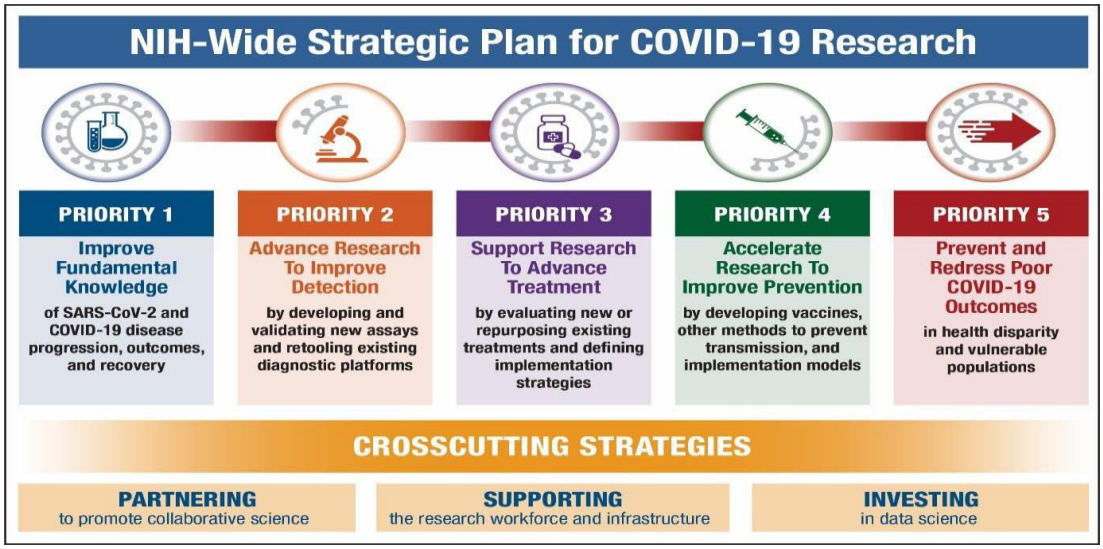
the buyer services sector – hit the toughest and reported the bottom median interest coverage ratio in FY 2020 among all industries – accounts for under alittle portion of the lower quality debt stock. Still, solvency challenges remain in several industries, especially with much corporate debt thanks to mature in 2024, at a time when policy interest rates is also beyond when a number of the debt was issued.

Figure 4: 'Risky' debt and therefore the median interest coverage ratio by industry



Dealing With the Pandemic Heritage

Business support is still guaranteed to avoid unnecessary scars, but Japan`s experience in promoting the necessary reallocation and capital between the sector and companies, especially in the restricted and high-contact sectors. The problem of corporate bond overhangs, which has plagued many developed countries in the wake of the global crisis, is the burden of corporate investment and subsidies (rather than debt) and quasi-equity lending to avoid a final recovery. Possible approaches are to convert pandemic-related public lending into grants and repay them in response to regular assessments of performance and profitability, or to participate in private sector equity lending and public support schemes.



CONCLUSION

This study has made a important contribution to the existing knowledge by spreading awareness about the need for getting a change in the strategy as per the needs and market demands to earn profit or retain gains in the phase wherein everything falls apart.

Covid 19 has a negative impact on economy which led to change in the demand and supply for consumers at large. As covid came all of sudden it led companies with less time to actually be prepared for it. Companies had to look for alternate ways to retain their employees or even a few companies who were going into bankruptcy were removing employees from work to save their costs.

Companies had to come up with WFH facilities for the safety and as per the Government norms. Even companies came up with providing Internet or assets to the employees for work purpose also with retaining profits.

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TO STUDY ON NEW TRENDS IN E-COMMERCE

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ABSTRACT
The aim of the research paper was to conduct review of the newly emerging trends in e-commerce . The emergence of the internet and smart phones has ushered in a sea change in the way we shop. Ecommerce is a sort of business that allows clients to order goods and services from the comfort of their own homes. Customers can choose from a wide range of products accessible online to find what they need. The merchandise can also be paid for using a debt cart, credit card, e-cash, or e-wallet. This article addresses contemporary ecommerce trends, as well as the benefits and drawbacks of ecommerce and the various ecommerce models.

Keywords: E-commerce, Emerging trends.

INTRODUCTION
Commerce means buying and selling of goods on large scale. If we look 8-10 years back the buying and selling process was done in completely traditional way i. e. the buyer and seller go to a particular market and will buy or sell the commodity. But now time has change people give preference to online shopping through e-commerce platform like amazon, flipkart,olx, and many more. E -commerce has made things easy and convenient, because of e-commerce platform people can directly buy from the manufracturer they can buy things from any corner of the world . E-commerce iscurrenty one of the most growing trend in commerce . from 2019 when the pandemic happened every no one was allowed to go outside of their home that time e-commerce came up with many new things like delivering medicines , easy payments any more , which helped its customer and the business to grow more. Everyone was at home many people started their own business on such e-platforms . many successful startups were introduced. E -commerce has changed the way people buy.

OBJECTIVES OF THE STUDY
1. To study the various recent trends in ecommerce.
2. To study ecommerce model.
3. To study the advantages and disadvantages of ecommerce.

RESEARCH METHEDOLOGY
The present study is purely based on secondary data which is collected from magnizes, journals, reports and other websites.

RECENT TRENDS IN COMMERCE
1. AR enhances the reality of online shopping.
2. There will be a growing volume of voice search.
3. AI helps shops learn about shoppers.
4. On-site personalization uses those insights to create individualized experiences.
5. Big data plays a big part in creating personalized experiences.
6. Chatbots improve the shopping experience.
7. Mobile shopping is still on the move.
8. More ways to pay
9. Headless and API-driven ecommerce allow continued innovation.

10. Customers respond to video.
11. Subscriptions keep customers coming back.
12. Sustainability is becoming more important.
13. Businesses should optimize digital strategy for conversion.
14. B2B is growing...and changing.

E-Commerce Model

1. Business To Consumer (B2c): In This Business Model Business Sells Directly To Its Consumer. No Middle Man In Between.
2. Business To Business (B2b): In This Business Model One Business Directly Sells To Another Business.
3. Consumer To Consumer (C2c): In This Business Model One Consumer Sells Goods To Another Consumer.
4. Consumer To Business(C2b): In This Business Model Consumer Sells Their Products To Business

Advantages and Disadvantages Of E-Commerce:

Advantages of E-Commerce are As Follows

TIME SAVING: customers does not have to be physically present while buying the goods the process is faster.

Reduction In Cost: in traditional type of business we have to pay according to the area , infrastructure , of the store but in e-commerce there is low maintenece charge which makes the cost of product low.

MORE OPTIONS: consumer can buy product from any corner of the world just sitting at one place. Consumer can explore the market.

Faster Response to Buyers: Every Process is Online So Response Id More Fast.

PRODUCT COMPARISON: as you don't have to go anywhere to see the products and having more options it becomes easy for the consumer to compare the product.

Disadvantages of E-Commerce is As Follow

Security: there is security issue while we buy product sometimes the websites have virus.

Site crash : sometimes due to network problems the site can get crash , data may get damaged

No responsibility of tried and tested: as we are not physically present we cannot try the produts .

Late delivery: the delivery may get late because of many reasons that is major drawback of online shopping.

Lack of privacy: the website may hack data of the customer and misuse it .

CONCLUSION

After all observation, It has come to my conclusion that e-commerce has become an important part of our lives .it is hard for the traditional businesses to match them. now-a-days people give more preference to online shopping . it has many advantages as well as disadvantages so we must do the transactions carefully.

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INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)

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ABSTRACT
Its represents on International Financial Reporting Standards (IFRS). It detail the importance of International Financial Reporting Standards in Accounting and it success. It is one of the most importance and critical issue to be discuss in business world and must be discussed in the most bright way to provide a clear understand of the term along with important components. The objective of issuing such IFRSs and IASs is ensure global movement of accounting and financial reporting system . The study basically focus on theoretical background along with history of the development of IFRS and its main components. Although , many article and research work on International Financial Reporting Standards has been done in the past and will discuss more in future , but still , then, the term IFRS remains quite uncertain and disputed. The previous works which are carried out always highlighted it negative impacts more compare to the positive effects.

Keywords:- International Financial Reporting Standards , International Accounting Standard Board , International Accounting Standards, Securities& Exchange Commission and Globalization.

OBJECTIVE
1) To establish a universal language for companies to arrange accounting statements.
2) To create accounting rules to make it easily for the stakeholders to describe the financial statements, irrespective of the business location.
3) Compose the accounting statements credible and transparent.
4) To benefit companies appropriately categorise and report financial data.
5) It makes international contrast and analysis on easy task.

INTRODUCTION
IFRS is related with concepts discussed in a vivid manner for clear understanding , its benefits and disadvantage for the business. The basic objective for this article is provide to a general understanding to term of IFRS and importance along with related concepts for accounting and business in the world. This article is based on secondary work previously it is done by different researches and government as well as private organizations , over span of time as well as website information and other internal report also. Study was also accountants. Before discussing the International Financing Reporting Standards (IFRS) , it significance , with the associated terms, an Introduction the term will help to create a aims to understanding for the terms and its concepts of International Financing Reporting Standards (IFRS) .

Accounts provide the companies, investors, regulators and others with standardised method to describe the financial effecting to their respective entities. The Accounting Standards existing the prepares of financial statements with set of rules to abide by when prepared an entity's accounts, ensuring the standardisation beyond the market. The company listed on public stock exchanges are legally required to produce financial statements in accordance with applicable accounting standards . These standards are known as International Financial Reporting Standards (IFRS). We have already acquire involved in the globalization of business and we

often that refer to world as a global village , hence it became very much important to about the business in global language which is understandable as well as compare by many.

The term International Financial Reporting Standards (IFRS) is basically known as single set of accounting standards , developed and maintained by the International Accounting Standards Board with intention of those students being capable of being apply on a global consistent basis- by develop , emerge and develop economy –thus provide investors and other user of financial statements with the ability to compare the financial performance of publicly list companies on a like basis with their international peers.

IFRS Standards are now orders for use by more than 143 countries , includes the European Union and more than two-thirds of the G20 and other international organizations have consistency support the work of the board and its mission of global accounting standards.

The G20 is informal group of 19 countries and European Union, with representative of the International Monetary Fund and the World Bank. The Finance Ministers and Central Bank governors began meeting in 1999, at suggestion of the G7 finance ministers in response to global financial crisis of 1997-99. Since then, there has been finance ministerial meeting every fall.

DESCRIPTION

IFRS develop in the European Union with the intention of making business incident and accounts accessible across the continent. It was quickly adopted as a common accounting language.

International Accounting Standards (IAS) is defining by International Accounting Standard Board (International Accounting Standards Committee-IASC). The IASB has announced International Accounting Standards on various matters related to accounting policies, preparation of financial statements and disclosure in these statements. Out of the International Accounting Standards Issue so far, some have been revised. Since 2001 the International Accounting Standard Board issues the Accounting Standard which is designated as International Financial Reporting Standards (IFRS).

CONCLUSION

This article aims provide a vivid overview of International Financial Reporting Standards (IFRS) with its key impact and its positive and negative aspects also. IFRS is very extensive area of study which cannot be complete cover in an article. The objective of this article is to being all relate aspects of IFRS and its article related issues under one roof for a clear understand for the beginner and non-business people.

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