

# INSIGHTS AND INITIATIVES

## A COMPREHENSIVE EXPLORATION OF EDUCATION, HEALTH, AND WELL-BEING

Prof. Surya Teja Bachu



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**BOOKS ARCADE**

KRISHNA NAGAR, DELHI



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## CHAPTER 1

### INVESTIGATION OF THE USER EXPERIENCE OF VIRTUAL REALITY IN PHYSIOTHERAPY

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#### ABSTRACT:

Physiotherapy aids in the restoration of function and mobility in those who have been impacted by disease, accident, or disability. It may also lessen your future chance of being sick or injured. It requires an all-encompassing strategy where the patient is actively involved in their treatment. With its unique approach to rehabilitation and improved patient experience, virtual reality (VR) has become a game-changing instrument in the area of physiotherapy. The study investigates how virtual reality is used in physiotherapy and how it affects patient involvement, motivation, and treatment results. Beyond conventional rehabilitation techniques, the use of VR technology in physiotherapeutic treatments offers a dynamic and engaging platform. Physiotherapists may customize therapies to meet the requirements of each patient by building realistic and interactive virtual worlds, which promotes a more customized and interesting rehabilitation process. A sensation of presence in the virtual world, consistency with workout routines, and enhanced motivation are characteristics of the VR user experience in physiotherapy. VR integration has the potential to change the field of physiotherapeutic treatments as technology develops, providing creative ways to enhance patient results and program satisfaction in general.

#### KEYWORDS:

Physical Activity, Physiotherapy, Therapy, User Experience, Virtual Reality.

### 1. INTRODUCTION

In The field of Human-Computer Interaction, Virtual Reality (VR), a game-changing technology that began as science fiction visions and has now developed into a practical, immersive experience, is rapidly expanding. Virtual reality (VR) primarily tries to take people out of the physical world and into digital environments where they may interact with a virtual environment that is often identical to the actual one. VR is based on complex hardware and software systems that combine to provide a multimodal experience. Head-mounted displays (HMDs) act as the windows to these virtual worlds, providing users with a 360-degree visual experience. HMDs are outfitted with motion-tracking sensors and high-resolution screens. Spatial audio and tactile sensations further blur the boundaries between simulation and reality by simulating touch and sound as users traverse these artificial settings [1], [2].

Virtual reality has several uses that go well beyond simple pleasure. Virtual reality (VR) has become a potent instrument for experiential learning in the area of education, allowing students to investigate historical events, examine biological creatures, or even put themselves in the shoes of historical personalities. VR is used by medical professionals for surgical training, allowing surgeons to practice their techniques in a risk-free virtual setting before going into the operating room. VR is used in rehabilitation and treatment to expose patients to regulated, immersive environments to address physical ailments, PTSD, and phobias. VR has the potential to have a significant social influence in the area of remote collaboration [3], [4]. This is the ability for people who are geographically separated to meet in virtual worlds for social interactions, work, or education. This allows people to feel connected and present. With the

introduction of VR, the entertainment sector has undergone a paradigm change, giving viewers an active part in the story rather than simply a passive one. With games that immerse players in imaginary worlds and require both physical interaction and strategic thought, virtual reality gaming in particular has seen exponential development. Video Games, and virtual reality (VR) have completely changed the movie-going experience by empowering directors to create immersive stories that dissolve the conventional boundaries between the audience and the screen [5], [6].

The development of VR is not devoid of difficulties and obstacles that researchers and designers are still working to overcome including motion sickness, the need for sophisticated processing hardware, and the feeling of isolation factor during extended usage. Moreover, the cost and availability of top-notch virtual reality gear continue to be crucial factors in determining its broad acceptance. The goal of developing more affordable, realistic, and pleasant virtual reality experiences continues as technology develops, opening up new applications and user bases. The seamless blending of digital and physical worlds is promised by the convergence of VR with contemporary innovations like augmented reality (AR) and artificial intelligence (AI). A growing number of businesses are promoting the idea of the Metaverse, which is a communal virtual shared place that combines all virtual worlds and allows people to work, play, and interact. Beyond the confines of space and time, the metaverse idea ushers in a new age of connectivity and shared experiences. In the realm of physiotherapy, Virtual Reality (VR) has become a revolutionary technology that is changing the way rehabilitative treatments are addressed. By using virtual reality's immersive qualities, physiotherapists may create and execute focused, interesting workouts that surpass the constraints of conventional techniques. Virtual reality (VR) offers a dynamic platform that allows patients to engage in therapeutic settings in the context of physical rehabilitation, facilitating both cognitive and physical recovery [7], [8].

The capacity to design individualized and flexible rehabilitation regimens is one of the main benefits of using virtual reality in physiotherapy. Virtual reality settings may be customized to address particular patient issues related to physical abilities, balance, and coordination. Patients may do workouts that replicate real-world motions with the use of motion-tracking sensors and haptic feedback, which enhances their general mobility, flexibility, and muscular strength. In addition to adding fun, these virtual workouts improve the efficacy of rehabilitation and may also increase patient desire and adherence to the recommended regimen. Virtual reality (VR) provides a secure, regulated environment where people recuperating from surgery or accidents may practice motions without worrying about making their condition worse. With VR simulations, patients may gradually rebuild strength and confidence in a risk-free environment, which is ideal for relearning fine motor abilities after a stroke or recovering from surgery. VR's immersive qualities may also help patients avoid feeling pain or discomfort when exercising, which can make the recovery process more bearable and, in some situations, even fun. The use of VR in physiotherapy enhances neurological recovery. Individuals suffering from ailments like traumatic brain injury, stroke, or Parkinson's disease have the opportunity to participate in virtual environments that test and enhance their cognitive abilities [9], [10].

Therapists may target certain cognitive abilities like attention, memory, and resolving issues by including cognitive activities in VR workouts, which can aid in a comprehensive recovery. Through the provision of an engaging and adaptable environment for neurological rehabilitation, virtual reality's interactive features may improve neuroplasticity, or the brain's capacity to rearrange itself. Virtual reality (VR) enables at-home workouts and remote monitoring in addition to in-person rehabilitation sessions. Physiotherapists may provide VR-based exercises to patients so they can continue their therapy outside of clinic settings, all while



being comfortable in their own homes. This encourages regular participation in the healing process and makes it possible to monitor progress in real-time, giving therapists the flexibility to modify treatment programs as necessary.

## 2. LITERATURE REVIEW

Ammann-Reiffer C et al. [11] explained the evaluation of usability and user experience in virtual reality as a rehabilitation tool for walking tasks in pediatric neurorehabilitation which In traditional therapy settings, it might be difficult to perform many of the fundamental walking behaviors of everyday life, such crossing streets. Virtual reality (VR) head-mounted displays (HMDs) that produce virtual environments (VEs) would enable instruction in such tasks in a visually appealing and secure setting. Furthermore, throughout the rehabilitation process, children's enthusiasm and active engagement may be maintained or even increased by these apps' game-like nature and high level of immersion. The purpose of this research was to examine the acceptability, usability, and user experience of an immersive virtual environment (VE) used with a virtual reality head-mounted display (VR HMD) to teach routine walking tasks in pediatric neurorehabilitation. Methods: Using the VR HMD Oculus Quest, 21 young people (average age, 12.1 years; ranged 6.8-17.7 years) receiving inpatient or ambulatory neurorehabilitation for neuromotor impairments assessed a virtual environment (VE).

Afyouni I et al. [12] intelligent rehab bots for serious games which is an increasing number of serious games are being used in telerehabilitation by using cutting-edge multimedia tools like motion capture devices and virtual reality headsets. The shortcomings of current serious gaming solutions for telerehabilitation stem from their inability to be tailored to the individual demands and performance of patients. This research presents "RehaBot," a technology that uses virtual reality settings and 3D motion tracking to adaptively generate individualized serious games in a setting of remote rehabilitation. A customizable and adaptable game platform known as "Rehab bots" is developed with built-in virtual assistants. With the help of these rehabilitation robots, every exercise scenario will include an instruction booklet with many motion sets to help patients do the recommended exercises properly. The rehab bots use a powerful method to dynamically modify the exercise intensity to meet the patients' abilities. This method creates a very engaging gamified exercise experience by matching and correlating the sequences of the precalculated movements with the motions of the patients. Additionally, users get multimodal insights that highlight joints that did not function as expected and provide recommendations for enhancing present performance. Our online physiotherapy solution for supplementary treatment was shown to be both usable and beneficial via clinical research performed on individuals with persistent neck pain.

Poberznik A et al. [13] Described a virtual reality game that can be altered for neurological physical therapy which is Virtual reality and serious games have great potential as instruments for future rehabilitation. They stand for ways to encourage self-care and provide the rehabilitees motivation.

For them to be widely adopted, rehabilitators themselves as well as specialists in the area must contribute their expertise and research knowledge. The purpose of this project is to learn about best practices that contribute to a great user experience while developing a prototype virtual reality game for physiotherapy in a multi-professional setting.

The Whac-A-Physio game prototype, the game creation process, and the first user experiences using a co-design method are the main points of focus in this study. It serves as a foundation for more extensive research projects in the future. The physiotherapists were driven to embrace the game and had an interest in creating it in a multidisciplinary team. Following the development, two physiotherapy clinics piloted the Whac-A-Physio game prototype. Semi-

structured interviews were used to get the physiotherapists' opinions. The game is appropriate for upper limb rehabilitation, balance training, and coordination training, according to the physiotherapists.

Byagowi A. et al. [14] explained developing and using a new virtual reality navigation system (armchair) which is a brand-new virtual reality navigation (VRN) input tool known as the VRNChair that provides a simple and natural method of interacting with VR settings. VR navigation experiments are often conducted using stationary input devices, including joysticks or keyboards. However, because of the discrepancy between the vestibular response and visual flow, the user may experience kinetosis (motion sickness) in immersive VR environment trials, like our latest VRN evaluation. Additionally, participant responses to VR world research may be biased due to prior experience with joysticks or any other current computer input device. As a result, we created VRNChair, a VR navigational area that is controlled by a wheelchair. Any VR environment may be fed by the VRNChair, which interprets the motion of a manual wheelchair.

Filipovic N and Milosevic Z [15] described the World Health Organization, or WHO, stating that balance problems caused by age-related gradual loss of functioning of perceptual information as well as the inability to regulate bodily motions are an international pandemic. For those with balance issues, there is currently a complete dearth of individualized coaching options for gait and equilibrium physiotherapy as well as increased physical activity.

The hologram-based balance physiotherapist (BPH) is a software and equipment solution that gives patients the chance to get feedback and individualized workout recommendations. There are two variants: the smartphone, which requires the user to wear a head-mounted converter to position the smartphone on their head, and the 3D HoloBox, which uses a high-lumen projector and highly effective holographic foil to create the best 3D experience possible without requiring the use of any kind of device on the patient's side for presentations.

Fehlings D et al. [16] explained Virtual Reality treatment games for cerebral palsy motor rehabilitation are evaluated by clinicians and kids which are interactive computer games that, in terms of user experience and therapeutic relevance, are intended to support both upper and lower limb rehabilitation. Design(s): Study via observation. The hospital for pediatric rehabilitation is the setting. Participants: Eight children (8–12 years old) with CP Levels I–III on the Gross Motor Function Classification, together with six therapists. Intervention(s): Using a participatory design approach, therapists were involved in the creation of two innovative interactive computer games from idea development to assessment. The games are extremely adjustable to each child's skills and therapeutic aims, and they depend on Microsoft's Kinect technology.

After forty minutes of gameplay, kids and therapists gave their opinions on the games' therapeutic value and user experience in terms of challenge, pleasure motivation, and feedback. Principal Outcome Measure(s): The Physical Activity Enjoyment Scale (PACES) and the System Usability Scale (SUS) were used to measure enjoyment and usability, respectively.

Video analytics and physician surveys with Likert scale responses were used to track therapeutic relevance. Finding(s): Kids had fun with the interactive computer games, which had a median PACES score of 6.24 $\pm$ 0.95 on a 7-point scale. On the SUS, the system's usability was deemed average, as it fell within the 50th percentile. Clinicians gave therapeutic relevance excellent ratings, especially for weight shifting and elbow/shoulder extension.

Mercado J et al. [17] described the creation of an adaptable platform for fes-based motor restoration system prototyping which is One of the main issues with people who have had

brain injuries is motor function impairment. Systems that use functional electrical stimulation (FES) are practical technical options for helping that group regain their range of motion. Nevertheless, such systems' overall lack of availability and flexibility hinders the quick creation and update of features. The design idea for a platform that will aid in the FES system prototyping process is shown below. The platform is built using SIMULINK and MATLAB software, and it is sufficiently adaptable to incorporate both commercial and testing hardware for electrical stimulation and biopotential acquisition, as well as offline and online processing and algorithms for classification for the creation of command signals.

Ashkenazi T et al. [18] explained Three case studies illustrating a low-cost virtual reality therapeutic approach for children with a developmental coordination problem. These case studies looked into how a treatment program using an inexpensive, off-the-shelf virtual reality (VR) headset (a Sony PlayStation 2 affected the functional abilities, physical fitness, and dual-task performance of young children with developmental coordination disorder (DCD). Relevance: Physical therapy is recommended for children with Down syndrome whose symptoms stem from issues with balance, strength, coordination, fitness, and postural control. Their everyday motor skills, their involvement in athletics and social activities, and/or their academic performance may all be severely hampered by these restrictions. Virtual reality (VR) computer technology generates interactive simulations that let users interact with surroundings that seem and feel like things that happen in the real world. The purpose of VR-based therapy is to provide patients with valuable experiences within the framework of their treatment objectives. Research suggests that virtual reality-based therapy for kids may be entertaining and stimulating, perhaps improving their chances of recovery. It doesn't seem like any study has been done on the impact of using this therapy approach to instruct young DCD youngsters.

de Tillier K et al. [19] described using video games and virtual reality in pediatric physical therapy Numerous studies have been conducted on the use of virtual reality (VR) in the treatment of pediatric patients. Comparing the results of VR research over the last five years is the major objective of this study, which aims to emphasize the advantages, practicality, and role of VR treatment in a few selected illness categories.

Levac D et al. [20] Explained Typical and Virtual reality-based physical therapy for kids and teens suffering from acquired brain damage which is children with permanent brain impairments recover functional motor skills is not well understood. This research investigates how physiotherapists describe these treatments about therapy based on virtual reality (VR) video games. Semi-structured interviews with six physiotherapists working at a children's treatment facility were recorded, and theme analysis was used to examine the collected data. Physiotherapists talk about how to use therapies that inspire kids to push the boundaries of their performance and maximize their everyday functioning. The child's qualities, the therapist's experience, and the parent's capacity to utilize skills outside of treatment all have an impact on intervention tactics. Children are motivated to engage when VR is used, but it may also complicate therapies and affect the therapist's use of verbal tactics.

### **3. DISCUSSION**

In the discipline of psychology, Virtual Reality (VR) has become a cutting-edge instrument that offers a singular, immersive experience that has the power to revolutionize conventional treatment procedures, research methodologies, and teaching practices. Virtual reality (VR) has many applications in psychology, and its qualities and features help us understand human behavior and brain processes better. The capacity of virtual reality to generate regulated, realistic situations is one of its primary psychological features. With virtual reality (VR), researchers may precisely construct and alter situations, in contrast to conventional

experimental settings. It is possible to conduct experiments in this controlled setting that would be difficult or immoral outside of it. For example, to investigate and treat anxiety disorders, researchers might create scenarios that cause anxiety. The internal validity of psychological investigations done in virtual reality is improved by this degree of control. Furthermore, virtual reality (VR) may provide a powerful sensation of presence, which is the perception of being present in person in a computer-generated setting. This increased awareness of presence is important for treatments because it makes exposure therapy more successful in treating different types of anxiety disorders. In the security of a virtual setting, patients may face and eventually conquer their concerns, which improves therapy results.

Another noteworthy aspect of virtual reality in psychology is its adaptability to meet the demands of individual users. Virtual settings may be customized to treat certain psychological difficulties, increasing the effectiveness and personalization of therapy. VR therapies may be customized to meet the specific requirements and sensitivities of each patient, whether they are treating phobias, social anxiety, or post-traumatic stress disorder (PTSD). Better therapy results are encouraged and engagement is increased by this customization. Virtual reality (VR) provides an interactive platform for assessing cognitive processes and affective reactions in the context of psychological evaluation. Because traditional evaluations take place in artificial environments, they often lack ecological validity. Conversely, virtual reality evaluations replicate real-life situations, offering a more precise portrayal of a person's emotional and cognitive abilities. This helps to create treatment regimens and diagnostic instruments that are more accurate.

The Immersive Quality of virtual reality enables a more profound comprehension of interpersonal dynamics and social interactions. By examining social habits in a realistic but controlled environment, researchers may shed insight into the intricacies of interpersonal interactions. This allows for the study of social phenomena in environmentally friendly environments, which has ramifications for disciplines like social psychology. Virtual reality (VR) has the potential to transform learning environments in educational psychology. It offers an engaging and dynamic platform for instructional information, enhancing the fun and efficiency of learning. Educational technologies such as historical reenactments, virtual classrooms, and simulations of difficult subjects improve student learning by accommodating various learning preferences and encouraging engagement.

Virtual reality (VR) has therapeutic uses not just for anxiety disorders but also for depression, addiction, and pain management. It is possible to create virtual surroundings that reduce symptoms, offering a fresh and efficient method of therapy. VR has been used, for instance, to divert patients during grueling medical operations, therefore lowering their experience of discomfort and agony. Notwithstanding its many benefits, there are still obstacles in the way of VR's mainstream use in psychology. Attention has to be paid to the following issues: technical constraints, ethical issues, and the demand for more studies to determine the long-term efficacy of VR therapies. Furthermore, the price of VR technology may prevent certain people from using it, which raises questions about equality in mental healthcare. To sum up, the qualities and attributes of virtual reality in psychology demonstrate its capacity to revolutionize a multitude of fields. Virtual reality (VR) is a potent tool for expanding our knowledge of human behavior and better mental health outcomes. It can revolutionize educational processes, improve experimental control, and provide tailored therapy treatments.

### *3.1 Digital Immersion:*

The merging of the digital data world with the real world is known as "digital immersion." There are three primary types of it. In the first, an environment is changed or improved via the

use of technology such as virtual reality (VR), augmented reality (AR), mixed reality (MR), and extended reality (XR). IOT-enabled surroundings that are programmed to react automatically to the data they gather let people live and work in a second, less immersive kind of digital immersion.

The temperature changes and the lights come on when someone walks into a room. The technologies that are driven by digital immersion are illustrated below:

### *3.1.1 Augmented Reality:*

Another Innovative technology that has found uses in a variety of industries, such as marketing, gaming, healthcare, and education, is augmented reality (AR). Through the seamless blending of the digital and physical worlds, augmented reality (AR) modifies the user's sense of reality by superimposing computer-generated content on the actual world. Augmented reality's qualities and traits add to its adaptability and potential influence on a range of facets of human existence.

### *3.1.2 Mixed Reality:*

A Hybrid Environment where the actual world and the digital world coexist and interact in real-time is created by Mixed Reality (MR), an emerging technology that incorporates aspects of both Virtual Reality (VR) and Augmented Reality (AR). This cutting-edge method of computing unifies the real and virtual worlds to provide consumers with a smooth and engaging experience. Mixed reality's properties and attributes have a big impact on a lot of different sectors and applications.

### *3.2 Physical Therapy by Virtual Reality:*

In the realm of physical therapy, virtual reality (VR) has become a promising technology that offers novel approaches to improve patient outcomes, boost rehabilitation, and provide compelling therapeutic experiences.

There are many advantages to using virtual reality (VR) in physical therapy. It allows for the use of the technology's immersive and interactive features to address different parts of rehabilitation. Virtual reality treatment has many benefits, one of which is the ability to create safe and immersive surroundings.

Patients may practice motions and exercises in a safe and controlled environment by having therapists create virtual settings that replicate real-world events. This is especially helpful for those recovering from surgeries, neurological problems, or traumas since it offers a way to gradually rebuild coordination, strength, and flexibility.

Physical treatment exercises get a dynamic element from the participatory nature of virtual reality. To promote proper form and technique, patients may interact with virtual settings and get real-time feedback on their motions.

This instant feedback loop encourages a more precise and focused approach to workouts, which enhances the efficacy of rehabilitation.

Virtual reality (VR) has the potential to mitigate problems associated with motivation and treatment compliance. Patients may get disinterested in traditional physical therapy activities since they are sometimes tedious and repetitious. By introducing gamification, virtual reality (VR) transforms workouts into participatory games or activities. This encourages patients to actively engage in their treatment sessions and also adds enjoyment to the recovery process. In Figure 1 shown a patient who is getting help from a Therapist.





**Figure 1: Represents a patient who is getting help from a Therapist.**

### *3.3 Different types of Physical Therapy:*

The different types of physical therapy with the help of virtual reality are illustrated below:

#### *3.3.1 Orthopedic:*

In orthopedics, the musculoskeletal system is the main focus of care. This system is made up of tendons, ligaments, joints, muscles, and bones. An orthopedist is a person who specializes in orthopedics. Orthopedists treat musculoskeletal conditions such as sports injuries, joint discomfort, and back disorders using both surgical and nonsurgical methods. In Figure 2 shown the orthopedic physical activity by Therapist to Patient.



**Figure 2: Represents orthopedic physical activity by Therapist to Patient.**

#### *3.3.2 Neurology:*

A specialist subspecialty of physical therapy, neurological physical therapy is often referred to as neurophysical psychotherapy or neurorehabilitation.

Its goals include the examination, management, and rehabilitation of patients with neurological problems. Disorders or injuries impacting the central nervous system, which consists of the brain, the spinal column, and nerves in the legs, are referred to as neurological ailments. Optimizing a person's functional skills and quality of life after suffering from a neurological disability is the aim of neurological physical therapy.

### 3.3.3 Geriatrics:

Geriatric physiotherapy, another name for geriatric physical therapy, is a subspecialty of physical therapy that concentrates on meeting the particular medical requirements of the elderly. The goal of this discipline is to support and preserve elders' functional skills, independence, and health. Physical therapists specializing in geriatrics treat patients 65 years of age and above for a variety of aging-related ailments.

### 3.3.4 Pediatrics:

Pediatric physical therapy is a subspecialty of physical therapy that focuses on meeting the particular medical requirements of newborns, kids, and teenagers. Young people are treated by pediatric physical therapists to advance and improve their general functional skills, mobility, and physical development. The objective is to maximize the mental well-being and enjoyment of life for kids who may struggle with developmental delays, trauma, birth defects, or other medical concerns.

## 3.4 Problems faced by Virtual Reality devices:

The Problems faced by Virtual Reality Devices are illustrated below:

### 3.4.1 VR Sickness:

The physical pain that results from an end user's brain receiving contradictory signals regarding their movement in an electronic setting is known as virtual reality sickness, or VR motion sickness. Virtual reality (VR) and augmented reality, or AR, technologies depend on modifying the way humans perceive their surroundings via sight, sound, and touch.

Virtual reality (VR) offers consumers exciting new experiences that sometimes make it appear as if they are not in their physical world. Some individuals may find the experience unsettling and unpleasant, leading to VR sickness.

### 3.4.2 Eye Strain:

One common worry among those who use virtual reality (VR) headsets is eye strain. Users are effectively gazing at a distorted screen that is extremely near to their eyes when they are fully submerged in a VR experience. This abnormal method of processing visual information may cause eye strain, or muscular exhaustion in the eyes.

### 3.4.3 Anxiety:

Anxiety disorders have been studied as a therapeutic intervention for which virtual reality (VR) has been investigated as a tool. Virtual Reality Therapy (VRT) or Virtual Reality Exposure Therapy (VRET) are common terms used to describe the use of VR in the treatment of anxiety.

## 4. CONCLUSION

Virtual reality (VR) in physiotherapy offers a breakthrough advancement in the field of rehabilitative treatment for its users. Virtual reality's immersive settings have been shown to greatly improve patient motivation and compliance with treatment plans, resolving issues that have long plagued conventional physical therapy. Rehabilitation is made more fun and user-friendly by the gamification components and tailored therapies that increase participation. Beyond physical constraints, patients report feeling more present, which contributes to a more comprehensive therapeutic experience. Although obstacles such as financial and technological limitations still exist, virtual reality has clear promise in physiotherapy. The incorporation of virtual reality (VR) has significant potential for changing the field of physiotherapeutic

therapies and providing a revolutionary and patient-centric strategy for rehabilitation as technology progresses and research confirms its usefulness. Virtual reality's ability to provide individualized and immersive experiences may very well determine the future of physical therapy.

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## CHAPTER 2

### A BRIEF DISCUSSION ON HYPNOZ

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#### ABSTRACT:

Throughout history, the enigma surrounding sleep has captivated researchers and medical professionals, raising concerns about its function and the path it leads our consciousness on. Sleep, albeit mysterious, is essential to human life and wellness; it's not only a biological occurrence; it's a vital component of general well-being. This article examines the complex processes behind sleep, highlighting its significance for brain health overall, waste material elimination from brain cells, and cognitive function. The conversation explores the intriguing patterns of brain activity that occur when we sleep, how sleep evolved as an adaptive survival tactic, and the disruptive effects of sleep disorders like insomnia and narcolepsy.

The article's second section discusses narcolepsy, defining its two types (NT1) and NT2, and describing its symptoms, which include cataplexy, excessive daytime drowsiness, sleep paralysis, and alterations in REM sleep. It also clarifies the prevalence, demographic trends, and significant effects of insomnia, a prevalent sleep problem, on a range of facets of life. The goal of the article is to provide a thorough knowledge of sleep and illnesses associated to it, while also recognizing the importance of these conditions for human health and their complexity.

#### KEYWORDS:

Cataplexy, Hypnology, Insomnia, Narcolepsy, Sleep Paralysis, Sleep Disorders.

### 1. INTRODUCTION

One of the most fascinating mysteries in biology has always been sleep, which is a topic that raises a lot of concerns and remains mysterious. The basic questions about sleep have persisted throughout history: Why do we sleep? Where does this enigmatic condition take our awareness on its journey? Why do we devote over a third of our lives to this apparently inert process? For a long time, scientists and physicians were baffled by the mysterious properties of sleep, which left these issues mostly unsolved.

When one considers what is essential for human life on Earth, the basic needs of food and water immediately spring to mind. But when we think about living a high-quality life, sleep becomes a crucial element [1], [2]. It becomes clear that sleep is very important for the survival and well-being of our species. It becomes more than just a biological event and becomes an important factor in our general health and survival.

Imagine the birth of your first kid to get a sense of the scope of the scientific ambiguity that formerly surrounded the issue of sleep. Imagine being at the hospital when the attending physician, upon verifying the newborn's health, shares a startling news. She announces the good news regarding the baby's health in a congrats manner and gets ready to leave the room. But before she leaves, she stops, looks back, and shares an odd revelation: "There's just one thing. From now on, for the rest of your child's life, he will go into periods when he feels like he is in a coma. It may even sometimes resemble death [3], [4]. In these moments of silence, his thoughts would wander into really strange hallucinations. One-third of his life will be taken by this condition, and I have no idea why or what good it will do for him.



This comparison effectively conveys the confusion that shrouded our knowledge of sleep for a significant amount of time. The comparison situates sleeping in a state of great ambiguity, similar to the confusion that may arise from discovering an odd and inexplicable feature of a newborn's existence. It highlights how, until recently, the scientific community struggled with a lack of clarity surrounding this crucial aspect of human life and illustrates the historical gap in our understanding of sleep [5], [6]. We often experience mental foggy and sluggishness after a sleep disturbance, underscoring the significant influence of sleep on cognitive performance. The brain, which is in charge of planning our everyday actions and processing new information, is highly dependent on the kind and amount of sleep it gets. Not only does getting too little sleep make it harder for us to absorb and remember knowledge, but it also makes the brain less capable of handling the day's obstacles. The ramifications go beyond the short term and impact our long-term memory and cognitive functions.

Furthermore, sleep is an essential process for the excretion of waste materials from brain cells. This part of sleep supports brain health overall by guaranteeing peak performance and averting the build-up of potentially dangerous chemicals. Sleep is critical to cognitive health because it powers the nighttime restorative process, which primes the brain for the demands of the next day. The importance of sleep goes beyond mental processes to include the body's general wellness. Insufficient sleep raises the risk of health problems and exacerbates ailments including depression, seizures, hypertension, and migraines [7], [8]. Moreover, weakened immunity brought on by sleep deprivation increases vulnerability to illnesses and infections. Sleep's significance in metabolic processes is further shown by the fact that a single night of sleep disruption may cause prediabetes in a person who is otherwise healthy.

Similar to the need for food, sleep is thought of as a biological need, with the body displaying an increasing desire to sleep during the day. When this strong need reaches a certain point, the body is forced to go into sleep mode. The body can force sleep when tired, but it cannot force eating when hungry. This is a significant difference between hunger and sleep. The body's natural need for sleep is essential to preserving general health and wellbeing [9], [10]. It's interesting to note that even with the eyes open, the body may go into microsleep when it feels sleepy, lasting just one or two seconds. The body's natural tendency to prioritize rest as exhaustion sets in is highlighted by this microsleep phenomena, underscoring the importance of sleep for both our physical and mental well-being.

## 2. LITERATURE REVIEW

*Riemann et al.* want to illustrate future directions in clinical practice and research about the benefits of sleep and depression therapies. Since the dawn of psychiatric study, the co-occurrence of depression and sleep disturbances has been acknowledged, and the use of polysomnography has demonstrated that patients with depression have interruptions in their sleep continuity. These disturbances include decreased slow wave sleep as well as unrestricted rapid eye movement (REM) sleep, which is reflected in decreased REM latency, increased REM density, and total REM sleep duration. These REM sleep disturbances did not live up to initial assumptions that they would act as differential-diagnostic indicators for depression subtypes. Notably, almost all antidepressants inhibit REM sleep, demonstrating a measurable time-and-dose-response link between the overall suppression of REM sleep and the effectiveness of therapeutic therapy. The Cholinergic REM Induction Test showed that cholinomimetic drugs might be used to mimic problems in REM sleep. In an effort to comprehend the beneficial effects of light exposure and sleep deprivation on mood in depression, researchers are now examining the chrono-medical timing of these events. The current body of research views insomnia as a transdiagnostic symptom that is important to a variety of mental diseases, with depression being especially closely associated. Insomnia is

characterized by extended sleep latency, difficulties sustaining sleep, and early morning wakeup. Analyzing insomnia as a transdiagnostic trait from several angles has opened up a plethora of new research directions for understanding the underlying processes of insomnia as well as potential treatment applications. In light of this, the essay discusses whether getting treatment for insomnia as soon as possible might help avoid depression. This thorough investigation aims to bridge the gap between our present knowledge of sleep regulation systems and the physiological alterations linked to depression [11].

*Wood et al.* looked at the correlations between sleep duration and symptoms of insomnia and the present adherence to the Mediterranean-style diet (aMed) as well as changes in aMed scores over the previous ten years in order to shed light on the link between food and sleep. Based on data from 2068 people who also provided dietary intake information, sleep duration, measured using actigraphy, and self-reported symptoms of insomnia were categorized into four groups: insomnia with short sleep (<6 hr/night), insomnia without short sleep, no insomnia with short sleep, and no insomnia or short sleep. Concurrently, information from ten years earlier was gathered, as well as a 10-point aMed score that was generated using a self-report dietary frequency questionnaire. People with a moderate-high current aMed score were less likely to have symptoms of insomnia with short sleep (vs. no insomnia or short sleep alone;  $p < 0.05$ ) and more likely to sleep 6–7 hours than people with a low aMed score ( $p < 0.01$ ). People with a steady aMed score reported less symptoms of insomnia than those with a declining score ( $p = 0.01$ ), despite the fact that a rise in aMed score during the previous ten years did not demonstrate relationships with either sleep duration or symptoms. According to these results, following a Mediterranean-style diet is associated with enough sleep length, fewer symptoms of insomnia, and a lower risk of developing insomnia during brief sleep intervals. Future studies should investigate possible mechanisms that food may use to promote adequate sleep duration and reduce the incidence of insomnia [12].

The goal of *Gardani et al.*'s study was to do a systematic review and meta-analyses in order to investigate the connections between stress and students' insomnia or poor sleep quality. Full-text publications published in peer-reviewed journals that investigated these relationships in undergraduate students with the use of validated instruments qualified as eligible research. A total of thirty-four studies were found to be appropriate for meta-analysis, resulting in 37 effect sizes. For the link between stress and sleep quality, the weighted pooled effect size was 0.39 (25 studies,  $n = 10,065$ ), whereas for the relationship between stress and insomnia, the pooled effect size was somewhat higher at 0.41 (12 studies,  $n = 5564.5$ ). The relationships between undergraduate students' stress, insomnia, and sleep quality were shown to have modest impacts, according to the meta-analyses. However, given the significant level of variability in the data, care is urged. The authors recommend that longitudinal studies that examine sleep problems throughout the course of the academic year should be given priority in future study. Furthermore, they advise university services to think about putting stress and sleep psychoeducation treatments into practice, especially for students making the move to a university [13].

*Palagini et al.* tried to make a link between our present understanding of the processes behind insomnia and our understanding of the dysregulatory systems underlying mental health. This study's main emphasis was on mood, anxiety, and psychotic illnesses, which pose serious difficulties for clinicians. To investigate the clinical, neurobiological, and therapeutic consequences of insomnia co-occurring with major mental illnesses, extensive literature searches were undertaken. A narrative review was used since the material that was accessible was so complex and varied. A number of mental diseases, such as mood/anxiety disorders and schizophrenia, include insomnia as a transdiagnostic symptom, concomitant condition, and

possible risk factor. In addition, sleeplessness could be a sign of abnormal neuroplasticity, which would lead to the dysregulation of several neuronal pathways implicated in these mental illnesses. Therefore, treating insomnia involves not only getting sleep cycles back to normal but also taking care of the stress system, neuroinflammation, and plasticity of the brain. There is much new data supporting the effectiveness of cognitive behavioral therapy in treating insomnia, psychopathology, and signs of disturbed neuroplasticity. Less is known about the pharmaceutical treatment paths for insomnia in certain mental illnesses, however. Investigating therapy alternatives that target the melatonergic and orexinergic systems offers interesting paths for intervention that could provide fresh perspectives on treating insomnia in the setting of mental illnesses [14].

### 3. DISCUSSION

A remarkable pattern of brain activity emerges while we sleep, providing a rare window into the complexities of our mind. Our awareness experiences a brief interruption, if not a repression, while we fall asleep. Essentially, sleep uses all of our senses like sight, hearing, touch, and more to turn us into both solitary people and reunited humans with the outside world. Our connection to the outside world varies rhythmically throughout the sleep cycle, unlike when we completely shut down. During the sleep phase, people might be quite aware of their surroundings one minute, and then seem to be "dead to the world" or clueless the next. Interestingly, experts assert that the dream stage of sleep is when awareness or attention reaches its peak [15], [16]. This increased consciousness makes it possible for other influences to affect our dreams, such background noise, music that is playing, or even a movie that was left on while we dreamed.

People may converse while they are asleep in certain extreme circumstances, but the answers are often ridiculous, if not incomprehensible. For most, trying to have a conversation with someone who is asleep might be as productive as having a conversation with a stone wall or a cat. The intricacies of the sleeping mind and the difficulties of meaningful communication in this altered state are brought to light by this distinctive characteristic of sleep behavior. Interestingly, some people especially those skilled in obtaining deep sleep can sleep through loud surroundings without ever waking up [17], [18]. This resilience may be explained by a learned habit, in which people have taught themselves to remain silent even when they believe they are in a discussion. The differences in reaction times during sleep highlight how varied and complex our experiences are in this necessary but mysterious stage of awareness.

Adaptive or evolutionary hypothesis is a term used to describe one of the first explanations for the occurrence of sleep. According to this theory, the ability to remain motionless throughout the night was an evolutionary adaptation that was essential for survival. Preserving organisms from damage at times when they were most susceptible was the main goal. This argument holds that animals who mastered the ability to be still and silent during these vulnerable times had a clear advantage over those that continued to be busy [19], [20]. Natural selection ultimately led to the evolution of this adaptation into what is today understood to be the fundamental aspect of sleep. The basic hypothesis is that during activities in the dark, animals displaying this behavior were less likely to have mishaps or be attacked. For instance, by remaining motionless during the night, they may have avoided meeting obstructions or falling victim to nocturnal predators. It is thought that over the course of many generations, this behavioral tactic solidified and finally took the form of the intricate biological and psychological mechanism that we now recognize as sleep.

But this evolutionary hypothesis is challenged by a simple counterargument. It suggests that being aware at all times makes an organism safer since it guarantees that it can respond quickly

to any emergency, even in the dead of night. This viewpoint challenges the evolutionary benefit of unconsciousness and sleep when safety is the primary concern. The argument suggests a possible weakness or defect in the adaptive theory of sleep by arguing that being aware of and sensitive to the environment might be a more successful survival strategy. This counterargument highlights the complexity and continuing scientific debate surrounding our comprehension of the function and development of sleep in different animals. Brinkman defines sleep as an active unconscious state in which the brain experiences a relative level of rest and reacts mostly to internal inputs. The adaptation hypothesis, often referred to as the inactivity theory, explores the evolutionary function of sleep and has long been a topic of scholarly inquiry into this complex phenomenon.

According to the adaptive view, animals have developed a strategic survival technique to deal with the nighttime weaknesses, which is why inactivity during sleep is noticed. This concept suggests that staying dormant during the dark hours offers a clear benefit, keeping organisms safe. It implies that animals who demonstrated composure and quiet at these crucial times had an advantage over those that were active. These animals were less likely to have mishaps in the dark and were also less likely to become prey for raptors. It is thought that natural selection worked on this behavioral tactic, leading to the development of the sophisticated sleep state that we see in many different animals today.

According to the concept, ancestral creatures benefited greatly from the capacity to rest at certain times, which aided in their survival and procreation. Over time, as a result of environmental constraints, sleep's adaptive character became deeply embedded in the biology of many animals. This evolutionary viewpoint highlights the critical role that sleep plays in the complex web of life and offers a fascinating insight into the origins and functions of sleep. As research into the adaptive role of sleep advances, it helps us better understand fundamental physiological functions and illuminates some of the long-standing mysteries of the natural world. Older individuals often struggle with sleep fragmentation, mostly because their sleep patterns naturally change with age. They spend less time in deep sleep as a consequence, which makes them more prone to disruptions and awakenings, especially during the lighter sleep phases. The altered architecture of sleep may cause more nighttime disturbances, which might lower elderly people's overall sleep quality.

Sleep disturbances may be caused by external sources, such as stress from a person's personal or professional life. One of the main symptoms of anxiety is continuous concern or rumination about different problems, which may make it more difficult to go back asleep after waking up. The difficulties are worse for parents of small children or newborns, who may wake up many times throughout the night. Caregivers who attend to the medical requirements of sick or handicapped family members often have comparable sleep disruptions. A person's circadian rhythm, which controls their sleep-wake cycle, may become disturbed by variations in their exposure to sunshine. This is a regular occurrence among people who are trying to sleep during the daytime due to working night shifts or jet lag from long-distance travel. The body's internal clock becomes misaligned as a consequence, which may make it difficult to have uninterrupted, comfortable sleep.

The likelihood of sleep disruptions is also significantly influenced by lifestyle decisions. Normal sleep patterns may be disturbed by irregular sleep regimens, excessive alcohol or caffeine use, and using electronics like mobile phones in bed. The continuity of sleep may also be hampered by environmental variables like too much light in the bedroom or noisy neighbors who snore or grind their teeth. Furthermore, many sleep disorders are a major cause of fragmented sleep. Sleep disturbances are often associated with conditions such as obstructive sleep apnea and restless leg syndrome (RLS). Repetitive leg movements during sleep are the

hallmark of obstructive sleep apnea (OSA), while frequent awakenings are associated with restless legs syndrome (RLS). Getting undisturbed, restful sleep is a struggle that is exacerbated by both diseases.

Research suggests that after catching SARS-CoV-2, a lot of people may have symptoms including exhaustion, fogginess in the brain, and problems sleeping. Furthermore, a decline in mental health has been shown in a number of studies, however not all of them have clearly linked the infection to anxiety or depression. It's crucial to remember that observational research examining the consequences of SARS-CoV-2 infection has specific restrictions. These studies may not completely take into consideration some characteristics, including profession, that affect a person's chance of getting the virus. Furthermore, individual differences may exist in the probability of seeking testing and using healthcare services, which may affect how accurate observational data is.

The authors of the research used information from the Clinical Practice Research Datalink Aurum data collection in order to get around these restrictions. This large-scale dataset, which contains clinical event data entered by medical practitioners, includes information on diagnosis, symptoms, and treatments from a noteworthy patient cohort consisting of 19 million individuals. It is still unclear how SARS-CoV-2 and sleep issues are related, and the underlying processes are still poorly known. Sleep disturbances, autoimmune or systemic reactions that last long after the illness has cleared up, and diseases affecting different organ systems such as neuropathies and autonomic myopathies might all be contributing factors. Furthermore, diseases such as myalgic encephalomyelitis/chronic fatigue syndrome may possibly be connected to the SARS-CoV-2 infection's aftermath. After doing sensitivity analysis, the researchers found that the incidence of psychosis, sadness, and anxiety were similar in those who tested positive for SARS-CoV-2 and those who tested negative. This research highlights the complicated association between SARS-CoV-2 infection and mental well-being by indicating that the presence of the virus may not always be the only factor influencing mental health outcomes.

## **Narcolepsy**

A disturbance in the regular cycles of sleep and wakefulness is the hallmark of narcolepsy, a sleep disease that causes a variety of symptoms that profoundly affect a person's day-to-day functioning. Excessive Daytime Sleepiness (EDS), a persistent and overpowering urge to sleep throughout the day, is the major and defining symptom of narcolepsy.

The brain's incapacity to appropriately regulate alertness and sleep is the cause of this excessive drowsiness. In a normal sleep cycle, the sequence of events leading up to rapid eye movement (REM) sleep a critical stage linked to vivid dreams occurs. On the other hand, REM sleep is erratic in narcoleptic patients. Interestingly, REM sleep may start minutes after you fall asleep, which is different from the usual pattern where it usually happens an hour or more into the sleep cycle.

The brain's normal sleep architecture is disrupted by underlying abnormalities in narcolepsy, resulting in the fast start of REM sleep. These tamperings not only mess with the timing of REM sleep, but they also fuel other well-known narcolepsy symptoms including cataplexy, sleep paralysis, and hallucinations. The disrupted sleep habits show up as an involuntary inclination to nod off during the day in addition to disrupting sleep at night. To fully grasp the complicated symptomatology of narcolepsy, one must grasp its neurological underpinnings. The complex processes controlling the sleep-wake cycle and alterations in neurotransmitters



are crucial in the onset and progression of narcolepsy. Investigations into these fundamental processes are yielding new information on possible treatment approaches meant to enhance the lives of those afflicted with this difficult sleep ailment. Narcolepsy is a complex illness that goes beyond the traditional interpretation of sleep disruptions. The complex character of this illness is highlighted by the dysregulation of REM sleep and altered brain activity. Understanding these intricacies is essential to creating efficient treatment plans and improving the general wellbeing of narcoleptics.

### **Narcolepsy Type 1**

Cataplexy is a unique symptom of narcolepsy type 1 (NT1) that is characterized by an abrupt and transient decrease of muscular tone.

NT1, formerly known as "narcolepsy with cataplexy," is a neurological condition that interferes with sleep-wake cycles. It's crucial to remember that, despite its link to cataplexy, not everyone with NT1 will certainly have cataplexy episodes. Cataplexy is not the only need for the diagnosis of NT1. Even in the absence of cataplexy, a person may be diagnosed with NT1 if they have low levels of hypocretin-1, an essential neurotransmitter in the body that controls wakefulness. This demonstrates the complex nature of NT1, whereby various biomarkers and clinical symptoms are used to diagnose the condition.

It's interesting to note that not everyone with NT1 will necessarily have cataplexy right away. However, a considerable proportion of these people with low hypocretin-1 levels eventually experience cataplexy. This implies that cataplexy is a characteristic of NT1 development even if it may not be evident at the time of diagnosis, especially in those with reduced hypocretin-1 levels. Cataplexy and NT1 are closely related, however the diagnosis includes more than just the occurrence of this symptom. The determination of NT1 takes into account both objective measurements like hypocretin-1 levels and clinical signs like cataplexy. The fact that cataplexy changes over time in some people with NT1 highlights the complexity of this neurological condition and the need of having a thorough grasp of all of its components.

### **Narcolepsy Type 2**

Formerly referred to as "narcolepsy without cataplexy," NT2 is a variant of narcolepsy that is similar to NT1 in most aspects but differs in that it does not exhibit cataplexy or low levels of hypocretin-1. Strong emotions are often the cause of cataplexy, which is an abrupt loss of muscular control. Hypocretin-1 is a neuropeptide that is essential for controlling wakefulness.

The symptoms of NT2, which are often linked to narcolepsy, include extreme daytime drowsiness, abrupt periods of sleep, sleep paralysis, and vivid hallucinations. However, NT2 differs from NT1, where similar traits are often seen, in that NT2 does not exhibit cataplexy or low hypocretin-1 levels.

Notably, if a person has low levels of hypocretin-1 or subsequently suffers cataplexy, the diagnosis of NT2 may need to be reclassified. About 10% of patients have this change in diagnosis, going from NT2 to NT1. This shift emphasizes how narcolepsy is a dynamic condition and emphasizes how crucial it is to continuously evaluate symptoms in order to guarantee an appropriate diagnosis and course of therapy. One important point to note is that cataplexy is not always evident at the time of first diagnosis in NT2 instances, but it does appear in a large proportion of patients with low hypocretin-1 levels as the illness worsens. This progression implies that a comprehensive evaluation of the symptoms and their temporal history is necessary to comprehend narcolepsy. Frequent monitoring and follow-up

assessments are essential to providing narcolepsy patients with complete care, enabling prompt interventions, and modifying treatment plans in response to changing clinical conditions.

**Symptoms:****Excessive daytime sleepiness:**

One of the most noticeable and unique symptoms that people with narcolepsy often suffer is excessive daytime sleepiness, or EDS. In contrast to the usual sleep patterns of the general population, narcoleptics might fall asleep suddenly and show an amazing lack of control over their wakefulness. Because of this peculiar feature of narcolepsy, people may have sleep episodes at any time, no matter where they are or what they are doing. An abrupt start of sleep during regular activity is a characteristic of excessive daytime drowsiness in narcolepsy. People could find themselves, for example, at work, conversing with friends, or taking part in social events, when an overpowering feeling of sleepiness takes over, resulting in an unexpected and uncontrollable bout of sleep. The regular course of duties and interactions may be interrupted by these sleep episodes, which might last anywhere from a few minutes to thirty minutes.

Interestingly, people with narcolepsy often report feeling pleasantly rejuvenated after emerging from these unscheduled sleep episodes. This is in contrast to the typical grogginess that one may expect after an unplanned snooze. Even though these episodes of sleep are fleeting, the feeling of refreshment that follows is only momentary since people who suffer from narcolepsy eventually find themselves feeling drowsy again after a little time of alertness. Basically, excessive daytime sleepiness in narcolepsy induces an ongoing, unpredictable cycle of sleep events, making it difficult for those who have the condition to go about their regular activities without always running the danger of unexpected, involuntary sleep episodes. This symptom highlights how complicated and disruptive narcolepsy is, underscoring the necessity for all-encompassing treatment techniques to lessen the condition's negative effects on day-to-day functioning and general quality of life.

**Sudden loss of muscle tone:**

Cataplexy is a neurological disorder characterized by an abrupt decrease of muscular tone. This unusual event causes a person's muscles to suddenly weaken or paralyze, which causes a variety of physical changes in the afflicted person. These alterations may take many different forms, from mild signs like speech impediments to more severe ones like total physical paralysis. These episodes usually last just a few minutes, so for those who experience them, it's a brief yet profound experience. The correlation of cataplexy with strong emotions is one of its distinguishing characteristics. Cataplexy may be brought on by a variety of emotions, although happy emotions like joy or laughing are often associated with it. In these situations, people can feel an abrupt loss of muscular control, which would make it difficult to carry out daily physical activity. It's crucial to remember that other emotions, such as fear, surprise, or rage, may also cause cataplexy, emphasizing the complex connection between emotional states and the physiological reaction seen in this illness.

A further degree of complication is added by the unpredictable nature of cataplexy, which causes afflicted persons to deal with unexpected bursts of muscular weakness. The uncertainty around the timing of these episodes may have a big effect on social interactions and day-to-day living. Understanding one's own triggers and creating coping strategies to lessen the negative effects of emotional stimuli on muscular tone are common steps in managing cataplexy. Those who experience cataplexy a neurological disorder marked by an abrupt loss of muscular tone face a variety of difficulties. Its association with strong emotions especially happy ones highlights the need of a thorough knowledge of its causes and possible treatments to improve

the lives of individuals who are impacted. The fact that cataplexy is a temporary but significant ailment highlights the need for further research and support networks in order to effectively treat and negotiate the complications related to this illness.

**Sleep paralysis:**

People who have been diagnosed with narcolepsy often experience a unique phenomenon called sleep paralysis, which is characterized by a transient inability to move or talk either during the transitional stages of falling asleep or upon awakening. This specific kind of narcolepsy is short-lived, usually lasting just a few minutes or seconds. Even yet, short-lived bouts of sleep paralysis may cause worry and anxiety in the person experiencing them. These feelings are typically heightened by the uncomfortable sensation of remaining momentarily immobile, which makes one feel exposed and uneasy.

People who have bouts of sleep paralysis may experience a paradoxical condition in which their physical capacity to move or speak is momentarily stopped but their mental awareness is unaffected. Even though they are unable to regulate their body during these episodes, people with narcolepsy often remain alert and are aware of everything that is happening. People are able to remember the event clearly because they remain aware of it long after the incident has ended. The occurrence of sleep paralysis linked to narcolepsy is remarkable due to its short duration and potential psychological effects on people. Living with narcolepsy is complicated and multidimensional due to the fleeting nature of these episodes and the potential worry they may evoke. Comprehensive treatment for those coping with narcolepsy must include an understanding of and attention to the emotional components of sleep paralysis.

**Changes in REM sleep**

A specific phase of the sleep cycle known as rapid eye movement (REM) sleep is marked by increased brain activity, vivid dreams, and fast eye movements. It is often linked to the most vivid and intense dream experiences. REM sleep happens in waves throughout the course of a normal sleep cycle, lasting longer and longer between cycles. REM sleep, however, takes on a distinct form for narcoleptics that distinguishes them from those without the condition. A neurological disorder called narcolepsy interferes with the brain's capacity to control sleep-wake cycles, causing excessive daytime tiredness and unexpected bouts of falling asleep. The occurrence of REM sleep at unusual periods, which defies the common understanding of its cyclical nature, is a prominent feature of narcolepsy. Those with narcolepsy are able to enter REM sleep quickly and at any time of day, in contrast to those without the condition, where REM sleep is more common in the latter phases of the sleep cycle.

A characteristic of narcoleptic sleep patterns is the quick switch to rapid eye movement (REM) sleep soon after onset of sleep. A person without narcolepsy needs around 90 minutes to reach REM sleep on average, while those who have the disorder may get at this stage very quickly usually within 15 minutes after falling asleep. One of the diagnostic criteria for narcolepsy is the fast start of REM sleep. Comprehending the modified dynamics of rapid eye movement (REM) sleep in narcolepsy illuminates the complexities of sleep regulation and the anomalies seen in people with neurological sleep disorders. The distinct way that REM sleep manifests in narcolepsy advances our knowledge of sleep pathology and might direct the creation of focused therapies that will help those with the illness manage their symptoms and live better lives.

**Insomnia**

A common sleep ailment that many people encounter at some time in their life is insomnia. It might show up as trouble getting to sleep, staying asleep, or both. Research findings suggest

that between 33% and 50% of adult individuals have symptoms of sleeplessness. Around 10% to 15% of people are thought to be affected by chronic insomnia disorder, which is defined by persistent symptoms that cause discomfort or impairment. People who struggle with insomnia often don't get enough restorative sleep, which leaves them exhausted when they wake up. Insomnia may have long-lasting effects that extend beyond its immediate effects on sleep quality. These effects include diminished energy, mood, general health, productivity at work, and overall quality of life. Chronic sleeplessness may cause exhaustion and be a factor in a number of health problems. Of all sleep disorders, insomnia is the most common, according to the American Psychiatric Association (APA), with around one-third of individuals experiencing symptoms of insomnia. Furthermore, 6–10% of people may have symptoms that are severe enough to be diagnosed as insomnia disorder.

Fascinatingly, sleeplessness seems to follow certain demographic trends. Sleep disruptions are more common in women than in males, and they may be attributed to a variety of life phases, including pregnancy and hormone changes. Menopause and other hormonal changes linked to premenstrual syndrome (PMS) may significantly impact sleep habits. Moreover, insomnia becomes increasingly common as people age, especially beyond the age of sixty. Age-related physical changes, the existence of illnesses or drugs that interfere with regular sleep patterns, and other factors may make it difficult for older people to get a good night's sleep. Insomnia is a common sleep ailment that has serious effects on people's health. Its effects are not limited to sleep disruptions; it affects many facets of life. Understanding the demographic characteristics that impact insomnia may be helpful in treating and managing this widespread health problem, especially as it tends to display gender-specific patterns and grows more frequent with age.

#### 4. CONCLUSION

In conclusion, researchers and medical professionals have long been fascinated by the study of sleep, a complicated and vital biological process. Sleep, which makes up more than one-third of our lives, is an essential component of being human and is necessary for survival, happiness, and general health. The historical uncertainty surrounding sleep like a baby going into phases that resemble a coma highlights the difficulties scientists have had in deciphering its secrets. Sleep has a significant impact on memory, cognitive function, and general mental health. Furthermore, it is essential for the removal of waste products from brain cells, which promotes brain health. Sleep disorders are common across a range of demographics and are caused by a variety of variables including age, lifestyle choices, and underlying medical issues. The adaptive hypothesis, which contends that sleep originated as a survival tactic, and the counterargument, which casts doubt on the evolutionary advantages of unconsciousness, are explored in detail. Narcolepsy is one example of a specific sleep condition that highlights the complex relationship between sleep and brain processes. Deepening the conversation requires an understanding of the complex nature of sleep problems, their effects on mental health, and any possible links to illnesses like SARS-CoV-2 infection. A thorough investigation of sleep and related abnormalities is essential to enhancing therapies to improve general well-being and expanding our knowledge of basic physiological processes.

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## CHAPTER 3

### A BRIEF DISCUSSION ON CREATIVE MINDS OF COLLEGE STUDENTS

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#### **ABSTRACT:**

Students are essential in developing a culture of creativity and unique thought on college campuses, which are frequently thriving centers of invention. The main problem identified by this paper is that college students' inventive brains are a vital and dynamic force that molds the intellectual terrain of postsecondary education. The main objective of this study is to examine the various facets of creativity in college students, taking into account both environmental and human elements that support the growth and presentation of creative thought. The conclusion of this paper is to obtain insights into the many expressions of creativity in the college context by looking at a range of fields, extracurricular activities, and creative teaching methods. The future scope of this paper is that creativeness of mind offers insightful knowledge to educators, decision-makers, and organizations working to develop and support their students' creative potential.

#### **KEYWORDS:**

Creative, Diversity, Generation, Mind, Students.

#### **1. INTRODUCTION**

College students' creative brains are lively, dynamic forces that influence higher education's intellectual environment. One sees a tapestry of creativity and expression in the kaleidoscope of various ideas, goals, or passions that characterize this generation. These creative minds find a home on college campuses, which offer an atmosphere that fosters curiosity, pushes limits, and encourages the search for knowledge in many ways. The melting pot of traditions, experiences, and academic disciplines along with the diversity in academic fields provides an extensive environment that ignites college students' creativity to new heights [1]. This creative energy is centered on the never-ending pursuit of knowledge and comprehension. Equipped with the resources of higher education, college students go out on intellectual explorations that go beyond the parameters of conventional education [2]. Ideas are painted on a canvas in the classroom using the techniques of analytical inquiry and critical thinking. College students' creative minds connect with the material in ways that go beyond rote learning and embrace the spirit of inquiry, either in the humanities, science, or arts [3].

Innovation and human progress are fueled by creativity. Throughout human history, innovative thinkers have distinguished themselves as change agents by pushing the limits of existing knowledge and exploring previously uncharted territories of the imagination. The twenty-first century is no different, serving as a blank canvas for a fresh generation of imaginative visionaries who reshape markets, subvert conventions, and mold the course of history [4].

The creative landscape has changed as a result of the digital revolution. The emergence of technologies such as blockchain, virtual reality, and artificial intelligence has given innovators, artists, and platforms for the expression of new canvases and tools. The innovative minds of the twenty-first century are not just adjusting to these developments, but also using them to produce ground-breaking pieces that conflate the digital and the real. The 21st century's

interconnected world has given creative minds access to a worldwide playground. Geographical barriers do not prevent collaboration, and ideas can grow on internet platforms, creating a diverse and welcoming creative community. Innovation is now bred from the diverse viewpoints, ideas, and cultures that are combined [5].

Elon Musk, the man behind Space X and Tesla, is the perfect example of how creativity and innovation in technology can coexist. Musk wants to colonize Mars and transform transportation, thus his vision goes beyond the boundaries of conventional industry. He is a representation of 21st-century inventiveness due to his innovative approach to solving issues and his steadfast dedication to bold objectives [6]. Within the entertainment industry, Shonda Rhimes has become a trendsetter. With successful programs like "Scandal" and "Grey's Anatomy," Rhimes has revolutionized television narrative. Her dedication to promoting varied representation and her readiness to take on challenging social problems via her work has brought her to a position of prominence in the creative sector's fight for inclusivity [7].

The mysterious street artist Banksy has gone beyond the bounds of traditional art. Conventional ideas about art and its place in society are challenged by his politically motivated and socially conscious works. Because of his anonymity, Banksy's artwork has an air of mystique, transforming the sidewalk into a platform for provocative commentary. Chinese modern artist and activist Ai Weiwei utilizes his artwork as a vehicle for social and political criticism. His writings frequently question the established quo and tackle subjects like migration, censorship, and human rights. Ai Weiwei is a prime example of the way art may serve as a potent force to effect change and a starting point for conversations about important global concerns [8].

Education is essential in the twenty-first century for developing creative brains. The emphasis on critical thinking, solving issues, and multidisciplinary approaches is changing in traditional education systems. Programs that support Art (Science, Technology, Engineering, Art, and Mathematics) education acknowledge how information is interrelated and help students develop a comprehensive perspective of the world [9]. Environments that promote experimentation and taking risks foster the growth of creative minds. Aspiring creatives can realize their ideas with the help of financial options, mentorship programs, and supportive communities. Establishing conditions that support innovation and creativity is a critical function for corporations, non-profit organizations, and governments [10].

As technology develops, ethical issues become more and more important. It might be difficult for creative brains to strike a balance between innovation and moral obligation. Careful thought must be given to matters like data privacy, the ethics of artificial intelligence, and the effects technology will have on society to guarantee that innovation advances humanity. Environmental concerns have grown in importance in the twenty-first century [11]. It is the chance and duty of creative minds to tackle environmental issues with novel solutions. The future may be more sustainable with the help of creatives, from renewable energy solutions to eco-friendly design.

The world is always changing, and the architects of tomorrow are the creative minds. The convergence of innovation, art, and technology in the twenty-first century has produced a new generation of intellectuals who push boundaries and rethink what is conceivable. Moreover, the university experience is not limited to the confines of lecture halls. Clubs, organizations, and extracurricular activities operate as incubators for innovation while promoting a sense of belonging and teamwork.

Students are encouraged to pour their creative instincts into tangible projects in college, from student-led newspapers to avant-garde theatre plays. These endeavors add to the colorful fabric of campus life in addition to giving people a way to express themselves. In the age of the

internet, college students are using technology as a catalyst for their creative development. Digital platforms, social media, and the internet provide hitherto unseen opportunities for idea exchange, peer collaboration throughout the world, and creative work exhibitions. By using these tools, students can create an online community that extends beyond physical boundaries and increases the effect of their creative work. The convergence of creativity and technology in higher education, from developing cutting-edge software to creating multimedia art displays, is evidence of the flexibility of the contemporary student. Moreover, social activity and lobbying are common outlets for college students' creative spirits.

Creative ideas and projects center around issues like equality, social justice, and climate change. Through the use of artistic expression, from protest art to documentaries, student-led movements, and organizations can make their voices heard and bring about change. Thus, the college campus becomes a microcosm of societal challenges, with students advocating for change while employing their inventiveness as a catalyst. In the exploration of artistic endeavors, teamwork becomes apparent as a fundamental aspect of college education. Interdisciplinary initiatives facilitate the exchange of ideas among students with varying academic backgrounds. The combination of ideas from several fields produces groundbreaking inventions and viewpoints that go beyond conventional disciplinary boundaries. College students' collaborative attitude improves the depth or breadth of their innovative work through hackathons, group research projects, and multidisciplinary lectures.

The study focuses on college students' inventive brains that are also unrestricted by traditional ideas of success.

On campuses, the entrepreneurial spirit flourishes as students, driven by a blend of creativity and economic aptitude, create and establish enterprises. Students can experiment and take risks in a safe setting at college, where they can learn from mistakes and hone their creative ideas.

College campuses serve as a breeding ground for the next wave of innovators and disruptors, from the Valley of Silicon Valley to entrepreneurial hotspots throughout the globe. In conclusion, college students' innovative ideas are greatly influencing the academic and cultural climate of their day. A creative environment can be found in college thanks to the combination of academic rigor, extracurricular activities, technology breakthroughs, and social involvement. Students that actively seek knowledge, cooperate across disciplines and use technology to express themselves creatively enhance not only their personal educational experiences but also the larger fabric of human ingenuity and advancement. Indeed, the innovators of a future characterized by diversity, inventiveness, and the unwavering pursuit of creative greatness are college students' creative brains.

## 2. LITERATURE REVIEW

J. Lee *et al.* [12] study examined the study and found that students' creative self-beliefs are transferable across disciplines and that creative learning experiences have a significant impact. Employing the Kaufman Areas of Creative Scale (K-DOCS), an aggregate of 764 first-year undergraduates reported three categories related to creative personal identification and fifty items of assessed creativity both before and after enrolling in a semester-long creativity program. Significant shifts in the five self-rated creative domains self/daily, scholarly, efficiency, mechanical/scientific, and artistic as well as in creative personal identity were shown by the findings.

The three student clusters the Wide, Focused, or Diffused groups and the two-time points interacted to reveal different patterns and degrees of change in each group. The study covered the crucial connection between conscious creative behavior in particular areas and creative

minds in general. Furthermore, the results confirmed that to foster college students' creative minds, curriculum creation for creativity courses needs to be both multidisciplinary and focused on certain fields.

D. Henriksen *et.al* [13] study examined the study that determined the benefits of creative learning opportunities and the cross-domain transferability of students' creative self-beliefs. During and after completing a semester-long creativity course, 764 first-year college students completed the Kaufman Dimensions of Creativity Scale (K-DOCS), which measures 50 items of self-rated creativity and three items related to personal identity. The five categories of self-rated creativity—self/daily, scholarly, performance, mechanical/scientific, or artistic—as well as major shifts in creative personal identity were shown by the findings. The three undergraduate clusters (Wide, Focused, or Diffused groups) and both time points showed different degrees and patterns of change, according to an interaction effect. The study covered the crucial connection between creative minds generally and the awareness of creative actions in particular fields. Furthermore, the results affirmed the necessity of developing interdisciplinary and field-specific creativity courses to foster college students' creative faculties.

E. Sola *et al.* [14] study examined giving students the information and abilities they need to tackle challenges in the actual world as the aim of an undergraduate design program. Employers greatly value innovation and analytical thinking as two skills necessary for achievement on the job. Nonetheless, there is proof that senior engineering students are becoming less creative and critical thinkers. The purpose of this study was to determine whether first-year engineering students have measurable higher levels of creativity than senior undergraduate learners in engineering but with lower levels of critical thinking ability. The Watson-Glaser Critical Thought Appraisal (WGCTA) and the Test of Creativity for Creative Thought-Drawing Product (TCT-DP) were used to test creativity and critical thinking, respectively. According to the statistics, first-year engineering students exhibited notably higher levels of creativity in comparison to their senior counterparts. Nonetheless, it was discovered that senior engineering students' critical thinking skills were no more advanced than those of their freshmen peers. The senior engineering students notably underperformed relative to the overall population of senior college students when compared with normative data. Considering the limits of the study, these results might indicate that senior students in engineering have lost some of their creativity as well as their capacity for critical thought since beginning their engineering degree. If this is the right conclusion, then we must comprehend the underlying problems that are causing engineering undergraduate students' critical thinking and creativity to deteriorate.

J. Dela Fuente *et.al* [15] study examined the goal of inclusive education to integrate children with special needs into the general education classroom in a way that maximizes their opportunities for holistic development. This objective is dependent on educators, who may create an inclusive learning environment by forming good morals, imparting information, and helping outstanding students acquire the skills they need to overcome obstacles in life. Using this viewpoint, the study records forty-three college instructors' experiences teaching inclusive classes to deaf students in one Philippine higher education institution. Four themes that provide light on the experiences of the participants are revealed by Colaizzi's descriptive phenomenological method to the coding and categorization of the responses from in-depth, one-on-one in-person, and online interviews. These topics are presented as opportunities to design a better future for deaf students, to engage in exciting teaching, and to challenge them to use their creative and inventive brains to develop instructional resources for successful, high-quality education. The qualities that have been highlighted can open the door to more successful inclusive education in Philippine postsecondary institutions.



S. Ghaia *et.al* [16] study examined the youth are discouraged from getting timely care for mental health issues due to the social stigma associated with mental health. This study aims to evaluate the acceptability and feasibility of an initial art intervention to lessen this stigma among Indian college students. Three sessions comprised the intervention, with the main objectives being i) psychological education, ii) creating art with a mental health subject, and iii) organizing a festival with a mental health theme to showcase artwork for a select audience. We evaluated acceptance after the intervention interviews and video recordings, as well as feasibility through the production of student-generated art. After completing the intervention, 371 participants produced 86 pieces of art, including paintings, puppet shows, dramas, dances, and poems. These pieces were shown to 434 spectators during a festival of artistic expressions focused on mental health called Connecting Hearts and Minds. Participants ( $n = 194$ ) self-reported comprehending the origins and manifestations of mental health issues, interpreting their experiences, and demonstrating empathy. Our pilot program involved young people and demonstrated the ability to lessen the stigma associated with mental health issues as well as address practical concerns about reaching all colleges equally.

The abovementioned studies do not explain about creative minds make a meaningful and constructive contribution to tomorrow's world, we must foster creativity, value diversity, and address ethical issues. The innovative brains that develop will remain the engine of advancement, inspiration, and change as we negotiate the challenges of the twenty-first century.

### 3. DISCUSSION

College students' creative minds are a vital and dynamic force that not only influences the intellectual environment of higher learning but also has a significant impact on innovation and societal trends. We go into the many facets of originality among college pupils in this in-depth conversation, looking at the motivating factors, the influence of the learning environment, the junction of technology, the function of teamwork, and the wider consequences of these creative endeavors. College students' creative brains are driven by a deep curiosity and an unquenchable quest for information. With its wide range of academic offerings, the college offers a rich environment for students to interact and investigate concepts that extend beyond their preconceived conceptions. The classroom is transformed into a dynamic environment where conventional limits are crossed and the groundwork for critical thinking is established. The germinating germs of originality are sown in this furnace of intellectual inquiry [17].

The capacity to go beyond the conventional method of instruction is one of the traits that distinguish creative minds in higher education. Though information acquisition is unquestionably crucial, creative students explore their subjects more deeply and analytically than through rote memorizing. Regardless of their field of study the humanities, sciences, or arts these students bring a zest for investigation to their studies, aiming to comprehend not just the where but also the why and how of the ideas they come across. Furthermore, students are encouraged to think seriously and express themselves fearlessly in the collegiate setting, which cultivates an awareness of intellectual independence. Students who feel free to question accepted ideas, pose difficult questions, and look for novel answers to challenging issues are more likely to be creative. College students' creative brains are stimulated by the rich fabric of intellectual debate that is created by the dynamic interaction between teachers, peers, and varied opinions [18].

Organizations on campus and extracurricular activities also support the growth of creative thinking. Students can turn their creative inclinations into actual initiatives through student-led publications, music festivals, art exhibitions, and theatre productions. These activities not only

give people a way to express themselves, but they also promote cooperation and a sense of community. The convergence of various fields and art forms produces a dynamic cultural environment that mirrors the diversity of viewpoints among university students. Technology has grown into an essential component of college students' creative environments in the digital age. Digital tools, social media, and the internet present never-before-seen chances for idea exchange, international peer collaboration, and creative work exhibitions. By using these tools, students can connect virtually and share their ideas with a wider audience, which enhances the effect of their work. The convergence of creativity and technology in higher education, from developing cutting-edge software to creating multimedia art exhibits, is evidence of the adaptability and inventiveness of the contemporary student [19].

Additionally, the digital sphere creates new opportunities for interdisciplinary collaboration, bringing students from many disciplines together to work on creative projects. Minds that would not have previously connected in person come together in virtual places. Because of this interconnection, there is a collaborative attitude among academics that goes beyond typical silos and produces ground-breaking discoveries. Furthermore, social activity and lobbying are common outlets for college students' creative brains. College campuses are becoming microcosms of society's problems, with students employing art to spark change and increase awareness. Creative ideas and projects center around issues like equality, social justice, and climate change. Through the use of artistic expression, such as protest art or documentary filmmaking, student-led campaigns can mobilize communities and make their views heard [20].

Collaboration plays a pivotal part in the college experience by augmenting the profundity and scope of artistic production. Interdisciplinary initiatives facilitate the exchange of ideas among students with varying academic backgrounds. The combination of ideas from different fields produces novel viewpoints and solutions that go beyond the confines of their specialties. College students' collaborative spirit adds to the variety of their creative endeavors, whether through hackathons, group research projects, or multidisciplinary seminars.

Furthermore, students who are driven by a blend of creativity and commercial aptitude create and launch firms on college campuses, which fosters a thriving entrepreneurial culture. Students can experiment and take risks in a safe setting at college, where they can learn from mistakes and hone their creative ideas. College campuses serve as a breeding ground for the next wave of innovators and disruptors, from the Valley of Silicon Valley to entrepreneurial hotspots throughout the globe.

In conclusion, college students' inventive brains play a critical role in influencing larger societal trends as well as the cerebral and cultural climate of their day. A creative environment can be found in college thanks to the combination of academic rigor, extracurricular activities, technology breakthroughs, and social involvement. Students not only enhance their individual educational experiences but also add to the larger fabric of human creativity and advancement as they pursue knowledge, cooperate across disciplines, use technology for innovative thinking, and take up social issues through advocacy.

Indeed, the innovators of a future characterized by diversity, inventiveness, and the unwavering pursuit of creative greatness are college students' creative brains. These students' artistic endeavors act as lighthouses, exposing new possibilities and encouraging future generations as they negotiate the intricacies of academics and society.

Their inventiveness has an influence that goes well beyond school boundaries, influencing cultural narratives, industry trends, and the development of a community that recognizes and embraces the creative spirit.

Within the ever-changing context of higher education, college students' creative minds are potent engines of innovation that propel societal transformation, creative expression, and intellectual discovery. To better understand the complex nature of creativity among undergraduates, this conversation will examine the various facets that characterize their inventive endeavors as well as the transformational effects they have on themselves and the larger community.

### *3.1 The Basis of Inquiry and Discovery:*

College students' creative brains are fundamentally driven by an unquenchable curiosity and a quest for information. Students are urged to go beyond the confines of traditional learning in college, which acts as a melting pot of varied academic subjects.

The classroom becomes a place where analytical inquiry and critical thinking are the cornerstones of creative expression. This fundamental curiosity encourages pupils to go beyond memorization and explore the nuances of the subjects they have selected.

### *3.2 Expression and Freedom of Thought:*

College environments allow students to think deeply and aggressively express their ideas, fostering a sense of mental freedom. This freedom acts as a spark for creativity, giving students the confidence to go against the grain, question received knowledge, and consider novel approaches to challenging issues. The dynamic exchange of ideas among educators, students, and differing viewpoints fosters an intellectually stimulating environment that inspires students' creativity.

### *3.3 Creative Catalysts Outside of the Classroom:*

Extracurricular activities like campus organizations are essential for fostering creative thinking outside of the classroom. Students can turn their creative inclinations into actual initiatives through student-led publications, music festivals, art exhibitions, and theatre productions. These activities give students a platform for self-expression as well as a sense of belonging and teamwork, which enriches their creative experience in general.

### *3.4. Using Technology to Spark Creativity:*

Technology has grown into an essential component of college students' creative environments in the digital age. Digital tools, social media, and the internet present never-before-seen chances for idea exchange, international peer collaboration, and creative work exhibitions. Technology and creativity come together to create multimedia art pieces and code cutting-edge software, demonstrating the adaptability and inventiveness of today's students.

### *3.5. Advocacy and Social Activism via Creative Expression:*

On college campuses, social activity and advocacy are popular outlets for creative minds. The convergence of creative and societal challenges serves as a central focus of interest for students who are driven to effect change.

Social justice, equity, and climate change serve as forums for innovative ideas and solutions. Pupils use art, whether it is protest painting or documentary filmmaking, to make their voices heard and effect constructive change in their communities.

### *3.6. Cooperation among Different Fields:*

As a key component of college life, collaboration enhances the scope and depth of creative work. Interdisciplinary initiatives facilitate the exchange of ideas among students with varying

academic backgrounds. The combination of ideas from different fields produces novel viewpoints and solutions that go beyond the confines of their specialties. College students' collaborative spirit greatly enhances the variety of their creative endeavors, whether through hackathons, group research projects, or multidisciplinary seminars.

### *3.7 Innovation and Entrepreneurial Activities:*

On college campuses, the entrepreneurial spirit flourishes as students combine their commercial acumen and creativity to develop and launch enterprises. Students can experiment and take risks in a safe setting at college, where they can learn from mistakes and hone their creative ideas. College campuses provide breeding grounds for the next round of disruptors and innovators, from creative projects to technological advancements.

### *3.8. Using Creativity to Shape the Future:*

In summary, college students' creative energies are not limited to academic endeavors; they also contribute to the future development of technology, culture, and society. A creative environment can be found in college thanks to the combination of academic rigor, extracurricular activities, technology breakthroughs, and social involvement. Students' creative pursuits become an inspiration as they travel through this life-changing experience, opening doors and advancing the development of a culture that recognizes and embraces the creative spirit. College students' inventive brains do indeed drive development, create lasting change, and have a profound impact on the world. These students make major contributions to the overall fabric of human success and advancement in addition to enriching their educational journeys as they explore, invent, and express themselves creatively. College campuses are vibrant ecosystems where students' creative brains thrive in a multitude of fields. Students participate in the creative arts via painting, sculpture, and technology, placing a strong emphasis on artistic expression. Vibrant theatre shows, dance performances, and bands bring the performing arts to life. Composing workshops, poetry crashes, and journalism projects are venues for literary activities. Students who launch their businesses and take on challenging problems in science and technology are also fostering innovation and entrepreneurship. Students are using environmental and social activism as powerful platforms for their creative expression, planning campaigns, demonstrations, and neighborhood outreach initiatives. Coding initiatives, app development, and designing graphics are examples of how creativity and technical skill may come together in the field of technology and design. Multidisciplinary cooperation produces ground-breaking projects, while linguistic diversity and cultural events add to the rich tapestry of artistic expression. In addition to influencing campus life, these varied expressions of creativity also add to the larger cultural fabric.

## **4. CONCLUSION**

In summary, college students' inventive minds are a great source of creativity, uniqueness, and intellectual diversity. This study emphasizes how important it is to create surroundings that promote and facilitate creative thinking in all academic fields. Prioritizing the growth of creativity is essential since colleges and universities are critical in forming future leadership and contributors to society. Teachers ought to adopt instructional strategies that encourage inquiry, critical thinking, and cross-disciplinary cooperation. In the end, colleges may help students become more adept at navigating the complexity of a constantly changing environment by identifying and utilizing the creative potential found in their students.

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## CHAPTER 4

### ETERNAL EMBERS: A CHRONICLE OF FIRE'S TIMELESS TALE

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#### ABSTRACT:

A Chronicle of Fire's Timeless Tale" encapsulates the mesmerizing narrative of fire as an elemental force and a symbol of both creation and destruction throughout history. The story unfolds as a dynamic journey, tracing the intricate dance of flames from the primal sparks that ignited the first hearths to the roaring infernos that shaped civilizations. This chronicle delves into the cultural, spiritual, and scientific dimensions of fire, exploring its roles in rituals, mythology, and technological advancements. An important issue in our thinking about learning is how we think about the nature of knowledge.

We treat information like the opposite of fire. We believe that every child is an empty vessel ready and prepared to hold the knowledge we are about to impart. They retain the information we give them until it becomes too much for them. Too much water can be irritating and cause discomfort and the child can't wait to fill his box at the nearest medical check-up. After that, it became cleaner and more organized. And the cycle repeats. Information is an amorphous thing, it constantly changes. A product that is not normal but is hungry and growing. Every child is born with a fire inside. Fire is conscious and alive. He seems to feed on whatever he can and the kids are always asking questions. We put out the fire because we were afraid it wouldn't work. The burning "Diya" is the symbol of knowledge. Prometheus stole fire from the gods and gave it to humans. Knowledge is fire It is important to look at knowledge and learning in this way. It's a simple change in the stories we can tell ourselves about education, and it can have a huge impact on how we feel about education and learning.

#### KEYWORDS:

Ceremony, Eternal Embers, Fire, Fascinating Element, School.

#### 1. INTRODUCTION

The History of the Eternal Story of Fire invites readers into the beautiful world of fire, describing it not as a vital force but as a living being with dragons. The story unfolds as an effortless journey, following the enchanting dance of fire, from the primal light that ignites the initial desire to the booming voice that leads to success throughout history.

These events are not related to the physical effects of fire. They touch on the cultural, spiritual, and scientific dimensions of this fascinating element. As the narrative progresses, fire's many roles are revealed, from a sacred figure in the ceremony to a powerful symbol woven into spirit literature. He crossed his living body to become a metaphor for creation and destruction and to embody the dual existence of all the powerful [1], [2].

Fire is both life-giving, providing warmth and health, and a harbinger of destruction that can turn civilization into ashes. Through this exploration, the narrative demonstrates the balance of fire, allowing the reader to think about the complexities of life. An important thematic theme runs throughout the narrative and prompts us to think about our knowledge and learning. The story draws on the comparison of materials and fire to challenge children's imagination as an empty vessel waiting to be experienced. Instead, he advocates for a change in perspective by arguing that all children are born with a desire to know and question. This fire metaphor, similar

to Prometheus stealing fire from the gods, symbolizes the nature of knowledge. Contrary to the traditional view that knowledge is a static place stored in the student's mind, narratives assume that knowledge is alive and constantly changing. It's an experience like being alive, being hungry and growing, seeking sustenance from curious children. The learning cycle is described as a continuous process of growth, change, and renewal, challenging the idea that children are constant recipients of messages. The burning "Diya" symbol, a traditional battery, appears as a powerful representation of knowledge in many cultures. It illuminates the path of understanding and symbolizes the honor of sending out the fire of wisdom.

The story of Prometheus, the legendary creature who stole fire from the gods and gave it to humans, supports the idea that knowledge, like fire, is a gift of encouragement and understanding. This narrative inspires change and asks us to look at knowledge not as a burden, but as something that pushes us forward.

The metaphor of fire challenges traditional education that seeks to extinguish the flames of compromised curiosity. It encourages an approach that nurtures children's curiosity and recognizes their ability to question and explore. Essentially, these systems lead to an argument for rethinking education as a revolutionary process in which the fire in each student is not extinguished but rather ignited. This story accepts the fire analogy and invites us to rethink the stories we tell ourselves about education. This simple change of perspective has a huge impact on our perspective and learning process; It promotes better understanding and understanding as well as the exchange of information. The story of the fire is intertwined with the search for an educational model that reflects the importance of vital force and the human quest for wisdom.

### *1.1.Meaning of the Ecosystem:*

School is the starting point for most of today's people. What they learn and how they learn during their formative years affects their cognitive development and impacts them throughout their lives. Once employed, these people continue to build and manage their communities, and the needs created in school determine their great potential [3], [4]. Nowadays, schools are not just organizations as they have connections with the government and other governing bodies related to education as a whole. Due to the influence of this complex system, which has been rigid and invisible throughout history, schools in the 21st century have not yet adapted to the needs of the changing world. They fail to meet the needs of today's students, leaving graduates with a gap between needs and abilities.

Teaching at school lacks the care and attention that children need. Many physical therapists do not realize the gravity of the learning environment and how much of an impact even the smallest amount can have on a student's cognitive and mental health. The poor evaluation system, high workload, and rigidity cause students to lose out on mental health education and create a bias towards education. This needs to change because education is a way of life and studying is better.

The ability to overcome obstacles and face problems. It is important to change students' attitudes towards learning because this will stay in their memory and help them. As a student torn between school life and business life, I was ready to understand the workings and processes of both jobs [5], [6]. I see the difference between what we are taught in school and what the professional class expects from us. I want to improve the education system in schools and how we can close this gap and put our lives in order. I believe that if all issues, from changing the "big picture" to creating the small details, are given the attention they deserve, we can create a

school education that supports students' abilities. A healthy education will develop mental and spiritual abilities to meet the needs of a complex world. A positive attitude towards research and intelligence will lead to student success. Therefore, they will have the tools to help them succeed at work and in society.

### *1.2.Modern and Ancient:*

Finnish Schools the Finnish education system is respected worldwide. Despite non-academic indicators such as the Citizen Happiness Coefficient, Finnish children consistently rank high in international rankings and indicators.

1. Better reading ability.
2. The concept of intelligence and equality is presented.
3. Faculty members are selected from among the best graduate students.
4. Teachers create lessons appropriate for students.
5. Learning is designed and unique for each student.
6. Play is important for learning.
7. Comparison and competition are non-existent
8. Edu-policy is designed and executed by academicians.
9. Teachers and students form long-term personal bonds.

### *1.3.Details:*

Reading is the first foundation of all further education. When the child is good at knowing the intricacies of the written word, the entire library of success is open to him. Half-day classes take place on the playground and teachers are also involved. Sports events. In Finland, teachers are carefully selected and very well cared for. Teachers have the freedom to innovate and use problem-solving skills to achieve students' learning goals [7], [8]. Often these children develop lifelong learning. Education is considered a fundamental right and every child is deemed worthy of a quality education. Equality and kindness are important values that exist in all schools and at all levels of schools. There is no standardized test and country, only the final exam must be taken during the high school year. The results of optional exams and regular class evaluations will not be made public. Grades are assigned to each student and progress is measured against individual standards [9], [10]. There are no perfect scores and there are no average scores. Only the top 10% of college graduates can apply for teaching jobs, and these people need a college degree as well as graduation. Teachers have the freedom to adapt learning to children's needs and often collaborate in the classroom. Teachers accompany students throughout the grade level and thus establish connections with students, allowing for deeper understanding and deeper learning.

### *1.4.Australian Schools:*

All schools in Australia are based on the National Curriculum and operate within its framework. The three-way teaching method is a good and modern education for the student class.

1. Students learn by working independently.
2. The course is standard and entry is free.

3. Focus on education, life skills, and cultural awareness.
4. Students are encouraged to do real-life work.
5. The course is constantly tested, modified, and updated.

Students are evaluated not by tests, but by the application of their knowledge. At every level and in every unit, teachers assist students with individual projects designed to transform lessons into positive outcomes. The curriculum is guided by three priorities taught together.

1. Regional training
2. General competences
3. Cross-curricular priorities

ACARA consists of a group of teachers, administrators, and writers responsible for developing the Australian curriculum. They follow a well-designed process, first setting goals and decisions, then writing the first draft. This lesson model has been tested in a small group of schools, and results and suggestions for changes are presented. There is a public comment period during which organizations and individuals from across the country can submit suggestions and recommendations. Once all details are taken into account, completed courses will be published online and schools will be encouraged to use these courses. The monitoring stage involves assessment and data collection which will be used to inform design for the next iteration of the curriculum.

### *1.5. Schools of Japan:*

In Japan, equal emphasis is placed on morals and ethics education which is considered on par with the other academic subjects.

1. Moral and ethics education is given importance.
2. Testing is grueling and methodical.
3. Students are given autonomy and responsibility.
4. Learning is largely rote-based.
5. Cultural values and interpersonal awareness are emphasized.
6. Impact is expected due to ethical standards and high labor standards.

Standard subjects such as mathematics, science, music, and physical education are taught, but ethics is a special subject with textbooks and time allocation. This is not the time to tell children what they should or shouldn't do, but rather to facilitate a discussion about morality; and how students will react to the situation. There are no right or wrong answers, just the opportunity to discuss the black, white, and gray areas just like in real life. The constant violent environment makes some students uncomfortable with learning [11], [12]. High-performance standards and rigid morals cause students to burn out and withdraw from society. There are no parents in Japanese schools. Students work in small groups to keep the school clean in many ways. Some mop the floor, some wipe the board, some sweep the floor, and some weed the garden. This is a team-building game that allows kids to hold each other accountable for their schooling and work together to complete tasks. Students prepare for sports, festivals, dramas, shows, and festivals. All of these practice sessions typically occur during the student's after-school hours. Although Japan has a good education system, it can be very narrow in terms of schools and exams. Students sometimes spend most of their studies trying to find the right path and get into



the right school. We are currently trying to reform the school to reduce stress on students. However, the Japanese people have great educational value, which led to the creation of a great culture and nation.

## 2. DISCUSSION

### *2.1. Nature of learning:*

The overuse of mind and thought and the neglect of thought arise from the "textualization" of knowledge and previous knowledge models. Textual experience is linear and fragmented; This is the only way the text can be edited. To understand the reasons for this change, Jinan conducted research in the following areas: creativity, education, children, knowledge, culture, beauty, indigenous knowledge, waste, sustainability, originality, wisdom, thinking, thinking, thinking, politics, ecological knowledge [13], [14]. The beauty of a society determines the culture of that society. When a nation or society loses its true beauty or its beauty is affected by external influences, it also loses its true culture. Classical literature in human culture was formed in this process. These are patterns that emerge when needed. Pyramids, tombs, ancient sites of world worship, folk art, music, and traditional healing are all being transformed by techniques different from those used today. These must be leaps of human intuition. In educational cultures, children are like other newborn animals. Nature has its way of growing them, and all the wisdom of adults around the world has been transferred to games, to the "toys" made by children. They explore the emotional world by interacting with nature and the natural world from their perspective. Emotions go both ways. If you want to know the outside, know the inside. 3 4 Jinan believes that wisdom will be recreated, recreated, and revisited every time a person is born. This will help humans and other animals live in harmony on Earth. To remind people of their connection with nature and to confirm the knowledge that all living things live a harmonious life.

### *2.2. Visible Learning and the Science of How We Learn:*

Visible Learning and the Science of How We Learn explains the basic principles and ideas of learning, explaining why it is difficult at times and easy at others. We are trying to improve our knowledge of topics we already know, not completely new topics. Even if we can make the experience different in a short time, it will affect our brain configuration. Reflection occurs when we become aware that gaps in knowledge may be interconnected and can think of ways to connect them.

The difference between a novice and an expert or teacher can be huge. In this context, more knowledge does not necessarily mean better teaching. As people acquire a skill, they begin to exaggerate the difficulty of that skill. Professionals can reduce the time it takes to acquire skills throughout their journey. The level of abstraction and use of common concepts may cause problems at the beginning of the work, but the final effect is not always negative. While you don't need to know everything, students still appreciate knowledgeable teachers and their ability to be competent, and knowledgeable, and will leave behind adults they believe are incompetent.

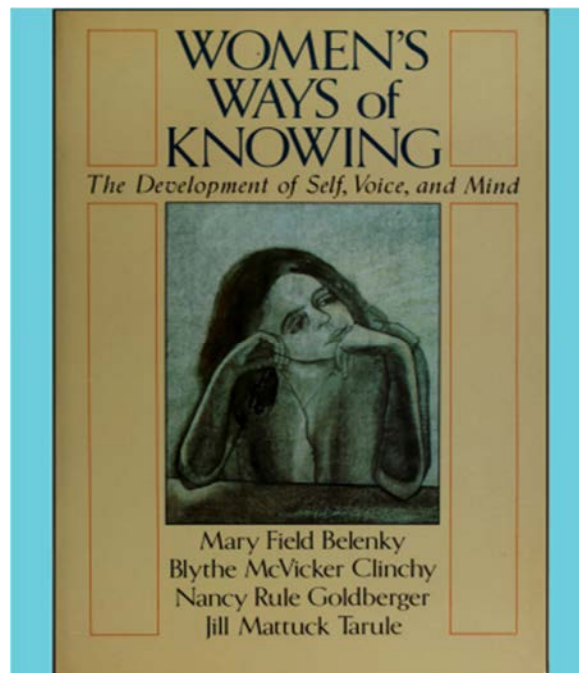
We can think of education not as the easy acquisition of knowledge, but as the transition from ignorance to knowledge. Our brains are not efficient and are not designed to think. In terms of memory access, we think that the difficulty of recalling a memory determines its value or preciousness. Since words will be difficult to remember, they will be less effective in influencing a person's emotions.

### 2.3. Good Teacher-Student Relationships:

Early in life predicts lower rates of externalizing and antisocial behavior and also helps prevent students from experiencing incipient internalization (anxiety, psychosis), creating long-term behavior problems. Significant improvements in student achievement do not occur immediately but typically occur after a year of integrating a safe learning environment into a structured community, security, and work environment for students. The effect is not immediate but delayed. Friendship and conflict are two aspects of the teacher-student relationship. If students want to be close to their teachers, they will show a positive change in the school environment [15], [16]. If the goal is to treat a child with problems, then building relationships and relationships will be difficult. There is a danger of swift sentencing. Negative thinking occurs when motivation is unrealistic and easily found by students. Towers and other strict controls can ensure student compliance. This often leads to many negative emotions such as anger, resentment, resentment, etc., which cannot lead to a good attitude towards learning. Authentic relationships with teachers can influence and disrupt negative relationships in the home environment. A relationship with a teacher can turn a negative into a positive. Every child needs a significant adult in their life who shows them that they are well cared for.

### 2.4. Smell of fire:

Women benefit from initial observation and manual work. They have difficulty internalizing abstract concepts that are not independent of context. Women cannot define the problem clearly but decide when it changes the whole experience and its importance. Many women graduated and thrived in "men's" courses, but they said it never "took root". Many important lessons in a woman's life come from childhood and upbringing. Many women talked about the many rare, little things they learned in the process of caring for their children. It is visceral, sensory, interpersonal learning that is too much to express in simple words. Figure 1 illustrates the Education Inclusive of Women's Input and Experience. Referencing Women's Ways of Knowing.



**Figure 1: Illustrates The Education Inclusive of Women's Input and Experience. Referencing Women's Ways of Knowing.**

However, some women return to higher education after spending much of their lives struggling to stay organized and gain insight into the many small and productive subjects they encounter. Women need knowledge as a source of knowledge and skills. They need validation of their prior knowledge to support their learning attempts. It reaffirmed their existence and they gained the confidence to ask more questions. The cultural experiences made by teachers' "old" and "low" students seem to fall within the theoretical platform of men and require women to also leave some experiences as known. Every woman needs validation and recognition that she can think. The wealth of raw experience, when affirmed, can liberate a woman, and make her feel strongly motivated and confident [17], [18]. Unlike with men, where a gilded community and affirmation of thought and knowledge come at the end of their educational journey, it would benefit women best if they were prerequisites from the onset, i.e. beforehand. Women do not require blatant confirmation for the sake of praise. In many cases, such praise especially from male teachers and colleagues can be seen as an action with added intent. In these scenarios, teachers must be extremely careful and draw clear boundaries.

### *2.5. Freedom vs. Structure:*

There is no serious work on education. When school is too bureaucratic, impersonal, and structured, it can rob students of their agency and ability to think. It may desensitize them and distract them from their original purpose, but ironically this is because of the model itself. On the other hand, too much independence and freedom can lead to depression (especially when students move from a more challenging environment, which is often the case). Getting up off the floor can paralyze their movements and prevent them from learning. The best option seems to be a relatively free, autonomous structure, but with steady, supportive, and sincere (personal) guidance which can scaffold their learning when they inevitably stumble on a block, while navigating an unknown, unstructured curriculum. When there is an excessive structure in a curriculum, it works more like a methodical conveyor belt, which just passes the student through the motion, instead of equipping the student/ helping them learn what they need. It robs them of the ability to make choices [19], [20]. An issue for 'good girls' is that they have been raised since birth to obey and follow the convention. They've been conditioned to believe that the system will provide. So, in cases of excessive rigidity, 'good girls can find it hard to break free, even if they know it's doing them harm. Because at this point, subverting the system is tied to even such concepts as religious morality. An issue with excessively free settings is that the teacher and students may fall into self-indulgence and a lack of seriousness, usually resorting to personal stories and daily trivia. Students' issues with free-form classes are many a time, due to the teacher forming it. There is a need for a robust set of social guidelines in such settings, to revert and sustain the attention on the core, pervasive task of learning.

### *2.6. Knowledge as the builder of the Self:*

Silent women perceive words as weapons. It is used only by men. Their sense of self does not develop into a self-concept because they grow in isolation and without communication. This makes women passive and inactive. Play and conversation are important for building your inner voice. Constant exposure to external dialogue eventually develops into an inner voice that uses metaphors to represent identity and abstract concepts. To deny this in anyone hinders the development of self-awareness. Such people can only think about reality and live in the moment. They cannot hypothesize or generalize probabilities. This type of person thinks bipolarly and cannot deal with gray areas. These women feel disconnected from knowledge and wisdom, unable to form their own opinions, worthless and dependent, and pursue authority and elders old enough to survive. Women see knowledge as having a say. This is in contrast to visual metaphors such as "seeing," "seeing," and "mind's eye," which are abstract and abstract

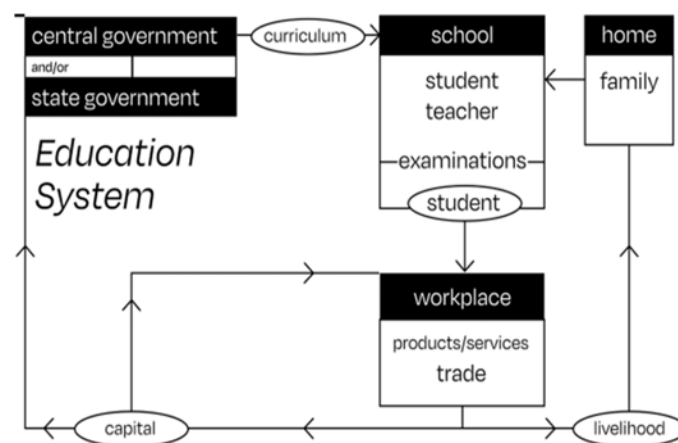
concepts. Understanding through listening and speaking means personal involvement in knowledge creation, self-interest in content and topics, and mutual discussion.

### 2.7.Observation and discussion:

Thoughts and experiences of many students and graduates in university education. Being in school/class is also affected by factors such as work history and having extracurricular options hobbies and sports Come to our theme. Many people draw, paint, and do crafts. There are also sports such as theatre, drama and dance. Getting a sports education is easy, and depending on the location and importance of the school, sports are an important part of a student's life. Reading novels and playing video games is a hobby. These methods are more about eating, responding, and thinking about concrete pleasures. Against productive arts and meat. The results were different in terms of real-life application of what was learned. Depending on the job, training may not be helpful. But there is a clear understanding that education is not the only way to be successful and make money. I found that learning and organizational skills were also mentioned in the training content. Giving more importance to art in schools than in primary school will benefit those working in the field of creativity. While many of these are learned through practice and need-based (in design school one relearns to use images), other interesting answers relate to communication, thinking, and personal relationships. Curiosity and mental health also need to be developed. These are the main points that will have global consequences.

### 2.8.Interview with students:

A 15-year-old boy talks about his school and lifestyle and talks about his goals and ideas about education, happiness, and success. He hopes that school will give him life: improve his skills and introduce facts and truths about the world. How to manage your time and attention, how to work with a team, and how to get things done on time. If we take into account the flow and transfer of information from its source to the desired location, we get a bigger picture of the importance of education today. Judging by the process and curriculum, information is presented through verbal communication at school. Students must remember and memorize facts. Memory quality is measured by tests. The university model is generally similar to the university education model, except that there is more freedom to choose courses, and detailed information about the content is provided. Figure 2 illustrates the Larger System, The Results of Learning, Are Ultimately Applied toward economic Output.



**Figure 2: Illustrates The Larger System, The Results of Learning, Are Ultimately Applied toward Economic Output.**

Many universities accept students into their pathways, but students who graduate from traditional university studies often do not transition quickly throughout their academic careers. At the same time, students move back and forth between school and home, where hierarchies and more exist. They are influenced by their parents' views on education and training, as well as their parents' occupations and professions. After graduating from university, graduates enter the job market as new employees. They apply for jobs that match their interests. As office workers, they use their knowledge and skills to achieve similar goals, thereby improving the organization's results and the quality of its products. Income creates income and capital. Some are reinvesting in organizational development. The income is paid to employees who use the money for household expenses. Capital is transferred to the government through taxes. These funds help sustain and support education, business, and existing businesses. If a student achieves a task or goal, the ultimate reason for learning is to complete the task or achieve good results. These skills gained, ultimately inform the learner's choice of vocation/profession. When one learns for learning's sake, they tend to learn with the intent of complete and accurate memorization of facts. They aim to preserve this information to prolong the system of information itself. Academics later go on to teach and conduct research, spread information, and formulate new knowledge within their specific field. When learning is done based on curiosity and interest, it is done for the greater intent of understanding the world around the learner. Usually, this involves the types of knowledge important for the learner's region and social context. Figure 3 illustrates the Learning Proceeds, Our Human Propensities Steer Us Towards the Particular Types of Education.



**Figure 3: Illustrates The Learning Proceeds, Our Human Propensities Steer Us Towards the Particular Types of Education.**

As students learn and retain information, they become active in their thinking. Ideologies of identity, and race, need to continue to influence career choices. Social learning involves learning to be part of a group and forming friendships and relationships. The more people learn to be members of a social group, the higher their qualities. These people often become mediators and connectors who are good at bringing others together. The social communities they form influence their career choices. For reference purposes, we refer to all types of sports, physical activities, video games, competitions, and educational games as games; When someone learns to play, they do so for personal enjoyment or to compete. If a competitive route

is chosen, this may affect the student's career choice. The intersection of these different learning styles is work and study. The purpose of business participation is also to earn money or acquire one's skills in work and skills, which ultimately brings comfort, happiness, and happiness.

### *2.9.Design Brief:*

The main beneficiaries of this solution are the potential students of primary and secondary schools in India. The nature of the solution will seek to be flexible and adaptable by region or state, with the ultimate goal of accommodating all students regardless of learning ability, language, or economic class. Every generation of students needs education about their background and problems. The way violence is taught and the way violent and unethical behavior is measured prevent students from engaging in learning and thinking. Lack of guidance and information in schools further increases social/cultural problems. Graduates are challenged to place a round-peg school education into a square-hole job skills-based environment. They feel disengaged, uninterested, unmotivated, and unsatisfied. These issues can be addressed in higher education by focusing on developing students' thinking and skills. I want to create a way to enhance the learning process and make it fun and exciting with goals and challenges.

This approach will help create exciting learning situations and encourage learning from content relevant to today's youth in a personal and transformative way. Real-world relationships and collaborations will be affected by learning defined this way. The results of the students will be valuable products in the world with the importance of creating the necessary skills and self-awareness.

The approach will help students understand the social, cultural, and moral aspects of their peers and communities, while also encouraging self-evaluation and self-awareness. Comprehensive support and guidance will be provided in areas such as mental health, social integration, self-motivation, and confidence. A new approach to education where students and their learning are at the center of the entire process. Learning and discovery will continue beyond basic concepts and disciplines into the real world, hands-on experiences, and careers. The focus would go towards encouraging students to be self-motivated, self-critical learners and knowers of things, with equal importance given to coordinating a rich and constructive social environment. This method would aim to represent faithfully the immediate surrounding region.

### *2.10. A Synthesis of Solutions:*

Exploring questions and gaps in education by supporting children in building their content. Film-making is multidisciplinary and trains people to perceive the nuances of human life and explore diverse experiences and layers of culture, from macro to micro. Games are universal, and approach learning and problem-solving in a way that resonates with people like no other. Games develop thinking, attitude, and social aspects of a child [21], [22]. A global policy that emphasizes the integrity of knowledge and skills and reasserts the vision of achieving these goals.

A network that connects young and ambitious people with the real jobs they want. To provide young people with ongoing, self-directed development that focuses on improving their lives while giving them full control and independence. The key to improving our education is that truth and triviality do not matter for important traits such as curiosity, imagination, and multidimensional thinking that are necessary for the various disciplines of our world. In Figure 5 shown the Bridging the Gap Between Learning and Application, Immersing Middle School Students in Work Experience.





**Figure 5: Illustrates the Bridging the Gap Between Learning and Application, Immersing Middle School Students in Work Experience.**

Directly support children's development by helping them find good jobs in fields they love. This is a fast and effective way to bridge the gap between learning and actual practice. It also offers options for children. To provide young people with ongoing, self-directed development that focuses on improving their lives while giving them full control and independence. The key to improving our education is truth, and trivialities are not as important as important traits that are essential to the various disciplines of our world, such as curiosity, imagination, and multidisciplinary thinking. Directly support children's development by helping them find good jobs in their areas of interest.

It's a fast and effective way to combine the impact of learning with real-world performance. It also provides authentic, one-on-one guidance that focuses on each child's background, helps them embrace diversity, and supports them in setting goals and solving problems in their lives. Help teachers transform individual learning into a coherent learning experience. Creating multidisciplinary, multimethod challenges can foster deep learning for students and teachers. The process of developing the knowledge, feelings, and thoughts taught to teachers will leave students in uncertainty.

Teachers can be just as flexible and are important stakeholders in the learning process. Helping them become mentors will help them return to their lives in a fresh and fun way. Quizzes and exams are the sweet spot in the middle of the learning process and are often seen as the end goal.

### 3. CONCLUSION

In conclusion, "A Chronicle of Fire's Timeless Tale" artfully weaves the captivating narrative of fire as an elemental force, exploring its multifaceted role in shaping human history.

From the primal sparks that ignited the first hearths to the roaring infernos that molded civilizations, the chronicle delves into the cultural, spiritual, and scientific dimensions of fire. However, the narrative takes an unexpected turn, drawing a thought-provoking parallel between fire and knowledge.

The conventional view of knowledge as a vessel to be filled contrasts sharply with the dynamic nature of fire, which is conscious, alive, and constantly changing. This shift in perspective challenges the traditional notion of education, urging us to see knowledge as a living entity akin to fire's hunger and growth.

The metaphorical comparison between the burning "Diya" and the symbol of knowledge reinforces this idea, harking back to the ancient myth of Prometheus stealing fire from the gods to bestow upon humanity.

Embracing this perspective can revolutionize our approach to education, encouraging us to nurture the innate curiosity and questioning spirit within every child, recognizing that knowledge, like fire, is a dynamic, ever-evolving force that should be kindled rather than confined.

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## CHAPTER 5

### EXPLORING THE ROLE OF INTERACTIVE GAMES IN ENHANCING SUSTAINABILITY EDUCATION: A COMPREHENSIVE REVIEW

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#### ABSTRACT:

This study delves into the intersection of gaming and sustainability education, aiming to uncover the potential of games in promoting transformative literacy and addressing complex challenges related to climate change, urban planning, energy systems, circular economy, and more. The study begins by providing a comprehensive overview of sustainability, emphasizing the triple bottom line and the UN's Sustainable Development Goals as guiding frameworks. It then explores the intricacies of climate change, emphasizing the urgency of combating it through transformative literacy. The review focuses on the significant role of games, particularly serious and simulation games, in conveying sustainability concepts. Highlighting the intersection of games and climate change, the study outlines the objectives commonly associated with climate change games and their potential impact. It also discusses the importance of reorienting lifestyles towards sustainability and the educational challenges involved in transforming human attitudes and behaviors. Furthermore, the research examines how gamification influences user engagement in mobile healthcare applications and assesses the applicability of a game-based learning approach in undergraduate mechanical engineering education. The study also explores the creation and validation of learning interventions based on Information and Communication Technologies (ICT) for sustainability content, offering insights into cognitive and affective aspects. Furthermore, the review explores representative commercial video games and their potential to simulate scenarios of resource scarcity, promoting sustainable practices. The MIT Sloan School of Management's interactive web-based simulations are discussed as valuable tools for imparting essential principles in business, strategy, and sustainability. This comprehensive review emphasizes the diverse applications and potential benefits of incorporating games into sustainability education. It underscores the importance of games in fostering experiential learning, enhancing personal engagement, and promoting sustainability concepts engagingly and effectively. The findings contribute to the evolving field of sustainability education, advocating for the integration of games as potent instruments for addressing global challenges.

#### KEYWORDS:

Education, Games, Sustainability Social.

### 1. INTRODUCTION

Sustainability involves the capacity to persist, protect, and foster, encompassing the recognition, cultivation, and advocacy of sustainable perspectives, behaviors, and regulations to support a thriving natural ecosystem while ensuring economic viability and societal accountability. The fundamental tenet of sustainable development is the pursuit of universal well-being and prosperity while safeguarding the natural environment. To successfully attain this objective, policymakers and development agencies must understand the inherent trade-offs in different facets of development. These trade-offs may either hinder endeavors to preserve biodiversity and ecosystem services or, conversely, lead to synergies that enhance environmental well-being. The contemporary framework for sustainable development is

encapsulated in the triple bottom line and the United Nations' 17 Sustainable Development Goals. Environmental challenges encompass global climate change, ozone depletion, habitat loss, biodiversity reduction, changes in surface water chemistry, precipitation acidity, soil degradation, herbicides, visibility issues, and pesticides, photochemical smog, groundwater pollution, radionuclides, toxins in sludge, sediments, oil spills, and hazardous waste sites. Social opportunities within the sustainable development context involve addressing issues such as hunger, and poverty, and providing access to good health, education, gender equality, affordable housing, energy, water, peace, justice, and a safe environment. Economic inclusion is achieved through initiatives related to decent work and economic growth [1], [2].

### *1.1. Climate Change*

Climate change encompasses prolonged alterations in temperatures and weather patterns, which may arise naturally, including variations in the solar cycle. However, since the 1800s, human activities, particularly the combustion of fossil fuels like coal, oil, and gas, have emerged as the primary catalysts for climate change. The burning of these fuels releases greenhouse gases, forming a thermal barrier around the Earth that traps the sun's heat and elevates temperatures. This phenomenon presents significant challenges for humanity, impacting the warming of the Earth's system and affecting both societal and natural systems [3].

### *1.2. Combatting Climate Change*

To confront the challenges of global warming and adhere to international climate targets outlined in agreements like the Paris Agreement and the United Nations' Sustainable Development Goals, urgent and substantial measures must be taken. This entails a profound societal shift, necessitating diverse forms of knowledge to address climate-related issues. Societies are urged to cultivate "transformative literacy" in a transdisciplinary fashion, enabling them to acquire, comprehend, reflect upon, and apply knowledge from various interconnected dimensions, encompassing technological, economic, cultural, and institutional aspects. Effectively implementing such transformative change demands a deeper understanding and broadening of knowledge related to the goals of the transformation (target knowledge), the system to be transformed (system knowledge), and the methods for executing the transformation (transformation knowledge), along with appropriate tools.

Understanding what is effective and ineffective in addressing climate change is crucial. Pervasive yet incorrect mental models about climate change and its dynamics present a hurdle to meaningful climate action.

Research indicates that these misconceptions can lead to inappropriate decisions, and they do not solely result from inadequate training or unfamiliarity with climate science. Consequently, merely providing more information about climate change is insufficient for correction. Hence, there is a growing demand for alternative and interactive approaches that can effectively convey the complexity of system transformation to enhance transformative literacy.

The intersection of games and climate change is noteworthy. Climate change games typically aim to achieve three key objectives: impart knowledge and familiarity with climate change issues, raise awareness of the challenges associated with global warming, and motivate players to devise solutions. Additionally, these games serve as safe spaces for innovation, allowing interactive exploration of alternative climate futures. They contribute to building the capability and capacity to address challenging problems while fostering public engagement and socialization of adaptation strategies [4], [5].

### *1.3. Comprehending Climate Change*

Cities and their urban environments are increasingly confronting challenges such as population growth, the impacts of climate change, and rapid urbanization. Numerous water systems in urban areas of developed nations across Europe and North America, established many years ago, are inadequately equipped to cope with contemporary pressures. Overlooking the restoration of these systems may lead to significant issues in the upcoming decades, including shortages in water supply, subpar water quality, pluvial flooding due to insufficient capacity to handle intense rainfall associated with climate change, increased risk of fluvial flooding from dike failures, heightened pollution of surface water bodies, and degradation of ecosystems, among other concerns. Ensuring the resilience and sustainability of urban water systems necessitates a shift towards a water-sensitive city—a city that serves as a water supply catchment, provides ecosystem services, and encourages water-sensitive communities. This involves moving away from traditional urban water management methods and implementing a substantial technical revamp by embracing innovative alternatives, such as decentralized water supply and wastewater solutions, utilizing stormwater and wastewater as resources, and integrating water to alleviate heat stress, among other strategies. Nonetheless, this transformative planning process is complex and comes with various challenges. Long-term planning involves multiple stakeholders, each with distinct objectives, values, and perspectives on the issue. These stakeholders encompass water utilities, municipalities, non-governmental organizations, government agencies, water boards, consultants, civil society, researchers, and more. Their diverse objectives for urban infrastructure planning, ranging from cost-effectiveness and safety to health and well-being, necessitate the exploration of alternatives that effectively address multiple goals [6], [7].

### *1.4. Urban Energy Systems*

The significance of urban energy systems is growing, contributing to the development of a cleaner and smarter energy infrastructure. It is increasingly crucial to improve consumer awareness of their connection to energy systems and motivate them to play proactive roles in energy management. Interactive games hold promise in involving consumers in sustainable energy practices by demonstrating intricate system dynamics through simulation-based experiences, highlighting the importance of understanding these systems.

### *1.5. Circular Economy*

A circular economy is characterized by markets that encourage the recycling of products instead of their disposal and the extraction of fresh resources. In this economic framework, various forms of waste, such as clothing, scrap metal, and obsolete electronics, are reintegrated into the economy or utilized more effectively [8], [9].

### *1.6. Addressing Complex Challenges*

Addressing challenges of this complexity necessitates solutions at a corresponding level. It is crucial to fully grasp the consequences of global warming, and humanity must proactively take action. Despite ongoing efforts toward this goal, the challenge persists. Tackling the impacts of climate change on humanity requires innovative approaches. Well-designed games have proven to be powerful tools capable of helping overcome climate-related challenges. Shifting 21st-century lifestyles and work practices toward the triple bottom line of people, planet, and profits is essential. The primary educational challenge facing the world today involves facilitating a change in human attitudes and behaviors, particularly by informing, motivating, and reshaping the perspectives of current and future generations toward sustainability challenges threatening life on our planet. Widespread misconceptions about climate change



and associated dynamics impede effective climate action. It has been demonstrated that misguided mental models can lead to inappropriate decisions, not necessarily due to a lack of training or unfamiliarity with climate science. Therefore, correcting these models goes beyond providing more information; instead, alternative and interactive approaches that convey the complexity of system transformation are crucial to enhance transformative literacy. Scholars recommend the use of simulations and serious games as ideal tools to address this challenge. While traditional instructional methods may excel in promoting student recall and comprehension, simulation-based learning excels in engaging students, fostering higher-order thinking, and promoting the retention and transfer of actionable skills. Research even suggests that such games offer advantages over other active learning methods in subjects where skill development and knowledge transfer are paramount. Recognizing this potential has led to the development of sustainability games tailored to address sustainability challenges in educational settings. A recent research review emphasizes the growing proliferation of simulations and serious games related to 'sustainability' topics [10], [11].

### *1.7. What significance do games hold in the realm of (climate) education?*

Within this context, games have proven to be an effective avenue for facilitating experiential learning and enhancing personal and emotional engagement among participants. Educational games, including serious and simulation games, offer distinct advantages such as focusing on essential system elements through purposeful abstraction, providing a condensed experience of long-term developments, uncovering both intended and unintended interactions along with side effects, and fostering a comprehensive understanding of complex systems through "gestalt communication." Consequently, these games make intricate and interconnected problems tangible, making them particularly applicable in addressing environmental issues and promoting sustainable development.

Moreover, games have the potential to serve as a bridge between scientific findings and public understanding, influencing behavioral patterns related to climate action. Considering the evolving role of video games, they have become not only sources of entertainment but also educational, communicative, and social tools, especially among the younger generation. These games facilitate the acquisition of various skills, abilities, and values, exposing players to diverse environmental situations and ecological challenges first-hand. The logical, ontological, and structural models embedded in gaming contribute to a profound comprehension of the experiences they portray. The allure of games as pedagogic spaces lies in their ability to engage players and internalize empathy toward the environment.

This study explores the intersection of sustainability, climate change, and education. The study advocates for transformative literacy, particularly through alternative and interactive approaches like serious games, to enhance understanding and address the complexity of system transformation. The role of games in climate education is highlighted, with a particular emphasis on their effectiveness in conveying knowledge, raising awareness, and motivating players to devise solutions. The study discusses the challenges faced by urban water systems and the necessity of transitioning to water-sensitive cities for resilience and sustainability. The literature of the previous study is discussed in the literature review section. The discussion extends to the use of gamification in promoting pro-sustainability behaviors, exploring its applications in various formats such as board games, electronic games, and smartphone apps. The study presents case studies that investigate the perceived educational value of video games in secondary education, the influence of gaming avatars on sustainable lifestyles, and the impact of gamification on user engagement with mobile healthcare applications. Finally, the study ends with a conclusion section that explains the outcome and future of this study.

## 2. LITERATURE REVIEW

Jain R. et al. [12] explored the integration of game-based activities in engineering classrooms to enhance student interest in Science, Technology, Engineering, and Mathematics (STEM) fields, with a specific focus on sustainability education. Drawing on meta-analytic research supporting the effectiveness of gamification in learning, the study introduces interactive game-based modules implemented in the U.S. and India. The goal is to broaden engineering students' perspectives on sustainability by contextualizing its importance, exploring interrelated Sustainable Development Goals (SDGs), and understanding the impact of entropy and daily actions on sustainability. The study employs surveys, minute studies, and thematic analysis to assess student perceptions, revealing that students enjoyed the games, appreciated peer learning, and gained a deeper understanding of sustainability concepts and their interconnectedness with SDGs.

Oberer B. and Erkollar A. [13] explored the potential use of digital games to enhance sustainability education, employing a deductive, qualitative research methodology. The investigation centered on a document analysis of selected digital games utilized in education, with the aim of revealing key factors contributing to the effectiveness of digital games in teaching sustainable subjects. The findings suggest that digital games can function as a valuable tool for sustainability education, providing an immersive and interactive learning experience. The study also delved into the transferability of skills and experiences from the game to real-life scenarios. While acknowledging the potential benefits, the research addressed implications, challenges, and opportunities associated with games-based sustainability education, emphasizing the need for further research to determine the optimal integration into educational curricula and assess the long-term impact on sustainability knowledge and behavioral change.

Sharma U. and Stewart B. [14] explored the potential of digital games in enhancing sustainability education through a deductive, qualitative research approach. The focus is on analyzing selected digital games used in educational settings to uncover key factors contributing to their effectiveness in teaching sustainable topics. The findings reveal that digital games are valuable tools for sustainability education, offering engaging and interactive learning experiences. The study also investigates the transferability of skills and experiences from the game to real-life situations. While recognizing the potential benefits, the research addresses implications, challenges, and opportunities for integrating games into sustainability education. It underscores the need for further research to determine the optimal incorporation of digital games into educational curricula and assess their long-term impact on sustainability knowledge and behavior change.

Hermann R. and Bossle M. [15] explored within the realm of sustainability education is the oversight in incorporating entrepreneurial skills into essential competencies such as foresight, complex problem-solving, and interdisciplinarity. While prior studies suggest potential links between sustainability and entrepreneurship education, they lack practical strategies for implementation. To bridge this theoretical-practical divide, our study addresses the question: How can entrepreneurial skills be seamlessly integrated into higher education sustainability programs? We present a teaching framework developed through a bibliometric approach, merging topic modeling with content analysis of selected articles, highlighting shared features of both educational domains. Our findings introduce a sustainability education program with an entrepreneurial focus, outlining educational emphasis, teaching-learning approaches, key themes, and external collaboration. The framework advocates for sustainable development in educational programs, implicitly tackling intricate community issues by proposing solutions that redefine the interplay among businesses, consumers, and sustainability concerns. These outcomes contribute to sustainability education literature by harmoniously incorporating the

development of entrepreneurship competencies into interdisciplinary programs. Moreover, the framework serves as a practical guide for designing courses at both undergraduate and graduate levels that effectively merge sustainability and entrepreneurship.

Al-Hazaima H. et al. [16] investigated were the perspectives of stakeholders in Jordan regarding the integration of sustainability education into accounting curricula at the tertiary level. Grounded in Stakeholder Theory, the study employed a questionnaire survey, developed from existing literature, to explore five essential aspects of sustainability education integration in the Jordanian context. These aspects encompassed the potential role and utility of sustainability accounting education (SAE), the alignment of SAE with the objectives of higher education institutions in Jordan, the most effective methods of SAE integration, and the suitable SAE topics for inclusion in curricula. The study engaged with five distinct stakeholder groups in Jordan: accounting educators, accounting students, industry professionals, government employees, and accounting practitioners. Utilizing a convenience and snowballing sampling method, the research collected 702 questionnaire surveys for analysis. The analytical approach involved descriptive analysis, t-tests, one-way ANOVA, and LSD post-hoc analysis. Responses were assessed using the Likert scale, allowing differentiation between answers from educators and students in private and public universities in Jordan. The data holds relevance for understanding the significance of SAE in emerging economies like Jordan. The findings have implications for policymakers, accounting educators, government representatives, industry professionals, and accountants in Jordan, intending to guide the development of educational solutions by incorporating SAE, promoting higher value, and contributing to advancements in both the accounting industry and the overall economy.

Kinoshita A. et al. [17] implemented a sustainability education initiative concentrated on urban sustainability for university students in the Jakarta Metropolitan Area (Jabodetabek), Indonesia. The effectiveness of the initiative was subsequently assessed through questionnaire surveys. The educational materials encompassed a case narrative and a scenario analysis report addressing urban sustainability. The case narrative portrayed a fictional story illustrating sustainability challenges in Jabodetabek, with the head of the local urban planning bureau as the central character. The scenario analysis outlined three hypothetical scenarios concerning land-use patterns and projected sustainability indicators for 2050. In January 2016, 46 students from Bogor Agricultural University participated in three workshops, completing pre- and post-session questionnaire surveys. The results, analyzed using ordered probit models based on participants' responses to 68 sustainability-related items, indicated that engagement in the workshops heightened their environmental concerns and inclination to undertake pro-sustainability actions. Furthermore, participants demonstrated a more balanced perspective on sustainability issues across economic, social, and environmental dimensions, suggesting the success of the sustainability education program in fostering learners' motivation to contribute to a more sustainable future.

The previous review explores existing research on the use of games in sustainability education, emphasizing the gamification of pro-environmental behaviors and the evolving landscape of online gaming. The current study presents case studies, ranging from examining the perceived educational value of video games in secondary education to exploring the influence of gaming avatars on cultivating a sustainable healthy lifestyle.

### **3. DISCUSSION**

The incorporation of game design principles into non-gaming contexts, known as gamification, has proven to be a successful strategy for promoting environmentally friendly behaviors. This approach is implemented in various formats, including board games, team competitions,

electronic games, smartphone apps, and research-developed apps for data collection. Games are increasingly acknowledged as an innovative tool for conveying scientific insights about the climate-economic system to a diverse audience, including students and non-experts. The online gaming landscape is continuously evolving with the integration of new technologies, creating a significant impact.

Gamification entails the application of game design principles outside traditional gaming environments and has been effectively used to foster pro-environmental actions. These principles manifest in diverse forms, such as board games, team competitions, electronic games, smartphone apps, and research-developed apps designed for data collection. Games are increasingly recognized as an innovative medium for communicating scientific insights about the climate-economic system to a wide audience, encompassing students, non-experts, and the general public. However, the extent to which games meet these expectations remains uncertain. The landscape of online gaming continues to transform with the infusion of new technologies, influencing consumers' adoption of sustainable lifestyles. Notably, gaming avatars have motivated players with low avatar identification to engage in physical and educational activities within massively multiplayer online game genres. Augmented Reality simulations, overlaying virtual data and interactions onto real-world contexts, use a simulation engine to provide game elements supporting exploration and learning in students' natural environments, such as their communities [18], [19].

Imagine if valuable knowledge and insights originated not only from research centers, think tanks, and universities but also from an unexpected source – video games. While video games have been criticized for causing social problems, what if they could help solve them? Despite the increasing popularity of video games, they are not as frequently utilized for this purpose as one might expect, and even when they are, their entertainment value is often deemed insufficient to capture interest. Acknowledging the significance of integrating sustainability into the education of architects, engineers, and construction professionals, it is imperative to incorporate this intricate subject into the curriculum. Increasing evidence indicates that computer games have the potential to be valuable tools in construction education, providing students with both theoretical understanding and practical applications. This research outlines the creation and initial assessment of a serious game specifically crafted to teach sustainable building design principles and practices. The primary emphasis is on utilizing gaming as a motivational and educational tool to heighten awareness among 11-year-old children regarding the connection between their daily actions and activities and carbon emissions. Digital games are proposed as effective means to enhance the understanding, interpretation, and application of sustainability and environmental principles.

Gamification has the inherent appeal of transforming the learning environment into a game, enabling players to internalize ecological sensitivity during play. The identified games exhibited diverse characteristics, including the addressed topic, player interaction, gameplay, level of abstraction, and media used. Notably, areas with a scarcity of games were identified. During the COVID-19 pandemic, augmented reality (AR) games have surfaced as possible instruments to improve both physical and mental health, especially for individuals experiencing isolation and distress. These games have the potential to enhance well-being by providing virtual socialization, consistent exercise, a structured routine, and mental support. Additional research is necessary to investigate the wider possibilities of AR games as digital interventions to uphold human well-being [20], [21].

The findings underscore the correlation between students' intrinsic motivation in sports participation and a task-involved climate, revealing healthier habits. This emphasizes the significance of fostering task-involved motivational climates in sports and physical education

lessons. The integration of video games into student training has become increasingly important, reflecting their growing relevance in personal lives. Recognizing the link between students' informal and formal lives is crucial, with utility tied to attitudes towards educational success culture, diversity, inclusion, and coexistence. Consequently, incorporating content-video game linkage development into classroom methodology is deemed valuable by educators. Numerous game-based instructional designs have proven effective for various educational outcomes, with serious games offering significant learning opportunities in school settings. The present study supports the validity and reliability of the gameplay scale as a measure of the game experience among youth populations. The psychometric properties of the scale indicate its effectiveness in assessing educational video game usability, satisfaction, and empathy in diverse contexts.

Video games that gain popularity frequently include captivating narratives that tackle the challenges of limited resources, encourage both competitive and cooperative social interactions, and highlight survival objectives. These components are crucial skills for understanding and navigating a dynamically evolving global landscape. The integration of sustainability science principles into mainstream video games offers a platform for the public to explore the intricate interconnections within a changing world. It is essential to address the need to enhance educators' digital proficiency, particularly in e-safety. Despite the demonstrated effectiveness of educational video games in enhancing motivation and learning outcomes, their current limitation lies in their influence on the development of teachers' digital competence. The MIT Sloan School of Management has created interactive web-based management flight simulators with the goal of teaching fundamental concepts in business, strategy, sustainability, and related fields [22], [23].

### *3.1. Case Studies*

#### *3.1.1. Examining the Perceived Educational Value of Video Games in Secondary Education: Case Studies*

The integration of video games into student training has become increasingly significant as these games play a more prominent role in students' personal lives. Understanding how students perceive the connection between their informal and formal experiences is crucial. The goal of this research is to explore the perceived benefits that secondary school students associate with incorporating video games into the curriculum at this educational level, emphasizing the educational aspects of these games. Employing a quantitative methodology involving multiple linear regression analysis, the research targeted 223 secondary education students. The findings indicate that perceived utility is closely linked to students' attitudes toward educational success, diversity, inclusion, and coexistence. Therefore, we argue that integrating content-video games into classroom methodology holds value for educators.

#### *3.1.2. The Influence of Gaming Avatars on Cultivating a Sustainable Healthy Lifestyle: Case Studies*

The ever-changing landscape of online gaming is influenced by the continual integration of new technologies, which has a direct effect on the sustainable lifestyles of consumers. In the genre of massively multiplayer online (MMO) games, the role of gaming avatars is crucial in motivating individuals with low-avatar-identification to participate in physical and educational activities. This study aims to categorize the relationship between avatars and consumers' intentions regarding exercise and the adoption of healthy eating habits. To achieve this, three theories—social cognitive theory (SCT), social determination theory (SDT), and player-avatar identification (PAI) theory—have been utilized to assess their impact on exercise and healthy food intentions, contributing to the promotion of a sustainable and healthy lifestyle. SCT



explores human cognitive behavior in relation to immersive experiences, self-presence, and enjoyment, while SDT focuses on the physical aspects of consumers, encompassing exercise intentions and the consumption of healthy food. The findings indicate that immersive experiences, self-presence, and enjoyment significantly influence consumers' behavioral intentions, fostering individual sustainability.

### *3.1.3. Mobile healthcare applications and gamification for sustained health maintenance*

This research delves into the influence of gamification on users' inclination to engage with mobile healthcare applications (mHealth) and investigates how this influence varies across health status, age, and gender. Using data from a mobile survey conducted by a reputable Korean survey agency, we apply a structural equation model to evaluate how gamification impacts user intent to use mHealth. Additionally, we explore the moderating effects of self-reported health status, age, and gender on this association. Our results indicate that gamification significantly boosts user intent to use mHealth, particularly among individuals who are healthy and younger. These findings suggest that integrating gamification into mHealth can serve as a motivating factor for both healthy individuals with insufficient physical activity and those encountering health challenges in maintaining and managing their well-being. Consequently, developers of mHealth services targeting healthy populations are encouraged to prioritize the inclusion of gamification elements.

### *3.1.4. Exploring the Transferability of a Game-Based Learning Approach in Undergraduate Mechanical Engineering Education: Evaluating the Influence on Student Conceptual Understanding, Engagement, and Experience*

Various instructional designs rooted in gaming have demonstrated effectiveness across diverse educational outcomes, albeit typically within specific contexts. This research presents insights derived from an extensive four-year investigation into the adaptability of a game-based learning approach. The study, which showed promising outcomes in a university course within undergraduate engineering education, aimed to assess its applicability to other engineering courses and institutions. The evaluation encompassed the examination of students' conceptual comprehension, emotional engagement (measured through the Experience Sampling Method), and overall experience using the video game "Spumone" in comparison to a control condition based on traditional textbooks. Despite employing multilevel models and various quantitative analyses, the study did not observe a significant impact of the experimental condition (game-based) on conceptual understanding and student engagement. Nevertheless, students provided positive feedback regarding their overall experience with game-based learning for assignments, as revealed through content analysis. The research also delved into areas requiring attention for the successful implementation of the game-based learning intervention. The findings underscore the importance of addressing implementation issues, including proper training, continuous professional development for educators, and ongoing support for both instructors and students to facilitate the intended learning of concepts through the game.

### *3.1.5. Designing didactic interventions centred around Information and Communication Technologies (ICT) for learning sustainability content: An analysis of cognitive and affective aspects*

The acknowledgment of Information and Communication Technologies (ICT) as a revolutionary method to enhance the educational process has paved the way for this study. The objective is to develop and validate learning interventions based on ICT for sustainability content, with a focus on cognitive and affective aspects. Specifically, the study utilized didactic resources grounded in a discovery learning model, such as WebQuests and video games. The research design followed a quasi-experimental approach, involving three student groups



subjected to pre-test and post-test questionnaires. The sample consisted of 81 secondary school students selected through non-probability sampling. The study assessed cognitive, behavioral, attitudinal, and emotional variables based on the employed teaching methodologies. A questionnaire served as the measurement instrument, featuring various sections related to the variables under examination. Results indicated a positive impact of ICT on students' academic progress, with those using video games demonstrating superior outcomes compared to WebQuest users. However, didactic interventions did not alter students' attitudes or environmental behavior, regardless of the methodology. Regarding emotions, it was observed that ICT-based interventions positively influenced students' emotions and mitigated boredom.

### *3.1.6. Exploring Sustainability through Gameplay: Utilizing Video Games to Simulate Scenarios of Resource Scarcity*

Numerous widely enjoyed video games feature engaging storylines that depict scenarios of limited resources, promote both competitive and cooperative social interactions, and prioritize the accomplishment of survival objectives crucial skills for navigating an ever-changing global environment. This study investigates a range of commercially successful video games spanning four genres: civilization simulations, post-apocalyptic first-person shooters, multiplayer survival horror games, and historical recreations. The research delves into how the game mechanics and scenarios in these genres depict social, economic, and environmental interdependencies. These portrayals are then contrasted with potential future scenarios involving resource depletion, the effects of climate change, and other human-environment interactions impacted by the adoption of sustainable practices. Recognizing the significant influence of game mechanics in shaping imaginative visions of potential situations and solutions, the study proposes incorporating game mechanics and scenarios that simulate and model sustainable practices. This proposed approach entails a shift away from prioritizing growth as the primary game objective, strategic decision-making concerning depletable resources, a focus on scavenging over combat for resource acquisition, and the creation of more intricate pathways for social interaction and collaboration among players. Integrating sustainability science concepts into commercial video games provides a public platform for exploring the intricate interdependencies of a rapidly transforming world.

### *3.1.7. Exploring Strategy, Sustainability, and Business Concepts through MIT Sloan's Interactive Web-Based Simulations*

The MIT Sloan School of Management has crafted a collection of internet-based management flight simulators with the aim of instilling fundamental principles in business, strategy, sustainability, and related fields. This document provides an overview of these simulations, which can be accessed through the MIT Sloan LearningEdge portal. Part I explores three simulations:

Salt Seller (a multiplayer commodity pricing simulation), Eclipsing the Competition (learning curves using the solar photovoltaic industry as an example), and Platform Wars (competition in the video game industry with network externalities). Part II delves into Fishbanks (Tragedy of the Commons in renewable resource management), CleanStart (startup firm building with clean tech as an example), and World Climate (interactive role-play of global climate negotiations).

Each simulator engages participants in hands-on learning about management, strategy, and sustainability concepts, rooted in specific industries accompanied by relevant case studies. This document outlines the purpose, dynamics, and available instructor resources for each simulator, offering a valuable tool for students, executives, policymakers, and others to navigate intricate issues.

### 3.1.8. *Non-Instrumental Behavior in an Environmental Public Good Game*

This study presents intriguing findings from an experiment based on an indefinitely repeated N-player Prisoners' Dilemma game conducted in a PC lab. Participants, motivated by climate concerns, exhibited behavior inconsistent with instrumental rationality, deviating fundamentally from traditional assumptions. Despite reporting motivation rooted in climate concerns, their actions had no tangible impact on climate change. The study challenges the assumption of instrumental rationality in public goods provision research, highlighting a deviation from self-regarding behavior.

### 3.1.9. *The Adventures of Carbon Bond: Utilizing a Melodramatic Game to Illustrate CCS as a Climate Change Mitigation Strategy*

In the USA, ideological clashes have limited climate change mitigation policies, framing the issue melodramatically as a struggle between good and evil. To address this, an educational video game, "The Adventures of Carbon Bond©," was developed to teach students about climate change and carbon capture and sequestration. The melodramatic frame portrays CO<sub>2</sub> as the villain and humans as heroes mitigating climate change through science and technology. Statistical analysis of student surveys reveals a knowledge increase post-gameplay, emphasizing the potential for productive reframing of climate change towards technological mitigation.

### 3.1.10. *Serious Games for Sustainable Development*

Sustainable development (SD), balancing ecological, economic, and social aspects, has become a societal focus due to resource depletion, demographic changes, and a push for equity. This review explores the use of serious games (SGs) games designed for purposes beyond entertainment – as tools to teach SD. As SD practices gain importance, courses and degrees focusing on SD are integral to education. The review emphasizes the role of SGs in cultivating the right attitude and managerial skills to holistically address challenges related to SD in intermediate and higher education curricula.

In the series of case studies exploring the integration of video games into education and various contexts, researchers investigated the perceived educational value of video games in secondary education. They found that students' attitudes towards educational success, diversity, inclusion, and coexistence were closely linked to their perceived utility of video games in the curriculum. Additionally, another study delved into the influence of gaming avatars on cultivating a sustainable healthy lifestyle, discovering that immersive experiences, self-presence, and enjoyment significantly impacted consumers' intentions for exercise and healthy food consumption, promoting individual sustainability.

Furthermore, a study explored the impact of gamification on user engagement with mobile healthcare applications, revealing that gamification effectively enhanced user intent to use mHealth, especially among healthy and younger individuals. In the context of mechanical engineering education, a game-based learning approach was assessed for its adaptability across courses and universities. Although it did not show a significant impact on conceptual understanding and student engagement, students provided positive feedback on their overall experience, emphasizing the importance of addressing implementation issues. The utilization of Information and Communication Technologies (ICT) for learning sustainability content was examined, with results indicating positive impacts on students' academic progress, emotional experiences, and mitigation of boredom. The study also explored the potential of video games in simulating scenarios of resource scarcity, proposing game mechanics and scenarios to model

sustainable practices. Additionally, the use of web-based simulations by MIT Sloan School of Management to teach business, strategy, and sustainability concepts was outlined [24], [25].

In an environmental public good game, participants motivated by climate concerns exhibited behavior inconsistent with instrumental rationality, challenging traditional assumptions. An educational video game, "The Adventures of Carbon Bond©," aimed to illustrate carbon capture and sequestration as a climate change mitigation strategy, showcasing a knowledge increase post-gameplay. Lastly, a review explored the role of serious games (SGs) in teaching sustainable development (SD), emphasizing their significance in cultivating the right attitude and managerial skills for addressing SD challenges in education.

#### 4. CONCLUSION

This comprehensive exploration into the realms of sustainability, climate change, and business concepts underscores the critical importance of innovative educational tools, particularly games and simulations. The multifaceted challenges posed by climate change, urbanization, and resource scarcity demand holistic understanding and transformative literacy. The study highlights the significant potential of games to bridge the gap between scientific findings and public understanding. Games not only serve as effective avenues for experiential learning but also offer a unique platform for conveying the complexities of system transformation. The intersection of sustainability, education, and gaming presents a promising avenue for cultivating transformative attitudes and behaviors essential for addressing the intricate challenges jeopardizing our planet's well-being. The case studies presented, ranging from the perceived educational value of video games in secondary education to the impact of gaming avatars on cultivating sustainable lifestyles, demonstrate the diverse applications and benefits of integrating games into educational settings. These findings emphasize the need for tailored approaches in different contexts, recognizing the unique characteristics and challenges of each. The MIT Sloan School of Management's interactive web-based simulations stand out as a noteworthy example, providing a practical tool for immersing participants in experiential learning about management, strategy, and sustainability concepts. The potential impact of these simulations on students, executives, policymakers, and others is substantial, offering a valuable resource for navigating the complexities of contemporary issues. In essence, the convergence of games, sustainability, and education offers a dynamic and engaging pathway to enhance transformative literacy, correct misconceptions, and empower individuals to contribute meaningfully to addressing the urgent challenges facing our world.

As we continue to explore and refine these approaches, the potential for games to play a pivotal role in shaping a sustainable and resilient future becomes increasingly evident.

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## CHAPTER 6

### EMPOWERING MARGINALIZED COMMUNITIES THROUGH EDUCATION: COMMUNICATION STRATEGIES AND CHALLENGES IN MUMBAI, INDIA

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#### ABSTRACT:

This study investigates the challenges faced by various stakeholders, including government bodies, NGOs, and marginalized communities, in the context of education and communication in Maharashtra, India. Focusing on Mumbai, the financial capital of the state, where 50% of residents live in slums, the study highlights the impact of economic disparities on children's education. Examining the role of the Government of India, NGOs (such as UNICEF, teach for India, and CRY), and corporate social responsibility (CSR) in education, the study underscores the significance of clear communication in philanthropy and development initiatives. The main stakeholders, including the community, government, NGOs, and CSR, play pivotal roles in shaping effective communication strategies. The study delves into the challenges of marginalized communities, emphasizing that children dropping out often come from such backgrounds. Despite government initiatives like the Right to Education Act, the study highlights the persisting issues leading to a substantial number of children remaining out of school. In exploring effective communication with marginalized communities, the study presents a detailed framework, considering linguistic, cultural, and socio-economic barriers. It underscores the importance of community involvement, storytelling, visual communication, and contextual sensitivity. Drawing insights from case studies on Teach for India, Child Rights and You (CRY), and the Brihanmumbai Municipal Corporation (BMC), the study reveals communication challenges faced by these organizations. These challenges range from digital accessibility and linguistic obstacles to issues of trust, relatability, and engagement within marginalized communities. The study concludes by proposing strategies for empowering communities in the digital era. Continued research and exploration in these areas can contribute to the ongoing dialogue on effective communication strategies for empowering marginalized communities, fostering inclusive education, and promoting sustainable socio-economic development.

#### KEYWORDS:

Community, Communication Strategies, Development, Education, Government.

#### 1. INTRODUCTION

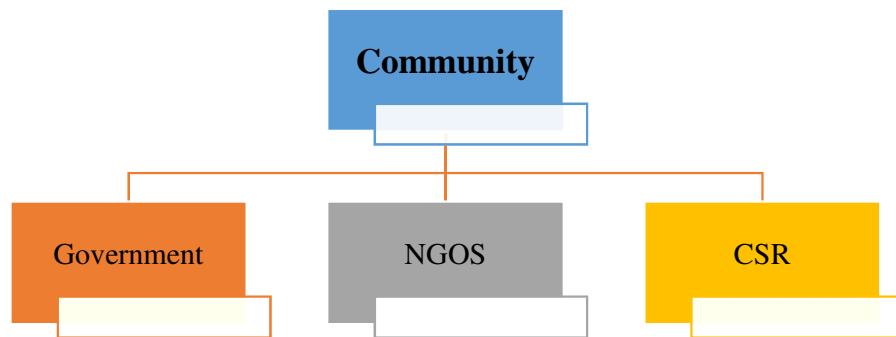
Education has the potential to elevate children's self-esteem and contribute to their development as versatile individuals capable of meaningful participation in economic, political, social, and cultural spheres. Marginalized communities refer to those excluded from mainstream life socially, economically, educationally, and culturally, with unmet basic needs due to significant economic disparities. In Maharashtra, the second most populous and third most urbanized state in India, Mumbai, its financial capital, houses 50% of residents in slums, leading to high dropout rates and vulnerabilities for children. The COVID-19 pandemic exacerbated educational challenges, with nearly 40% of BMC school children lacking resources for online education [1], [2].



The Government of India plays a crucial role in the education system, implementing various measures to ensure quality education for weaker sections and disadvantaged groups. The Right of Children to Free and Compulsory Education (RTE) Act, 2009, and initiatives like Samagra Shiksha aim to provide inclusive and equitable education. However, during the lockdown in 2020, challenges arose, as online solutions were not accessible to many marginalized children due to a lack of devices and internet. Proper communication is essential for the government's performance, with effective strategies needed to raise awareness and facilitate engagement. NGOs like UNICEF, Teach for India, and CRY work at the grassroots level, spreading awareness and supporting education in marginalized areas. However, the pandemic highlighted communication gaps and the need for effective strategies, especially in marginalized communities.

#### *a. Main Stakeholders*

Communication is a vital factor in philanthropy, ensuring support and awareness for causes. Effective communication is crucial for NGOs, aiding internal functioning, fundraising, and message dissemination [3], [4]. Barriers like lack of accessibility, distrust, insensitivity, and context can hinder communication with marginalized communities, impacting the desired outcomes. The Principal Stakeholders are shown in Figure 1.



**Figure 1: Illustrate the Main Stakeholders.**

##### *i. Community*

A community refers to a group of people who share common interests, characteristics, or geographical location. It can be a local neighborhood, an online forum, or any social grouping where individuals interact, communicate, and engage with each other based on shared values, goals, or activities.

##### *ii. Government*

The government is a system or organization that has the authority to establish and enforce laws, regulations, and policies within a specific territory. It is responsible for maintaining order, providing public services, and safeguarding the welfare of its citizens. Governments can operate at various levels, including local, regional, and national, depending on the administrative structure of a country.

##### *iii. NGOs (Non-Governmental Organizations)*

NGOs are non-profit organizations that operate independently of government control. They are typically driven by a specific mission or cause, such as humanitarian aid, environmental conservation, or social justice. NGOs play a crucial role in addressing societal issues, advocating for change, and providing assistance to communities in need [5], [6].

#### iv. CSR (Corporate Social Responsibility)

CSR refers to a business approach that involves companies taking responsibility for the impact of their activities on various stakeholders, including the environment, communities, employees, and customers. It goes beyond profit-making goals and encourages businesses to contribute positively to social and environmental well-being. CSR initiatives may include philanthropy, sustainable business practices, and community development efforts.

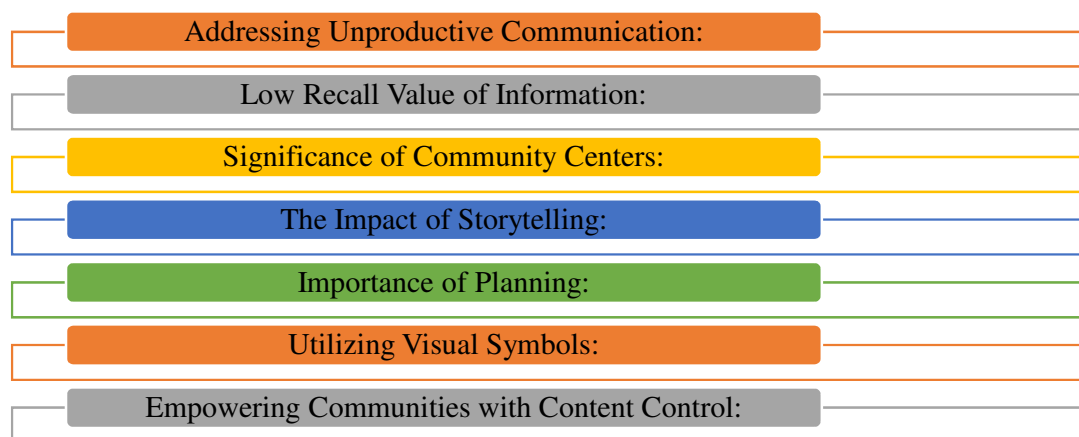
#### b. Children often drop out of school from marginalized communities

The government's goal, set in 1986 based on the Kothari Commission's recommendations in the 'National Policy for Education,' aimed to reform the education system. This policy emphasized universalizing primary education, vocalizing secondary education, and specializing in higher education. Due to insufficient financial and administrative support, not all suggestions could be implemented. In 2009, the Right to Education Act guaranteed free and compulsory education for children aged 6-14. Despite the act's implementation for 12 years, millions of children remain out of school, a situation exacerbated by the COVID-19 pandemic. According to the SRI-IMRB Survey 2014, 29% of girls and boys drop out of school before completing elementary education, often from marginalized communities.

Marginalization involves assigning a person, group, or concept to an insignificant or powerless position within society. Opportunities and benefits are denied to those on the margins, while those in the center receive encouragement. Marginalization may be linked to gender, culture, location, income, disabilities, caste, and class in India. These prejudices lead to exclusion from various aspects of society, including education, opportunities, and employment. The New Education Policy (NEP) 2020 offers a comprehensive framework for primary and secondary education in India, coming more than three decades after NEP 1986. The context provided by the Ministry of Human Resource Development, Government of India, for NEP 2020 is the significant changes globally and locally. One goal of this policy is to provide all students, regardless of their residence, with a quality education system, with a specific focus on historically marginalized, disadvantaged, and underrepresented groups [7], [8].

#### c. Communication

It is crucial to communicate messages to marginalized communities, fostering awareness and encouraging participation within these groups. Effective Communication with Marginalized Communities is illustrated in Figure 2.



**Figure 2: Illustrate the Effective Communication to Marginalized Communities.**

1. Unproductive communication arises when terms are used that are not understood due to linguistic or literacy barriers. Therefore, all communication should be crafted with consideration for existing barriers to enhance effectiveness.
2. Poorly designed and communicated mediums for information dissemination result in low recall value. This highlights the importance of creating effective channels to ensure better information retention.
3. Many communities have a community center, serving as a vital hub for transmitting information to residents.
4. Storytelling has become integral to everyday life. A well-crafted narrative communicates a thought process, stimulates critical thinking, and aids individuals in forming opinions and taking action on ideas.
5. Developing a detailed plan that outlines communication channels, content, and timelines in collaboration with relevant stakeholders is essential for seamless communication.
6. Neuromarketing scientists recognize visual symbols as more effective tools than words, aligning better with the cognitive and perceptual processes of the audience.
7. Granting some control over the content to the community ensures that the information's format and relevance remain appropriate and meaningful [9], [10].

This in-depth study addresses the crucial role of education in uplifting children, emphasizing its potential to contribute to their holistic development and participation in various societal spheres. Focusing on marginalized communities in Mumbai, particularly those in slums, the study explores the educational challenges exacerbated by the COVID-19 pandemic. It highlights the government's initiatives like the Right of Children to Free and Compulsory Education (RTE) Act and NGOs' roles, such as UNICEF, Teach for India, and CRY, in promoting education and awareness. The communication challenges faced by these organizations are thoroughly examined, emphasizing the importance of effective communication in philanthropy. The study also delves into the literature review and discussions, outlining the communication difficulties faced by Teach for India, Child Rights and You, and the Brihanmumbai Municipal Corporation. It concludes by proposing strategies for empowering communities in the digital era, including digital access, addressing community priorities, leveraging influencers, ensuring cultural sensitivity, and employing effective communication mediums, among others.

## **2. LITERATURE REVIEW**

Li B. and Ho R. [11] discussed the integration of video-based methods in a dementia care project in a Hong Kong aged care home. Involving a diverse alliance of practitioners, volunteers, managers, educators, and researchers, the project utilized video elicitation focus group interviews (VEFI) and participatory video (PV) to comprehensively capture the experiences of institutionalized elderly with dementia (EWD). Collaborative data analysis revealed insights into embodied expressions of EWD, fostering a reflexive and democratic environment. The use of PV produced short films for training and community education, generating counter-narratives and educational materials on dementia care. The research showcases how innovative video methods enhance inclusivity, engagement, and empowerment in participatory health studies, providing valuable perspectives on ethical considerations in researching vulnerable populations.

Fadli K. et al. [12] studied the pivotal role of education as the foundation for human resource development, with a particular focus on children who represent the future of the nation. Education is regarded as both a fundamental human right and a means to actualize other human rights. The study underscores the significance of education in empowering marginalized individuals, particularly children, to break free from poverty and actively engage in their communities. In the context of Hasang Village, where damaged road access and a lack of awareness among some parents pose challenges to education, the research aims to analyze the efforts of the local government to enhance the educational landscape. The study employs descriptive methods, including surveys and observations, to provide insights into the government's initiatives.

Noonan E. et al. [13] discussed how transgender individuals encounter discrimination and limited healthcare access, revealing gaps in medical education. A 2015 Community Forum on Transgender Health Care at the University of Louisville involved healthcare professionals and transgender community members, fostering dialogue. The forum and a follow-up survey highlighted underdeveloped local transgender care and identified priorities for improvement, including a multidisciplinary clinic and enhanced provider training. This engagement influenced reforms in medical curricula and ongoing education, emphasizing the transformative impact of community involvement in healthcare research. The study suggests that promoting societal acceptance of transgender identities and integrating comprehensive transgender health education in medical schools could significantly enhance transgender healthcare.

Selwyn N. [14] addressed the underutilization of information and communication technology (ICT) in university teaching and learning, despite significant efforts to integrate it. Instead of focusing solely on operational shortcomings, the study explores the broader social dynamics influencing the limited adoption of technology in higher education. It examines how various actors, from national policy-makers to students' lived experiences, contribute to marginalizing and restricting the use of computer technology in universities. The prevailing theme is the construction of technology use in narrow, linear terms, contrasting with the creative and empowering potential advocated by educational technologists. The study suggests the need for challenging these dominant constructions and reflects on how educational technologists can promote a more expansive and empowered use of ICT in higher education.

Naik R. and Dasaratharamaiah K. [15] emphasized the crucial role of education in empowering marginalized tribal women. Education is seen as a key tool for providing knowledge, skills, and confidence necessary for full participation in societal development. The text highlights the positive impact of education on productivity, efficiency, and overall socio-economic development at both individual and societal levels. It underscores the significance of economic empowerment through education, particularly for tribal women, as a substantial contribution to national development. Despite the recognized importance of education, the text notes the existing challenges, including low literacy rates among tribal women compared to their male counterparts. The passage advocates for the development of literacy and educational policies tailored to address the unique needs of tribal women in Andhra Pradesh, stressing that their education is essential for achieving meaningful, inclusive growth in the country.

Imsiyah N. et al. [16] analyzed transformative learning patterns resulting from non-formal education in marginalized communities in Bondowoso District. Utilizing a qualitative phenomenological approach and employing the Snowball Sampling Technique to select informants, the study involves marginalized community members and managers from local arts and cultural centers. Data collection methods include in-depth interviews, observation, and documentation. The transformative learning pattern, facilitated by the local arts and cultural

center, involves training programs in traditional dance, music, and various vocational skills. The study concludes that such transformative learning initiatives break the cycle of generational occupations, particularly among marginalized children (e.g., beggars, buskers, and scavengers), by emphasizing the importance of education and offering vocational training and motivation.

Malini Ghose and Disha Mullick [17] presented findings from a 15-year follow-up study on 56 rural women who participated in an empowerment and education program in North India. The research explores the nuanced ways in which the program influenced the lives of these women from marginalized communities. Contrary to simplistic views on women's literacy and empowerment, the study reveals that empowering outcomes are complex and require negotiation of power at various levels. The women's narratives challenge prevailing discourses, emphasizing that empowerment, viewed through a critical feminist lens, offers a valuable framework for understanding women's experiences in education. The study advocates for a deeper analysis of the intricate relationship between women's education and empowerment, emphasizing the need to move beyond conventional impact assessments.

Ram Gunjal and Dr. Harish Purohit [18] explored the recruitment and selection practices within the education sector, with a specific emphasis on vocational courses for tribal communities. The main objective is to identify challenges, strategies, and potential improvements in the recruitment and selection process to enhance the socio-economic development of marginalized tribal communities. Employing a mixed-methods approach, the research gathers primary data through interviews, surveys, and focus group discussions, involving stakeholders such as educational institutions, tribal community members, educators, and policymakers. Secondary data is drawn from existing literature and case studies. The study examines various facets of recruitment and selection, including candidate identification, assessment methods, cultural considerations, and community engagement. Findings reveal challenges like limited access to quality education, lack of awareness about vocational courses, cultural barriers, and geographical constraints. The study uncovers innovative strategies, such as community outreach and inclusive selection criteria, employed by institutions to address these challenges. Recommendations focus on improving inclusivity, cultural sensitivity, and community involvement in the selection process, emphasizing collaboration between institutions, policymakers, and tribal community leaders. This research contributes valuable insights to the literature on recruitment and selection within the education sector, specifically in the context of vocational courses for tribal communities. The proposed recommendations aim to guide educational institutions and policymakers involved in designing and implementing vocational education programs for marginalized communities.

### 3. DISCUSSION

The communication difficulties that three different organizations—Teach for India (TFI), Child Rights and You (CRY), and the Mumbai Municipal Corporation (BMC)—face while working on projects that aim to empower the local community and promote education in Mumbai. The non-profit TFI runs an Innovation Cell and a fellowship program while emphasizing leadership in education to fight inequality. CRY addresses issues like parental attitudes and generalization while concentrating on the rights of children. The municipal authority of Mumbai, the BMC, has challenges related to trust, reliability, and low involvement in outreach to vulnerable areas. With a focus on topics like digital access, priorities, information ecology, mediums, context, influencers, sensitivity, avoiding ineffective communication, recall value, community centers, storytelling, and visuals for effective communication strategies, the study emphasizes the significance of empowering communities in the digital age.

*a. Case Study*

*i. Teach for India*

Teach for India (TFI) is a non-profit organization committed to delivering quality education to all children. At the core of the organization's philosophy is the belief that leadership in education serves as the key to addressing educational inequality in India. TFI operates a fellowship program, recruiting college graduates and working professionals to serve as full-time teachers in low-income schools for two years. Additionally, Teach for India runs an Innovation Cell program designed to empower teachers, students, and entrepreneurs to bring about lasting changes in the education system [19], [20]. Their primary channels for mobilizing support from diverse sectors include social media and print media.

*1. Communication Challenges Encountered by Teach for India*

*a. Digital Accessibility and Literacy*

The lockdown imposed during the COVID-19 pandemic underscored the existing digital divide in Mumbai. Families encountered challenges in navigating the digital world.

*b. Linguistic Obstacle:*

Mumbai's marginalized communities comprise individuals from diverse linguistic backgrounds. This diversity occasionally leads to the emergence of a linguistic barrier between volunteers and the community.

*c. Socio-cultural Discrepancy:*

Members of the communities hold diverse social values. Failing to be sensitive to these differences can pose a barrier to effective communication.

*ii. Child Rights and You (CRY)*

Child Rights and You (CRY) is dedicated to addressing the critical needs of children by actively engaging at the grassroots level with teachers, Anganwadi workers (Indian rural child care center staff), communities, district and state-level governments, and the children themselves. The organization's primary focus is on instigating positive changes in behavior and practices within marginalized communities, with a simultaneous emphasis on influencing public policy at a systemic level. CRY is committed to establishing an ecosystem that prioritizes children as the nation's central concern.

*1. Communication Challenges Faced by Child Rights and You*

*a. Parental Attitude*

It is essential to make parents aware of the significance of education and other rights for their children. One major obstacle is the lack of parental support.

*b. Generalization*

CRY works with children from diverse backgrounds, and the content employed is not sufficiently inclusive, failing to achieve the desired impact.

*c. Lack of Awareness*

Communities lack understanding regarding the importance of education, and there is a general lack of awareness regarding the support available from NGOs and government bodies.



### iii. Brihanmumbai Municipal Corporation (BMC)

The Brihanmumbai Municipal Corporation (BMC) serves as the governing civic body for Mumbai, the capital of Maharashtra, and stands as India's wealthiest municipal corporation. The civic body's education department oversees all municipal schools within the city. BMC has been actively working to reform its school system by introducing alternative non-state board options and collaborating with NGOs and other stakeholders present in municipal schools [21], [22].

#### 1. Communication Challenges Faced by BMC

##### a. Lack of Trust

Communities facing marginalization often harbor distrust toward external sources. This skepticism leads to the perception of information as unreliable within the community.

##### b. Relatability

Members of marginalized communities struggle to relate to messages directed at them, resulting in a disconnect between the community and other stakeholders involved in communication efforts.

##### c. Lack of Engagement

Marginalized communities exhibit low engagement with the conveyed messages. This lack of interaction results in a dearth of action, rendering the communication efforts unproductive.

#### b. Empowering Communities in the Digital Era: Bridging Gaps and Fostering

This study suggests that communities in the modern digital era need to be strengthened and enabled.

With the use of digital technology, the word alludes to programs and tactics meant to lessen inequalities, improve capacities, and foster a positive atmosphere inside communities. The focus is on promoting inclusion, reducing disparities in opportunities, skills, and access, and promoting community-driven involvement and growth in the digital sphere.

##### i. Digital Access

Digital access refers to the capability to actively participate in the digital society. This involves having access to essential tools and technologies, such as the Internet and computers, enabling comprehensive engagement.

It ensures equitable accessibility to technology and the utilization of it to enhance the learning process for everyone involved. The term "digital divide" signifies the gap in opportunities to access information and communication technologies (ICTs) and use the Internet across different socio-economic levels, individuals, households, businesses, and geographic areas.

##### ii. Priorities

Effective communication necessitates addressing the community's priorities as a primary step to establishing trust and respect. Building relationships and credibility may hold more significance at the start of a long association than immediately addressing perceived pressing needs. Community members often have valid priorities that may not be fully understood by those outside the community.

### *iii. Information Ecology*

To communicate effectively with a marginalized community, it is crucial to identify and rely on existing relationships the community has with external partners like NGOs and government organizations. Consistently identifying and tracking resources is vital to communicate emergent information efficiently to community members.

### *iv. Mediums*

Selecting the most appropriate communication medium is essential. It may involve choosing one specific medium or a combination based on factors such as the most common channels in the target area, the most trusted channels by the target population, and the most feasible channels.

### *v. Context*

Context plays a critical role in communication, providing receivers with information about the importance of the message, guiding assumptions, and assigning meaning to the content. Setting the context is essential for effective communication, and fostering true dialogue.

### *vi. Influencers*

Identifying influencers and leveraging their voice can amplify positive, sympathetic, and diverse voices to communicate with marginalized communities. Trusted community groups, local influencers, and networks play a crucial role in disseminating reliable and accurate information at the community level.

### *vii. Sensitivity*

Awareness of one's cultural beliefs, values, attitudes, and practices is crucial before learning about other cultures. This includes being sensitive and adaptive to individual cultural differences, relying on self-understanding and reflection for respectful and supportive interactions with community members.

### *viii. Unproductive Communication*

To avoid unproductive communication, ensure that all communication is accessible, actionable, credible, trusted, relevant, timely, and understandable.

### *ix. Recall Value*

Messages need to have a higher recall value for impact. Suggestions to enhance recall value include using memorable titles, incorporating striking facts, presenting analytical stories, providing language for the target audience, and using visuals for better comprehension.

### *x. Community Centers*

Leverage community centers or halls, where community members gather for various activities, to display messages. Common communication points in the community, such as religious institutes and public spaces, should also be utilized.

### *xi. Storytelling*

Storytelling, as the art of communication through narratives, is effective in creating a lasting impact. Stories are more memorable than facts alone, making them essential for successful awareness campaigns [23], [24].

## xii. Visuals

Visual communication enhances audience understanding and comprehension. Two-dimensional images, including drawings, pie charts, animation, signs, typography, and graphic designs, aid in effective communication.

## 4. CONCLUSION

This study underscores the critical role education plays in shaping the future of children, particularly those from marginalized communities facing social, economic, educational, and cultural exclusion.

While the Government of India has implemented initiatives like the Right of Children to Free and Compulsory Education (RTE) Act and Samagra Shiksha to ensure inclusive education, the digital divide and lack of resources have hindered their effectiveness.

Stakeholders, including communities, government bodies, NGOs, and corporations engaging in Corporate Social Responsibility (CSR), play crucial roles in addressing these challenges. Effective communication is identified as a key factor in fostering awareness, engagement, and support for educational initiatives. The study emphasizes the need for clear, accessible, and culturally sensitive communication strategies, highlighting the challenges faced by NGOs like Teach for India (TFI), Child Rights and You (CRY), and the Brihanmumbai Municipal Corporation (BMC). The communication challenges identified include issues of digital accessibility, linguistic barriers, socio-cultural discrepancies, parental attitudes, generalization, lack of awareness, trust, relatability, and engagement. To bridge these gaps and empower communities in the digital era, the study recommends strategies such as prioritizing community needs, leveraging existing relationships, choosing appropriate communication mediums, considering cultural contexts, identifying influencers, ensuring sensitivity, avoiding unproductive communication, enhancing recall value, utilizing community centers, embracing storytelling, and employing visual communication. As education remains pivotal in breaking the cycle of marginalization, this study advocates for collaborative efforts among stakeholders to implement effective communication strategies tailored to the diverse needs of marginalized communities. The findings provide valuable insights for organizations, policymakers, and community leaders working towards a more inclusive and equitable educational landscape.

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## CHAPTER 7

### UNVEILING THE DARK REALITY OF EDUCATION: IMPACT ON STUDENTS' MENTAL HEALTH AND SOCIETY

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#### ABSTRACT:

This comprehensive study delves into the dark reality of education, particularly focusing on the detrimental impact of institutions like "Sri Chaithanya & Narayana Institutions" on students' mental well-being in southern India. The narrative unfolds with personal experiences, shedding light on the institution's cycle of animosity, cruelty towards students, and the systemic failures that perpetuate feelings of animosity and worthlessness among students. The study identifies the prevailing issues, such as the normalization of child abuse, intense academic pressures, and the lack of official affiliations with educational boards in numerous franchises. It explores various possibilities for addressing these issues, including a podcast series, a short film, system redesign, animated features, documentaries, illustrative books, and online comics. The prerogative of the study is to challenge the prevailing narrative surrounding IIT-centric education, emphasizing the tangible impact on students' lives and perspectives. The examination extends beyond the specific case to discuss the broader lack of awareness among parents, the rise in suicide rates, and the paradoxical aspects of ecological awareness in environmental education theories. It explores the potential of virtual reality for educational purposes and highlights the effectiveness of cognitive behavior therapy in addressing mental health issues among medical students. Further investigations reveal psychopathological symptoms in schoolchildren in the Brazilian Amazon, emphasizing the need for a societal approach to promote mental health.

The study recognizes the psychological challenges faced by medical students and advocates for proactive mental health education. Insights from student teachers in Kerala reveal correlations between mental health and academic achievement, urging educational implications for improved outcomes. The study concludes with a discussion on the slow response of education to societal demands, discrimination against students with health-related problems, and the importance of inclusive education. The findings collectively underscore the urgency for a transformative approach to education that prioritizes mental health, challenges existing norms, and advocates for systemic changes to ensure the holistic development of students and the well-being of society.

#### KEYWORDS:

Education, Mental Health, IIT-centric, Society, Virtual Reality.

#### 1. INTRODUCTION

Addressing one of the extensively discussed issues in our nation and globally, and examining why southern India appears unaffected by emotionally distressing content, a plausible explanation lies in my background. Hailing from a region characterized by a disheartening reality in modern society, "Sri Chaithanya & Narayana Institutions" emerge as the primary antagonists in the narratives of teenagers and the origin stories of numerous individuals with psychological issues and criminal tendencies. They epitomize the cycle of animosity prevalent in our society. The instructors exhibit cruelty towards students, resorting to physical punishment for failures and displaying favoritism towards high achievers, often based on



language proficiency, academic performance, or casual sexism. Ironically, despite being an acclaimed English medium institute, the educators lack fundamental communication and teaching skills [1], [2]

Conversely, the Principal hires teachers through personal connections, irrespective of their teaching experience, and subjects both experienced and inexperienced faculty to inadequate compensation while pressuring them for results and IIT ranks.

The benevolent trustees, backing the institution, seem indifferent to these issues, prioritizing only numerical outcomes.

Given the franchise model, they view the group as mere statistics to determine which school is deserving of funding. Consequently, these systemic failures trickle down to the students, who absorb feelings of animosity and worthlessness more intensely than any academic subject, given the institution's limited focus on holistic development [3].

#### *a. The Main Villain*

##### *1.1.1. The Why*

- i. There is still a lack of awareness among parents regarding the impact of this form of education on young teens.
- ii. Institutes continue to normalize child abuse, with teachers often being the perpetrators.
- iii. Suicide rates have reached an all-time high.

##### *1.1.2. Aspects*

- i. Predominantly popular in southern India.
- ii. Despite claiming to be English medium, these institutes primarily teach in vernacular languages.
- iii. The focus is entirely on IIT-centric education.

##### *1.1.3. Problems*

- i. Persistent issue of child abuse.
- ii. Intense pressure from expectations related to IIT, parental, and societal standards.
- iii. Many franchises lack official affiliations with educational boards.

##### *1.1.4. Possibilities*

- i. A podcast series addressing these issues in an episodic format, featuring stakeholders.
- ii. A distinctive short film with a narrative distinct from others.
- iii. Redesigning the system.
- iv. An animated feature.
- v. A documentary.
- vi. Designing an illustrative book.
- vii. Creating an online comic.

### 1.1.5. Prerogative

I aim to challenge the prevailing narrative surrounding IIT, which is often portrayed as an unseen societal force. I want to highlight its tangible impact, sharing my personal story and struggles through a visual narrative to shift perspectives [4], [5].

1. Similar to a 23-year-old machine learning engineer residing in Florida, who commenced preparing for the Joint Entrance Examination (JEE) as early as Class 8 due to the early initiation of peers in Class 6. The engineer recounts being so immersed in exam preparation that basic aspects like personal hygiene, grooming, and socializing were overlooked.
2. In many of these schools, examinations for classes 9th and 11th are not conducted, given the absence of board regulations, yet instances of counterfeit answer sheets exist. The student batches are organized based on grades, with corresponding importance assigned accordingly.
3. "They have become isolated from society, lacking awareness of current affairs, and are in dire need of our induction program for newcomers, aimed at reorienting them to both society and the institute," remarked the professor anonymously.
4. The individual experienced notable changes in both personality and physique, gaining 35 kilos within a few months, resulting in a total weight of 120 kilos. The top 3-5 performers, who used to have their photos featured at the pinnacle of the list, still find the environment too competitive for effective teamwork.
5. A mere 80% of engineers exhibit employability, indicating a substantial skill gap resulting from an overemphasis on theoretical knowledge [6], [7].

The study delves into the dark reality of education, focusing on the Sri Chaithanya & Narayana Institutions in southern India and their detrimental impact on students' mental health and society. The literature of the previous study is discussed in the literature review section. The discussion includes a critical examination of policies, examples illustrating problematic aspects in educational settings, and real-world instances of educational challenges across India. The study concludes by highlighting the urgency for change in the educational system, emphasizing the severe consequences on students' mental health and societal well-being. Finally, the study ends with a conclusion section that explains the outcome and future of this study.

## 2. LITERATURE REVIEW

Saari A. and Mullen J. [8] introduced three forms of critique in environmental education theories: subtraction, addition, and a novel third form emphasizing the paradoxical and uncanny aspects of ecological awareness. That third form, inspired by dark ecology, explores the weirdness of ecological awareness, adopting an apophatic, self-negating approach that rejects epistemological closure. Drawing from Timothy Morton's work, the authors delve into the implications of that looping temporality on the epistemological frameworks of environmental education.

Roelofsen M. and Carter-White R. [9] explored the potential of virtual reality (VR) for educational purposes in geography, focusing on a two-year research-teaching project within a postgraduate course on "Heritage and Its Management." The researchers discuss the implementation of a VR field trip to the Auschwitz-Birkenau State Museum using the high-immersive Inside Auschwitz guided documentary. Through surveys and interviews with students post-field trip, they found that VR technology serves as both a (dis)inhibitor, offering

a sense of social and temporal freedom but introducing new spatial and perceptual constraints. While the VR experience sparked curiosity about site details, the study suggests that effective learning with VR requires active bodily adaptations and a reevaluation of bodily capacities and their inequalities. The conclusion emphasizes that VR is most effective when viewed not as a journey into a self-contained virtual realm but as a spatial prompt designed to stimulate new questions for students already engaged in developing geographical understanding and imaginations related to specific sites.

Hanani A. et al. [10] study conducted between March and May 2021 at An-Najah National University aimed to assess the prevalence of mental disorders among medical students and explore the effectiveness of cognitive behavior therapy (CBT) on their mental health. In the first phase, involving 329 students, approximately 28% exhibited mental health problems. Factors like physical activity, sleep duration, and entertainment time were linked to better mental health. The second phase involved 91 students randomly assigned to CBT or control groups. The CBT program demonstrated a significant improvement in outcomes, with lower scores in total GHQ-12, depression, anxiety, and social dysfunction observed at the 8-week post-intervention assessment. The study emphasizes the importance of addressing the mental health of medical students and highlights CBT as a viable intervention.

Nolli Bittencourt M. et al. [11] aimed to identify and analyze psychopathological symptoms in schoolchildren (6 to 12 years old) in Amapá, a state in the Brazilian Amazon. Using the Psychopathological Symptom Identification Scale and individual interviews, the research found that most children displayed few symptoms, but 12.65% required specialist referral. Symptoms were positively correlated with age and negatively correlated with physical exercise frequency. Children with relatives having mental disorders or using psychoactive substances exhibited more symptoms. Anxiety, mood, social behavior, attention, and eating pattern symptoms were prevalent and often linked to family situations like poverty, violence, illness, abandonment, and societal pressure. The findings underscore the need for a social practice promoting mental health, with pediatric nurses, primary care providers, and health and education systems as key agents for societal change.

Xu Q. [12] recognized the heightened psychological challenges faced by medical students, stemming from values, ideal-realities conflicts, and occupational and employment pressures. The objective is to implement proactive mental health education to alleviate psychological stress, fostering a positive mindset for future patient care. The results emphasize the necessity of tailored mental health support for medical students to enhance their adaptability, improve psychological qualities, and guide them toward successful participation in medical practice. The conclusion underscores the importance of a supportive social environment and media collaboration to promote positive energy, combat misinformation, and create an atmosphere conducive to the mental health of students. The collective efforts of parents, schools, and society are crucial for ensuring the healthy psychological development of students as they represent the future pillars of the nation.

Moradi Sheykhjan T. [13] explored the relationships between mental health, self-efficacy, and academic achievement among student teachers in Kerala. The objectives include examining the correlations, differences based on gender and university, and the combined impact of mental health and self-efficacy on academic achievement. The survey method is employed, with a sample of 314 M.Ed. students from various universities. Tools such as the Mental Health Status Scale and General Self-Efficacy Scale are utilized, and statistical techniques including t-test, ANOVA, correlation analysis, and regression analysis are applied. Major findings indicate a significant relationship between mental health and academic achievement, while no significant correlation is found between specific components of mental health and academic

achievement. Additionally, there is no significant relationship between self-efficacy and academic achievement. Gender and university differences are identified, with noteworthy correlations when partially out the effects of mental health and self-efficacy. Despite a positive but negligible correlation, the combined relationship between self-efficacy and mental health on academic achievement is not significant. Ultimately, neither mental health nor self-efficacy emerges as a significant predictor of academic achievement among student teachers in Kerala. The study suggests educational implications for families, student teachers, teacher educators, administrators, and curriculum makers to enhance educational outcomes and guide future research in the field.

Yan L. [14] discussed in response to the evolving needs of education in a progressing society, that the study contends that the traditional exam-centric education model is no longer adequate. It advocates for a modern education paradigm centered on quality education, aiming to enhance national quality as part of the broader goal of revitalizing the country through science and education. The study highlights the significance of mental health education for college students and proposes the integration of modern information technology to create a Mental Health Information Service Platform for college students in private independent colleges, utilizing a B/S architecture.

Palomares-Ruiz A. and Sánchez-Navalón B. [15] discussed the slow and inadequate response of education to societal demands, leading to discrimination against students with health-related problems. The focus is on Hospital Pedagogy, a newly created discipline implemented differently across countries.

The study investigates the impact of a lengthy hospitalization on patients, families, and their reference educational centers. The method involves a ten-year mixed-method research in the Eating Disorder Unit (UTCA) of a University Hospital. Results indicate positive changes in behavior and self-esteem, with parents valuing UTCA assistance. Teachers appreciate information and coordination but need greater involvement and training. Both groups acknowledge good involvement during admission, and patients seamlessly reintegrate into their curricular levels post-recovery. The discussion emphasizes the necessity and effectiveness of the UTCA, calling for increased teacher involvement, training, and the use of Information and Communications Technology for truly inclusive education.

The previous studies collection covers diverse aspects of education and mental health. Each study contributes unique perspectives and insights to the broader discourse on education and mental health. The current study investigates the distressing reality of education at Sri Chaithanya & Narayana Institutions in southern India, emphasizing its detrimental impact on students' mental health and society.

### **3. DISCUSSION**

The study introduces imperative rules in an educational setting, suggesting a stringent policy where any misconduct or rule violation is considered a punishable offense. Students are expected to avoid challenging or confrontational responses to authorities (No back-answering). Failure to complete homework assignments or poor academic performance is deemed an offense (Homework/performance issues). Adherence to a specific dress code is mandatory, and any deviation is considered improper uniform conduct. An unusual practice involves addressing or referring to students by their academic performance or grades, possibly in a public or group setting. These policies establish a strict environment with consequences for behavioral issues, academic shortcomings, and uniform-related concerns, including the distinctive aspect of referring to students by their marks [16], [17]. The Imperative Principle is shown in Figure 1.

*a. Required Policies*

The provided text outlines an imperative rule in a setting, possibly an educational institution, where several strict guidelines are in place:

*i. Everything is a punishable offense*

This indicates a stringent policy where any form of misconduct or rule violation, regardless of its nature, is subject to punishment.

*ii. No back answering*

Students are expected to refrain from responding in a challenging or confrontational manner to authorities or teachers.

*iii. Homework/performance issues*

It suggests that failure to complete homework assignments or poor academic performance is considered an offense.

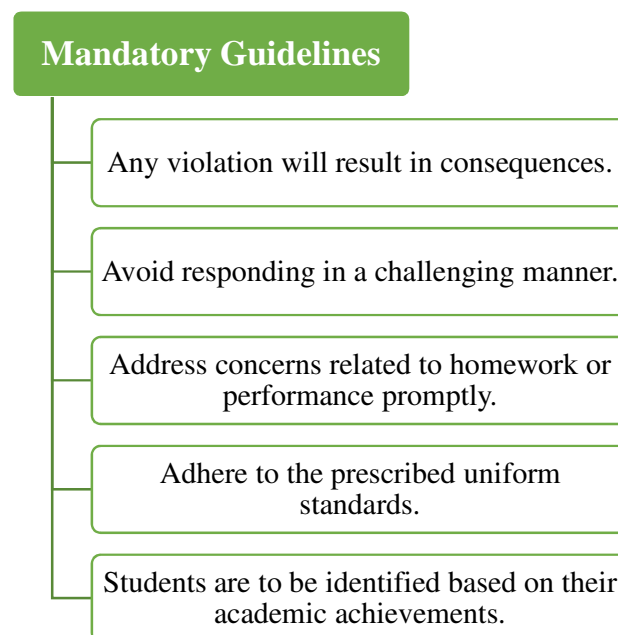
*iv. Improper uniform conduct*

Students are required to adhere to a specific dress code, and any deviation from it is considered improper uniform conduct.

*v. Students were called by their marks in paragraphs*

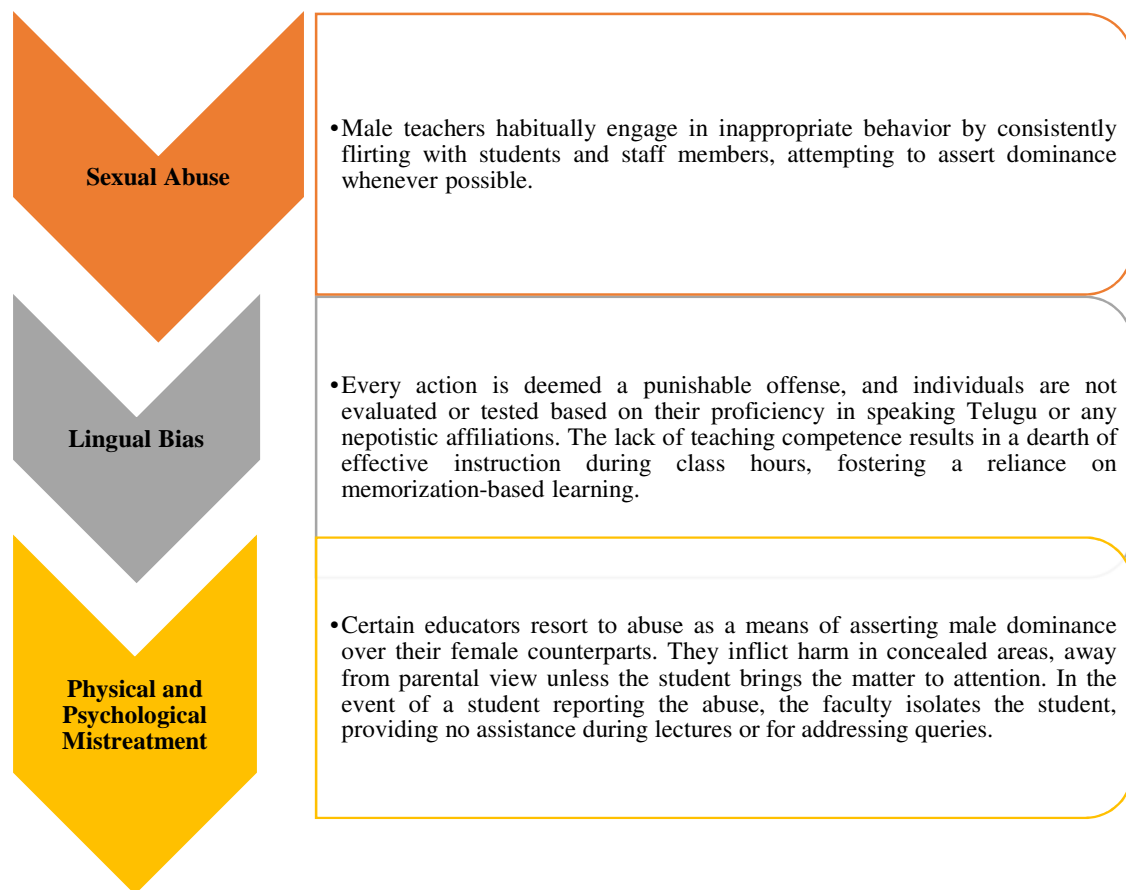
This might imply that students are addressed or referred to by their academic performance or grades, possibly in a public or group setting.

The imperative rule establishes a strict environment with consequences for various types of offenses, including behavioral issues, academic shortcomings, and uniform-related concerns. Additionally, the unique practice of referring to students by their marks could be a distinctive aspect of the disciplinary system [18], [19].



**Figure 1: Illustrate the Imperative Principle.**

Figure 2 Depiction Highlighting Troublesome Aspects in an Educational Setting. Several concerning issues within an educational environment. It highlights instances of sexual abuse involving male teachers engaging in inappropriate behavior, including flirting with students and staff to assert dominance. Lingual bias is identified, where every action is treated as a punishable offense, leading to a lack of evaluation based on language proficiency or nepotistic connections. Physical and psychological mistreatment is reported, with some educators resorting to abuse, particularly targeting female teachers, in concealed areas. Reporting such abuse results in the isolation of the student, with no support offered during lectures or for addressing concerns [20], [21].



**Figure 2: Illustration Depicting Concerning Issues in an Educational Environment.**

*b. Example*

*i. A mental health expert with an IIT, who chose to remain anonymous*

A prevalent issue faced by IIT students, traditionally recognized as high achievers throughout their lives, is a profound sense of emptiness. Termed as an 'existential crisis,' this feeling arises as students, following years of rigorous training, begin seeking a deeper meaning in life. This quest may be triggered by anxiety or depression, or it can further intensify existing mental health challenges.



ii. *Kishore Kumar, an IIT Kharagpur alumnus*

When a student undergoes a five-year training period in a 'low-performing' batch, it ingrains a mindset that limits the child's self-perception to that of a low-performing student. Consequently, there is reluctance to engage in group activities or anything else conducive to personal growth.

iii. *Meeta Sengupta, founder of the Centre for Education Strategy*

While experts acknowledge that coaching aids students in exam preparation, it is deemed unhealthy for children as it diminishes the opportunities for self-discovery and innovation throughout the training process.

iv. *Dr Soumitra Pathare, director of the Pune-based Centre for Mental Health Law and Policy*

Top educational institutions in our nation admit only approximately 0.1 percent of applicants. Considering such low acceptance rates, what outcomes can one anticipate? Regardless of an individual's resilience, breaking down becomes a criminal act when the system is inherently biased against them.

c. *All over India*

1. The board exam applications for 120 Higher Secondary Certificate (HSC) students at Rao Junior College in Borivali are facing delays due to the institute's incomplete official recognition process.
2. Rao IIT Academy, the operator of the junior colleges, encountered a setback as the state board denied them an index number, citing non-compliance with infrastructural norms.
3. Despite charging fees of 2.5 lakh rupees for class fees, the institute is discovered to be unrecognized.
4. Furthermore, for a fee of 5 lakh rupees meant for class fees, the institute also lacks official recognition.
5. Teachers, who claim to have not received salaries for the past four to five months, consequently ceased conducting classes.

d. *Endless descent*

1. In a franchise model, institutional heads and principals face perpetual pressure to achieve results, leading them to exert the same pressure on teachers to enhance the institution's reputation.
2. Teachers, irrespective of experience or nepotistic hiring, receive identical pay, fostering discontent and animosity within the institution.
3. To vie for promotion, teachers are compelled to deliver results, subsequently pressuring students and displaying favoritism.
4. Under intense pressure from teachers, parents, and societal expectations, students are pushed to an edge they never knew existed. This isn't merely a matter of suicide; it's a form of societal murder [22], [23].

#### 4. CONCLUSION

The study sheds light on the dark reality of education, specifically focusing on the detrimental impact of institutions like "Sri Chaithanya & Narayana Institutions" on students' mental health and the broader societal consequences. The detailed exploration of the systemic failures within these institutions, including issues of cruelty, favoritism, and the intense focus on IIT-centric education, highlights the urgent need for reform. The identified aspects, problems, and possibilities provide a comprehensive framework for understanding the multifaceted challenges faced by students in such environments. The lack of awareness among parents, normalization of child abuse, and alarming suicide rates underscore the gravity of the situation. The study not only exposes the issues but also proposes various creative and impactful solutions, such as podcasts, short films, system redesign, animated features, documentaries, illustrative books, and online comics. The nationwide examples and the discussion on the franchise model expose the widespread challenges faced by students across different regions, calling for systemic changes and official recognition processes to ensure quality education. The concept of "endless descent" underscores the vicious cycle perpetuated by institutional pressures on teachers and students, resulting in severe consequences for mental health. The study extends its scope to international perspectives, discussing the potential of virtual reality, mental health challenges faced by medical students, psychopathological symptoms in schoolchildren, and the relationships between mental health, self-efficacy, and academic achievement. The conclusion encapsulates a compelling call to action, emphasizing the collective responsibility of parents, schools, society, and policymakers to address the root causes of the identified issues. It underscores the crucial role of a supportive social environment, proactive mental health education, and media collaboration in fostering positive energy and combating misinformation. Ultimately, the study advocates for a paradigm shift in education towards a model centered on quality education and mental health, recognizing students as the future pillars of the nation.

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## CHAPTER 8

### REVOLUTIONIZING EDUCATION SPACES: A HOLISTIC APPROACH TO COLLABORATIVE LEARNING ENVIRONMENTS

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#### ABSTRACT:

The design of school buildings has long been centered around isolated classrooms, hindering collaborative efforts among educators. However, the educational landscape is evolving towards models that emphasize collective engagement. This paper delves into the critical shift needed in school design, advocating for a holistic approach that encourages collaboration and caters to diverse learning needs. From reimagining classrooms as multi-purpose spaces to integrating informal learning areas, the proposed model seeks to align educational spaces with the dynamic requirements of contemporary learning methodologies. The discussion encompasses the concept of a balanced classroom, culinary arts studios, urban farms, movement studios, and media resource centers, all aimed at creating a more versatile and effective learning environment. This paper explores a transformative vision for educational spaces, emphasizing collaboration and adaptability. The discussion revolves around the need to overhaul traditional school designs to better align with contemporary educational philosophies. The proposed approach focuses on creating dynamic, collaborative spaces that cater to diverse learning needs, incorporating elements such as balanced classrooms, culinary arts studios, urban farms, movement studios, and media resource centers. The aim is to foster an environment where educators and students can engage collectively, embracing technology, experiential learning, and individualized instruction.

#### KEYWORDS:

Balanced Classroom, Educational, Learning Environment, School Building, Social Interaction.

### 1. INTRODUCTION

While conventional school building designs tend to isolate teachers within classrooms, the educational landscape is progressively shifting towards a collaborative paradigm. There is substantial evidence supporting the notion that the effectiveness of individual teachers is surpassed by those who engage in collective efforts.

#### *1.1. Enhancing Collaboration Through Effective Groupings:*

To optimize teacher collaboration, educators working with the same group of students must have adjacent workspaces. This proximity facilitates seamless planning and informal discussions, encompassing topics ranging from teaching strategies and curriculum materials to the specific needs of individual students. The detrimental impact of teachers working in isolation is evident when considering the multitude of innovative ideas that may go unnoticed in the hectic school environment. Additionally, the missed opportunities to share strategies for aiding struggling students become apparent when teachers are physically separated in different rooms.

#### *1.2. Establishing a Centralized Home Base:*

Teachers necessitate a designated space for reflection, planning, and collaboration, both individually and as a team. This space, typically a desk, can also take the form of a room

equipped with bookshelves, filing cabinets, a central table, ergonomic chairs for each office user, a sofa, personal lockable storage units, and laptop charging points. Concerns about needing space away from students during non-contact times are valid, prompting a questioning of the learning-community-based teacher office concept. However, these concerns can be effectively managed, such as through a sign on the office door indicating on-duty and off-duty status. Teachers also express the need for acoustically secure spaces for private phone calls or meetings with students or parents, away from the presence of colleagues [1], [2].

### *1.3. Classrooms as Multi-Purpose Spaces:*

The conventional design of classrooms reveals inherent limitations in fostering creativity and adaptability in young learners. Rooted in the misconception that efficient content delivery equates to effective learning, traditional classrooms often adhere to a single mode of instruction, primarily lecturing from the front. This reinforces the isolating norm of teachers working behind closed doors [3], [4]. Scientific research emphasizes the crucial link between human productivity and space design, revealing that environments with variety, flexibility, and comfort enhance student and teacher performance qualities lacking in conventional classrooms. The prevalent cells-and-bells model efficiently moves students from one identical classroom cell to another when the bell rings. A paradigm shift towards student-centered learning necessitates a redesign journey, initiating the transformation of individual classrooms into dynamic learning studios [5], [6]. These studios accommodate diverse learning modes, fully embracing the advantages of active learning. Progressing further, the creation of learning suites merges two or more classrooms, promoting collaborative teacher efforts and establishing new-paradigm learning communities.

### *1.4. Informal Learning Areas:*

The concept of the "third place" emerges as a pivotal setting outside the confines of home and work, where informal learning transpires through socializing, eating, reading, studying, and relaxing in the company of others. Learning environments must facilitate social and informal interactions. Positioned centrally, the third place beckons students to engage in informal learning, encouraging social interaction, homework assistance, and independent work during breaks, recess, lunch, and even regular class periods [7], [8]. Observations reveal students working individually or in small groups in hallways, stairwells, under trees, on the floor, or couches locations outside the formal classroom setting. Recent school designs, attuned to the need for informal learning spaces, have demonstrated success. This program and design consciously tap into the informal learning dynamics within a school environment, incorporating playful elements and areas for eating, relaxation, and study. Moreover, the third place seamlessly integrates with the Kiva and hallway spaces.

### *1.5. The Kiva: A Versatile Educational Commons:*

Originating from the partly underground community gathering spaces in Pueblo Indian villages, the term "kiva" transcends its historical roots to become a vital concept in modern educational design. In the context of schools, a version of the kiva is essential—a space fostering both small and large group congregations. The kiva emerges as an exceptionally versatile area, capable of functioning akin to an auditorium, accommodating sizable student groups. However, its distinct advantage lies in its capacity to transform into a hub for smaller student gatherings, collaborative work, social interactions, and peer tutoring, distinct from traditional auditoriums [9], [10]. Furthermore, the kiva is adept at supporting contemporary educational practices, including distance learning and independent study.



This circular podium elevated and thoughtfully designed, eliminates the need for cumbersome loose or fixed furnishings. Its versatility extends to facilitating a spectrum of both informal and formal teaching and learning activities, enriching the educational experience. As a communal space, the kiva serves dual purposes half of it caters to larger common assemblies, performances, and events, while the other half seamlessly integrates into the open classroom environment, enhancing its functionality for smaller classroom events. The kiva, thus, stands as a testament to innovative educational design, blending historical inspiration with contemporary adaptability.

## 2. LITERATURE REVIEW

Kinshuk, *et al.* [11] Studied recent technological advances that have transformed learning behaviors and teaching methods, presenting challenges like a shift to informal learning and a growing knowledge gap among students. This paper advocates for the transformation of current educational systems into smart learning environments by integrating technology and pedagogy. It highlights the need for fundamental changes to address challenges, such as the increasing dominance of informal learning. The discussion also explores emerging technologies and pedagogical innovations shaping the future of education, emphasizing the fusion of technology and pedagogy for dynamic and effective learning ecosystems.

J. Dron, [12] Studied a non-smart learning environment, this research questions the idea of smart learning environments. It makes the case that a lot of face-to-face learning settings unintentionally promote counterproductive behaviors, which renders them ineffective as a system. The author argues that educational innovation and a great deal of work are needed to overcome these problems. Online learning environments, which often mimic the drawbacks of traditional classroom settings, prioritize surface-level content over deeper issues. The study examines intelligence as an emergent quality that arises from the interaction of structural and dynamic factors, highlighting the significance of imaginative, self-reliant, and driven human agents. Finally, methods for coordinating systems that support really intelligent learning environments are covered.

A. N. Fayez, [13] studied the implementation of smart learning in higher education institutions in Saudi Arabia, driven by the rapid growth of Information and Communication Technology. Smart Learning, a technology-supported approach, aims to create a personalized and comfortable learning environment tailored to individual learners' needs. The study, conducted through quantitative research methodology involving 530 students and professors in Saudi universities, investigates the advantages and challenges associated with Smart Learning. The identified benefits include flexibility, interaction, and improved internet experience. The paper also proposes innovative recommendations to address potential challenges and enhance the successful integration of Smart Learning in Saudi universities.

E. Dimitriadou and A. Lanitis, [14] Studied the evolution of the term "Smart Classroom" in response to technological advancements in education, particularly the integration of Artificial Intelligence (AI). The discussion includes a literature review on smart classroom technology, emphasizing emerging AI-related technologies. Key technologies related to effective class management, the use of smart teaching aids, and automated performance assessment are presented. The role of AI in enhancing these technologies is highlighted, and a SWOT analysis examines the strengths, weaknesses, opportunities, and threats of adopting AI in smart classrooms. The paper aims to inform educators and AI professionals about the potential and limitations of AI in education, providing insights into challenges and opportunities in implementing AI-based systems in smart classrooms.

S. F. Ahmad, *et al.* [15] Studied the role of Artificial Intelligence Applications (AIA) in addressing contemporary challenges in education. The use of AI applications is seen as a solution to issues related to access to education and learning. The study highlights the significance of AI in the development of Smart Learning (SL), Social Robots (SR), and Intelligent Tutoring Systems (ITS). It emphasizes the need for the education sector to embrace modern teaching methods and technology. The paper suggests that educational organizations should consider adopting AI technologies as a necessary response to the demands of the modern educational landscape. The study proposes the need for statistical testing to enhance understanding and generalize findings in future research.

### 3. DISCUSSION

#### *3.1. Achieving Balance in the Classroom:*

##### *3.1.1. The Pursuit of Educational Equilibrium:*

Reflecting on the educational timeline unveils the open classroom movement an initiative aimed at breaking down physical barriers to foster collaboration among learners. The aspiration was to transition from a teacher-centered to a multiage, student-centered model.

However, this approach had its drawbacks, particularly in placing numerous young children in one vast, open area, posing considerable risks.

In response to these challenges, the education system adopted the cells-and-bells model, isolating learners into confined spaces a factory-like setup that persists today. Unfortunately, this model proves detrimental to young minds, neglecting the uniqueness of each student and their entitlement to a personalized education.

Recognizing the urgency for change, this program seeks to reintegrate schools and prompt a reevaluation of school design. The objective is to depart from the antiquated factory model towards a more open yet organized structure. A compelling driver for this redesign stems from the escalating role of technology in education, paralleling the transformations witnessed in the workplace. However, rigid designs rooted in the cells-and-bells model impede progress. In blunt terms, substantial investments in dysfunctional architecture persist, inadequately catering to the educational needs of twenty-first-century children.

This program presents specific strategies to rectify this dysfunction, ensuring the longevity and effectiveness of existing school facilities. Striving for a balance between technological advancements, hands-on project-based learning, independent learning, and multi-class environments, the program advocates for the incorporation of quiet corners, restorative areas, enclosed spaces for smaller group activities, focused workspaces, carefully selected furniture, and acoustic treatments. These elements are deemed essential to foster a harmonious and balanced classroom environment that aligns with diverse learning needs and preferences.

#### *3.2. Culinary Arts Studio: Nurturing Healthy Habits in Youth:*

##### *3.2.1. Empowering Through the Art of Cooking:*

Initiating culinary education for children serves as a gateway to instill lifelong habits of healthy living from an early age. In the contemporary landscape, today's youth often lack essential dietary practices, relying on packaged or nutritionally questionable foods. Introducing healthy cooking in schools emerges as a valuable remedy to this nutritional deficit. The culinary arts studio emerges as a dynamic learning lab, engaging children's senses in a holistic manner. Activities such as kneading, tossing, pouring, smelling, cutting, and handling various foods not only make the learning experience enjoyable but also contribute to skill development, often

without the learners being consciously aware of it [7], [8]. This immersive approach fosters a sense of accomplishment, self-confidence, and a feeling of active contribution to the learning community. Recent research underscores the significance of experiential learning and hands-on activities in nutrition education. Engaging children in tactile experiences, particularly in food handling and cooking, diminishes food neophobia and enhances their willingness to embrace a diverse range of foods. Beyond these immediate benefits, the culinary arts studio becomes a platform for honing essential life skills. From practicing fundamental math skills like counting, weighing, and measuring to cultivating social skills through collaborative work and effective communication in the kitchen, each child plays a role in meal preparation and cleanup. Furthermore, the culinary arts studio serves as an avenue for imparting crucial nutrition education. It provides an opportunity to educate children on meal planning and making informed, healthier food choices. Beyond the tangible skills, the act of cooking contributes to the formation of positive memories, supports social interaction, and nurtures the development of key communication and relationship-building skills. In essence, the culinary arts studio transcends the realm of cooking; it becomes a multifaceted educational space enriching the lives of children through the art and science of culinary exploration.

### *3.3. Urban Farm: A Nexus of Learning and Growth:*

#### *3.3.1. Embracing Multidisciplinary Exploration in Agriculture:*

The concept of an urban farm presents a fertile ground for rich, multidisciplinary learning, seamlessly integrating various fields of study within the realm of agriculture. This interdisciplinary approach not only offers inspiration for a versatile studio but also becomes a hub for exploring agricultural science, chemistry, social issues, writing, innovation, entrepreneurship, and culinary arts. This innovative learning initiative holds the potential to revolutionize health and nutrition education. Transforming the urban indoor farm into a comprehensive agricultural center opens avenues for sustainable practices. The produce cultivated in the school's garden becomes a valuable resource for the school's commercial kitchen, where it can be utilized to craft healthy and nutritious meals. Moreover, surplus harvests can find a purpose in a student-run farmers market, establishing a connection between the school and the community while fostering entrepreneurial skills among students. The inherent value of food-related experiences extends beyond the realm of formal education, offering social and informal learning opportunities. The integration of a café area adjacent to the teaching kitchen not only supports social interaction but also becomes a space for developing crucial communication and relationship-building skills. The synergy between farming, cooking, and eating establishes a profound connection, aligning with three of the four fundamental learning metaphors:

- i. *Life*: Practical experience with food growth and preparation becomes a cornerstone of learning.
- ii. *Campfire*: The space serves as a hub for direct instruction on relevant subjects, with facilitators circulating and collaborating with students in project work areas, eliminating the need for a traditional classroom setup.
- iii. *Watering hole*: The café space emerges as a central point for rich, informal, and social learning experiences, enhancing the holistic learning journey.

In essence, the urban farm transcends the boundaries of conventional education, providing a dynamic platform where students engage with the intricacies of life, knowledge, and community in a hands-on and meaningful way.

### *3.4. Dynamic Learning Environment: The Movement Studio:*

Alone, one cannot forestall mental decline or significantly enhance cognitive function. The mere act of sitting in front of a two-dimensional screen, and playing video games, fails to optimize brain connectivity and foster neurogenesis (the growth of new neurons). To provide your brain with a comprehensive workout, both hemispheres of the cerebrum and the cerebellum must be engaged. This can only be achieved by actively practicing, exploring, and learning new things in the three-dimensional realm of the real world, rather than succumbing to sedentary activities in a cyber-reality. Devoting excessive time to screens detracts from opportunities to break a sweat, explore the world, connect with friends and family, create art, play musical instruments, write, read novels, daydream, practice mindfulness meditation, and more. Physical activity is the conduit through which children interact with external reality, paving the way for the assimilation of even abstract ideas. The Movement Studio is a dedicated space designed to enable children to take a moment to reset a versatile resource where entire classes and small groups can engage in activity breaks. These active learning spaces cater to diverse sensory integration needs, fostering an environment conducive to enhanced learning.

Recognizing that students exhibit varied responses to their environment, the Movement Studio accommodates both those who thrive in dynamic, stimulating settings and those who prefer a more subdued start to their day. By addressing students' physical needs, particularly at the onset of the school day or as required, the studio contributes to improved cognitive performance. Extensive research underscores the profound connection between the vestibular system and higher-order language comprehension, sequencing understanding, and math skills. Sensory integration aids students in focusing on pertinent information while filtering out extraneous stimuli.

Learning through movement encompasses all senses and demands their seamless integration for optimal mental development. Therefore, the Movement Studio provides a spacious environment with soft equipment, facilitating free movement and easy reconfiguration. All components are designed to be removable, exchangeable, and swiftly reconfigured, catering to the evolving sensory needs of children.

### *3.5. Innovative Knowledge Hub: The Media + Resource Centre:*

Historically, exemplary libraries have been bastions of personalized learning, shifting the focus from teaching to fostering a culture of learning. These spaces are dynamic arenas for individual and collaborative research, where users are encouraged to pose both profound and trivial questions and delve into daily curiosities and lifelong passions, all at their own pace. However, in the digital era, the relevance of libraries is challenged. With Google providing access to an abundance of information and books transitioning to mobile devices, the question arises: Why do we still need libraries? This program delves into the evolving role of the school library and proposes design solutions that resonate with the changing landscape [16], [17]. At its essence, a library transcends the mere storage of books. If books were the sole focus, libraries wouldn't feature doors or shelves; they could be confined to a sealed box. Instead, libraries serve as dynamic connectors, linking people with ideas.

They carve out serene, comfortable spaces where students can engage in Internet research, read quietly, and embark on self-directed information absorption. The core function of this space is to kindle a spirit of curiosity, creativity, and discovery among its users. Thus, the pertinent questions become: "Where do ideas thrive?" and "Where do people converge?" The Media + Resource Centre stands as an innovative knowledge hub, not merely a repository of books, but a vibrant space designed to inspire curiosity and facilitate diverse modes of learning and exploration.

### *3.6. Access to information before and after the internet:*

In the era predating the Internet, the entirety of human knowledge existed either in individuals' minds or was recorded on various physical mediums such as books, magazines, journals, films, CDs, DVDs, cassettes, vinyl records, microfiche, and so on. During those times, libraries served as crucial hubs for connecting individuals with ideas, with their physical locations playing a significant role in organizing and cataloging the physical media for people to access the information they sought. The last two decades have witnessed a profound revolution in the creation, storage, and access of information, with the Internet becoming the predominant medium for information exchange and communication. This transformation has positioned the library as a central player in this paradigm shift. It does not imply that the Internet has eradicated or will eradicate the library; rather, it underscores the imperative for the library to undergo substantial changes to remain aligned with its fundamental purpose of connecting people with ideas. A well-conceived school should empower students to access the institution's e-books, music, and film collections at their convenience and from any location. Consequently, the traditional concept of a library evolves into that of a media and resource center.

Most educational leaders acknowledge the necessity for educational practices to evolve in sync with the external world's changes. Despite this call for change, one glaring constant within the entire educational framework, persisting almost unchanged for four to five decades, is the school building. It continues to echo the prevalent and conventional model of classrooms lining a double-loaded corridor. Unfortunately, this arrangement severely restricts the practical application of the most effective educational theories. In traditional settings, arranging collaborative work, organizing students in inter-age groups, and delivering interdisciplinary courses become challenging for teachers. Similarly, traditional setups hinder students from working independently, conducting research, engaging in hands-on projects, and participating in peer tutoring, among other activities that educators desire.

When the research on learning environments was amalgamated into a design concept, it became apparent that introducing a new school concept is a significant undertaking fraught with challenges. Establishing a highly collaborative environment on a large scale poses a daunting task for spatial and system planners. Rethinking schools is inherently political and involves inductive action on different levels [18], [19]. The topic of schools resonates with almost everyone, generating diverse opinions. Exploring this for my capstone project from the outset has been captivating, as the perception of what a school should be is deeply ingrained in everyone's minds. This sometimes prompts reflection on one's own educational experience. While the classroom as a symbol for learning is under scrutiny, other structures and ideas within schools also need examination.

Throughout this project, extensive conversations with various stakeholders have revolved around the ideal appearance of schools and the most effective educational practices. Emotional sentiments often override evidence in some areas. Implementing change is challenging across all domains, but nowhere is it more challenging than in education. Even in the simple matter of student comfort, some parents still harbor concerns that providing comfortable furnishings may undermine discipline and rigor, despite evidence suggesting otherwise [20]. The spatial design proposed is dynamic in form and circulation, fostering gatherings in expansive common spaces while allowing individuals to retreat into more private study and work areas. The learning environment is adaptable, allowing students to tailor it to suit the requirements of their projects and study preferences. Teachers assume a mentor-like role, guiding students toward the most suitable outlets for their unique academic interests. The research and design in this project share a common goal: to offer learners and facilitators diverse, comfortable learning environments that broaden the spectrum of available teaching and learning modes.



Given that information is now accessible anywhere, this project reevaluates the type of learning environments schools should provide, transcending the idea of having one classroom for each class. It explores a holistic spatial strategy with shared spaces for interactive storytelling, reflection, and real-life applications. The approach leans towards virtues of self-organization, freedom, and leisure. The design interventions outlined in this project may sound unfamiliar to parents and other stakeholders, sparking concerns. Therefore, school planners and designers must dedicate significant effort to discussing leading practices in education, familiarizing stakeholders with new educational methods and practices, and presenting designs for learning environments that support innovative approaches.

#### 4. CONCLUSION

This project endeavors to bring together the optimal blend of learning methods and relevant pedagogy under one roof. It aims to make a compelling case for scrutinizing school facilities with the same critical eye applied to education itself. Beyond that, the hope is that the specific strategies and suggestions presented in this project will equip school leaders with the information needed to enhance school facilities, resulting in holistic educational outcomes. As a designer, the key role in achieving this ideal lies in influencing program development. During the early stages of project design, designers have the opportunity to introduce more progressive ideas. With this project, the aim was to leverage this power to push the boundaries of what is deemed acceptable and important. While the proposed design may be seen as aspirational, it remains an attainable goal. Committed individuals in the fields of design and education can take small steps to guide the academic environment toward a brighter, more progressive future. This design proposal sheds light on one hemisphere of the vast world of education, indicating room for improvement. Understanding the administrative dynamics and nuances of user interaction with such blended environments is essential. Design can be refined iteratively. The conclusion emphasizes the importance of embracing and implementing expert recommendations to positively influence educational spaces. A holistic approach to collaborative learning environments” offers a promising blueprint for the future of educational infrastructure. By challenging traditional norms and embracing innovative concepts, the proposed design aims to bridge the gap between outdated school buildings and the evolving needs of educators and students. The emphasis on collaboration, adaptability, and the integration of diverse learning spaces is crucial in fostering a holistic educational experience. While acknowledging potential challenges in implementation and administrative dynamics, the paper underscores the importance of continually refining and influencing educational spaces to positively impact the learning journey. As education enters a new era, the proposed model invites stakeholders to consider and implement progressive ideas that elevate the quality of learning environments for the benefit of all.

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## CHAPTER 9

### BRIDGING THE GAP: QUEST FOR CAREER SUCCESS IN MODERN EDUCATION

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#### ABSTRACT:

In the rapidly evolving job market, a pronounced mismatch exists between academic learning and the practical demands of diverse industries. This disconnect raises concerns among students, educators, and employers. The remedy lies in embracing experiential learning, immersing students in real-world scenarios to provide practical experience. Technological advancements further contribute to this gap, making experiential learning crucial for staying ahead. This study aims to equip students with hands-on experience, cutting-edge skills, and exposure to industry trends. The Student Success Barrier is identified, encompassing challenges like imitating peer decisions, fear of failure, and financial difficulties. Strategies for student success involve mentorship programs, enhanced technology access, hands-on learning, exposure to diverse perspectives, and mental health support. Globally, initiatives like apprenticeships, industry-driven curriculum, and job shadowing bridge academia-industry gaps. The study targets students, parents, universities, professionals, companies, and various internal teams. Quest's success relies on dedicated teams, including research, development, design, module design, marketing, and administrative staff. Stakeholders, including students, parents, universities, professionals, and companies, benefit from the platform's guidance, collaborative opportunities, and access to well-prepared students. The study contributes meaningfully to community and workforce development, ensuring a well-managed and financially sustainable operation. Quest aims to guide the next generation towards successful and informed career paths, addressing the complex challenges in the contemporary educational landscape.

#### KEYWORDS:

Career Success, Cutting-Edge Skills, Modern Education, Student Success.

#### 1. INTRODUCTION

"In today's dynamic job market, a notable disparity exists between academic learning and the practical demands of various industries. Many students find themselves without hands-on experience and awareness of the latest industry trends, factors that are indispensable for success in the professional arena. This misalignment between educational pursuits and industry requirements raises significant concerns for students, educators, and employers alike. The remedy to this challenge lies in embracing experiential learning, a method that immerses students in real-world scenarios, providing them with practical experience and preparing them for the complexities of actual work environments [1], [2].

One contributing factor to the education-industry gap is the swift pace of technological advancements. The continuous emergence of new technologies poses a challenge for educators to stay abreast of the latest trends. Experiential learning emerges as a solution by offering students hands-on engagement with cutting-edge technologies, enabling them to stay ahead of industry developments and cultivate the skills sought by employers. For many students, navigating the selection of a suitable career path can be an intimidating endeavor. The disconnect between educational curricula and industry demands further complicates this

process. Frequently, students lack the practical experience and exposure to contemporary industry trends that are pivotal for success in the workforce. This persistent gap between education and industry has evolved into a substantial concern shared by students, educators, and employers."

*a. Technology: A key to success*

Success in every facet of our lives now hinges on the integration of technology. Whether it pertains to personal or professional development, individuals need to adopt and leverage technological advancements to not only stay competitive but also flourish in an ever-evolving environment. The escalating significance of technology is evident across various industries, spanning healthcare, finance, manufacturing, and transportation. Within these sectors, technological progress has led to substantial enhancements in efficiency, productivity, and overall quality of life. To illustrate, advancements in medical technology empower healthcare professionals to diagnose and treat diseases with heightened accuracy and speed. Similarly, businesses can enhance their operations by employing sophisticated software and AI tools, automating processes, and optimizing both their financial performance and customer experience.

Moreover, the education sector has undergone a revolution due to technological advancements. Virtual and augmented reality tools, among others, possess the capability to reshape the learning process, offering immersive and interactive educational experiences that enhance student engagement and foster a more profound comprehension. In essence, technology has become not just an option but a necessity for success in the contemporary world. Whether pursuing personal or professional development, individuals must adopt and leverage technology and its innovations to remain competitive and flourish in an evolving environment [3], [4].

In the contemporary and fast-paced job market, there is frequently a disconnection between education and industry. Many students lack practical experience and exposure to the latest industry trends, crucial elements for success in the workforce. Bridging this gap between education and industry is a significant concern for students, educators, and employers alike. The remedy to this issue lies in experiential learning, a method that provides students with hands-on experience and prepares them for the challenges of the real world.

*b. Academia: Industry Gap*

Experiential learning, involving learning through experience and subsequent reflection, allows students to apply classroom-acquired knowledge and skills to real-world situations. This approach furnishes them with practical experience and insight into current industry trends. In today's job market, where employers seek candidates with a blend of theoretical knowledge and practical experience, this type of learning is increasingly crucial. A key factor contributing to the education-industry gap is the rapid pace of technological change. Given the constant emergence of new technologies, educators find it challenging to keep abreast of the latest trends. Experiential learning serves as a solution by affording students hands-on experience with cutting-edge technologies, enabling them to stay ahead of the curve and cultivate the skills sought by employers.

By delivering practical experience and exposure to contemporary industry trends, experiential learning helps students prepare for the demands of the real world, rendering them more competitive in today's job market. As technological change continues to accelerate, the importance of experiential learning grows, ensuring that students are equipped with the skills and knowledge needed for success in their chosen fields.

### c. Student Success Barrier

Ensuring students are well-prepared for their careers is a significant consideration, yet numerous obstacles may impede their advancement. The Student Success Barrier is illustrated in Figure 1.

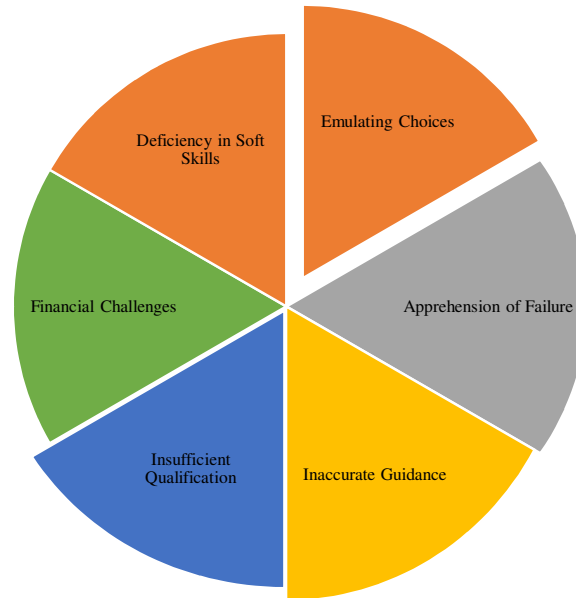
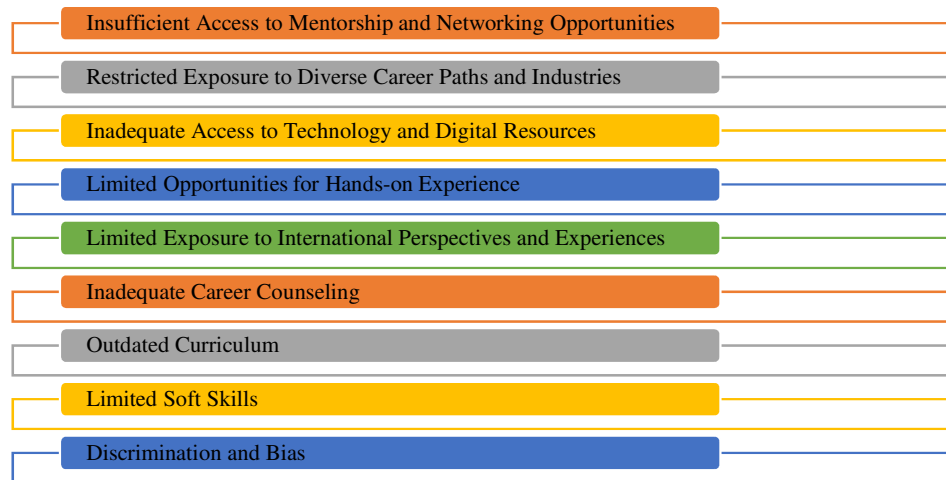


Figure 1: Illustrate the Student Success Barrier.

1. Students might feel compelled to imitate the decisions of their peers rather than pursue their interests.
2. The fear of failure has the potential to hinder students from reaching their career aspirations.
3. Furnishing precise and current guidance is crucial for the success of students.
4. Possessing the appropriate qualifications is crucial for achieving success in any profession.
5. Financial difficulties can serve as a hindrance for students.
6. Proficiency in soft skills, including communication, collaboration, and problem-solving, is vital for success in any career [5], [6].

### d. A problem to solve

The journey toward a successful career is often fraught with challenges for numerous students, making the realization of their goals particularly arduous. Figure 2 Navigating the path to a successful career is riddled with challenges for students, presenting hurdles that make achieving their goals a demanding journey. From forging professional connections to accessing essential resources, students face obstacles such as limited mentorship, a lack of career information, technology barriers, and inadequate practical experience. These challenges underscore the importance of addressing issues like global exposure, comprehensive career counseling, modern skill development, and promoting inclusivity to empower every student on their career trajectory. These challenges encompass:



**Figure 2: Illustrate the Challenges.**

1. Students encounter difficulties in establishing professional networks and securing mentors who can offer valuable guidance and support.
2. Many students lack information about the diverse array of career paths and industries available to them, hindering their ability to explore various options and make well-informed decisions about their futures.
3. Some students face barriers in accessing the necessary technology and digital resources required to develop the skills essential for the modern workforce.
4. A considerable number of students do not have access to hands-on experience and practical learning opportunities, which are crucial for skill-building and gaining practical experience in the workforce.
5. Some students are deprived of exposure to global perspectives and experiences, limiting their understanding of the broader international context.
6. Many students do not receive sufficient career counseling or guidance, creating challenges in making well-informed decisions about their future paths.
7. Outdated curricula and teaching methods may fail to equip students with the skills and knowledge demanded by today's job market.
8. Soft skills like communication, collaboration, and problem-solving, highly valued by employers, often lack adequate training opportunities for many students.
9. Students from underrepresented communities may encounter discrimination and bias in the job market, constraining their career opportunities [7], [8].

The introduction outlines the challenges faced by students, educators, and employers due to this misalignment and underscores the importance of practical experience and awareness of industry trends. The literature of the previous study is discussed in the literature review section. The discussion section identifies the barriers to student success, ranging from peer influence to financial difficulties, and presents a comprehensive illustration of the challenges students encounter on their path to a successful career. The study suggests strategies for student success, such as mentorship programs, enhanced access to technology, and hands-on learning opportunities. Finally, the study ends with a conclusion section that explains the outcome and future of this study.



## 2. LITERATURE REVIEW

Filonenko V. et al. [2] explored the perceptions of career choices among college students by utilizing data from the cross-regional sociological monitoring study titled "Contradictions and Paradoxes of Student Socialization in the Context of Transitivity of the Modern Russian Society (2016)." The study's findings are juxtaposed with those of similar research conducted in 2006 and 2011. The strongest motivation for modern students in choosing a career is identified as perceiving it as a means of personal development, positively influencing their academic achievements. Despite that, students demonstrate limited awareness of the labor market and sector-specific demand, resulting in mismatches between jobs and education, an oversupply in certain high-profile careers, shortages in other economic sectors, and challenges in securing post-graduation employment. The study highlights substantial disparities in the motivations behind career choices between students and professors. While professional educators tend to downplay the significance of students' interest in their future careers, placing more emphasis on external factors such as parental influence or the pursuit of a higher education diploma regardless of the field, modern students, unlike their 1990s counterparts, appear to recognize the correlation between their academic performance and future career success.

Antyukhova E. and Kasatkin P. [9] explored the repercussions of the sudden shift to distance education in universities and the global decline in academic mobility during the 2020 pandemic. It does so by examining the active implementation of the success and excellence methodology in education. The author highlights current education trends, such as growing inequality, the prevalence of success and excellence concepts, global-regional disparities, the shift from internalization of values to knowledge generation, a move away from state subsidies in favor of self-financing, precarization of the middle teaching class, showcasing the superiority of digital solutions in knowledge dissemination, and the creation of outsourcing chains in education (research centers to universities, universities to commercial publishing houses, schools to career guidance centers, universities to online platforms, etc.). The study scrutinizes changes in the contemporary higher education model, considering universities' aspirations for global educational rankings. It initiates a discussion on development priorities, taking into account teachers' increasing dissatisfaction with aligning with the success and excellence model in their educational and scientific endeavors. The analysis reveals that pre-pandemic education trends were varied, influencing education systems and learning models in a developmental rather than mandatory manner. The crisis has bifurcated new manifestations into necessary renewal and adequate improvement for stability. The study observes that education, being inherently conservative, experienced an abrupt shift to distance learning during the pandemic, essentially replacing the anticipated evolutionary transformation that would have occurred over a more extended period.

Woodroffe J. et al. [10] studied "Contrary to popular belief, small communities are not lacking in opportunities or successful programs to prepare them for the future (West, 2013). That study explores career education within the context of rural areas in today's globalized world. It introduces the Pathways to Success study, which comprises over eighty initiatives aligned with the Australian curriculum. These initiatives, aimed at showcasing further education, training, and local industry careers, have reached more than 8000 learners, along with their schools and teachers in Tasmania. The study outlines how a collaborative model involving schools, industries, technical and vocational sectors, and higher education can transition from a sole dependency approach to a partnership model in career education. Drawing on mixed-method evaluation results from the study, the study examines key opportunities and challenges in preparing rural and regional Tasmanian students for the future workforce. It emphasizes how

collaborative partnerships can provide educators with the necessary information and networks to positively influence how young students in these areas perceive education pathways and career options for their future. The study highlights the utilization of rural and regional communities and resources to create innovative, place-based career and curriculum learning experiences."

Baldrige DKulkarni M. et al. [11] discussed "Through an interview-based study involving 40 respondents in the United States, we have identified factors that facilitate career transitions and sustainable professional journeys for individuals who have encountered significant hearing loss in adulthood. To maintain their careers following the onset of adult disability, participants embarked on a search for meaning and comprehensive answers to questions such as 'Who am I?' and 'Am I still successful?' that process involved a redefinition of self, where individuals embraced both a disability identity and a professional identity, considering themselves successful professionals. Career success, in that context, evolved to include a heightened emphasis on contributing to society, transcending a sole focus on material achievements. Respondents also assumed new professional roles where their disability became integral to their success, such as taking on positions like equal employment officers and leveraging social networks to continue achieving success. The act of redefining work roles and cultivating supportive networks contributed significantly to their pursuit of meaning and overarching answers. These findings not only shed light on how individuals navigate career success following a transformative life event but also challenge established notions of ableism within workplace environments."

Akintola O. and Chikoko G. [12] discussed the effective management and supervision of community health workers play a crucial role in the success of community health worker programs. However, limited research has delved into the viewpoints of supervisors within these programs. That study aimed to investigate the factors influencing the motivations of supervisors involved in community health worker programs. Qualitative interviews were conducted with 26 program staff responsible for supervising community health workers across eight community-based organizations in marginalized areas within the greater Durban region of South Africa. The interviews took place between July 2010 and September 2011. The study revealed that all supervisors possessed prior experience in health or social services and often began their journeys as unpaid community health workers. Many participants were financially disadvantaged women from marginalized communities. Supervisors engaged in various activities, including resource management, mentoring, training community health workers, and maintaining records. Motivational factors included intrinsic elements like making a positive impact and gaining community recognition, along with non-monetary incentives such as advancement to supervisory roles, skill development, participation in capacity building, program development, and support for educational progression through salary, bonuses, and medical benefits. Hygiene factors, preventing dissatisfaction, encompassed salaries and associated financial, medical, and educational benefits linked to supervisory roles. Demotivating factors included patients' non-compliance with health advice and feeling disconnected from decision-making. Dissatisfiers encompassed challenges like working in crime-prone areas, issues related to community health worker remuneration, resource problems, logistical challenges, job insecurity, work-related stress, and navigating the interface between community health workers and management. While low remuneration was a source of dissatisfaction, participants remained motivated by intrinsic factors. The findings suggest that the pursuit of remuneration and career progression persists even as community health workers transition into supervisory roles. Supervisors maintain motivation to work in mid-level positions within the health and social services sectors.

Fernández-Díaz J. et al. [13] Attaining success in today's intricate societal landscape requires individuals to exhibit heightened levels of creativity and resilience. That involves the ability to adapt to dynamic circumstances while maintaining the necessary determination and enthusiasm to persevere through setbacks. That research endeavors to discern the distinctive traits of individuals characterized by elevated levels of objective career success, subjective career success, resilience, and creativity. It aims to scrutinize the interplay between these attributes and the realization of career success. The study involved 200 participants spanning six professional categories (unemployed, managers, influencers, entrepreneurs, employees, and professors) in Spain. Data collection utilized the EX. P/RE/CRE questionnaire, tailored for that study. Findings indicate that individuals with notable creativity and/or resilience levels are better equipped to attain professional success, both objectively and subjectively. The study's outcomes affirm the connections among these variables, elucidating the attributes and circumstances of individuals deemed successful, resilient, and/or creative.

These previous studies cover a range of topics, from career choices and education trends to community health worker programs and the attributes influencing career success. Each study contributes unique insights to its respective field of study. The current study advocates for a transformative approach to education, emphasizing experiential learning as a bridge between academia and industry, ultimately paving the way for student success in the modern workforce.

### 3. DISCUSSION

To address challenges in contemporary education, experts propose various solutions. One involves creating mentorship and networking programs, allowing schools to collaborate with local businesses for students to connect with professionals. This fosters expanded networks, diverse career exploration, and insights from seasoned experts. Another solution focuses on improving access to technology through investments in infrastructure, online platforms, digital libraries, and software applications. This equips students with essential skills for competitiveness in the evolving job market. Promoting hands-on learning is another strategy, providing opportunities like internships and service learning for practical skill development. Exposure to diverse perspectives is emphasized through international study programs and cultural events, enhancing understanding in today's globalized workforce. Acknowledging the role of mental health, schools are urged to offer counseling, resources, and wellness programs, addressing stress and reducing associated stigmas, fostering a culture of self-care and self-compassion [14], [15].

#### *a. Strategies for Student Success in Modern Education*

To tackle the challenges and issues encountered by students in contemporary education, experts have put forth various solutions. One proposed remedy involves establishing mentorship and networking programs. Schools have the opportunity to collaborate with local businesses and organizations to create such initiatives, facilitating students' connections with professionals in their chosen fields. These programs play a crucial role in enabling students to expand their professional networks, explore diverse career paths, and glean valuable insights and advice from seasoned experts. Another solution centers on enhancing access to technology and digital resources. Schools can invest in technological infrastructure and digital tools, including online learning platforms, digital libraries, and software applications. This investment equips students with the necessary skills and knowledge to thrive in the modern workforce, ensuring their competitiveness in a rapidly evolving job market. A further strategy involves promoting hands-on learning and experiential education. Schools can broaden opportunities for internships, co-op programs, and service-learning studies, enabling students to cultivate practical skills and accrue real-world experience. These experiences contribute to a more profound understanding

of individual strengths and interests, aiding students in making well-informed decisions about their future careers. Increasing exposure to diverse perspectives and experiences is an additional approach. Schools can actively endorse international study programs, cultural events, and diversity training initiatives to expose students to a variety of outlooks and experiences. This exposure fosters a better understanding of different cultures and modes of thinking, a valuable asset in today's globalized workforce. Lastly, recognizing the critical role of mental health in student success, providing access to mental health services and support is imperative. Schools can offer counseling services, mental health resources, and wellness programs to assist students in managing stress, anxiety, and other mental health challenges. These resources not only address mental health issues but also contribute to reducing the stigma associated with them, promoting a culture of self-care and self-compassion [16], [17].

*b. Global Strategies for Bridging the Academia-Industry Gap*

10 approaches implemented internationally to bridge the gap between education and industry include:

- a. Apprenticeships: In Germany, students commonly engage in apprenticeships to acquire practical experience and cultivate skills pertinent to the industry.
  - b. Industry-driven curriculum: Certain U.S. universities collaborate with industry experts to design curricula tailored to industry needs.
  - c. Work-integrated learning: In Canada, select universities offer programs that integrate work experiences, providing students with practical, real-world exposure.
  - d. Entrepreneurship programs: In the United Kingdom, universities provide entrepreneurship programs supporting students in establishing their businesses and gaining industry experience.
  - e. Professional mentorship: Australian universities offer mentorship programs connecting students with industry professionals for guidance and support.
  - f. Cooperative education: Japan's cooperative education programs enable students to work in the industry while concurrently pursuing classroom studies.
  - g. Industry partnerships: In Singapore, universities partner with industry leaders, offering students opportunities to contribute to industry studies and acquire practical experience.
  - h. Internship programs: Universities in the Netherlands provide internship programs, giving students practical exposure and insights into the industry.
  - i. Job shadowing: South Korean universities offer job shadowing initiatives allowing students to observe and learn from industry professionals.
  - j. Simulations: In Sweden, some universities utilize simulations to offer students hands-on experience within a secure and controlled environment [18], [19].
- c. Targeting the Future*

From students and parents to universities and professionals, we extend our commitment to guide the next generation in achieving their goals. This study focuses on equipping the upcoming generation with the essential skills to thrive in the modern workforce. The primary target users are students facing a plethora of choices when it comes to selecting their career paths. Quest aims to offer these students the necessary guidance and resources to make informed decisions about their future. Recognizing that parents play a crucial role in the decision-making process, Quest also includes the elderly guardians of these students in its target audience. The goal is to establish a trustworthy relationship with these guardians, assuring them that Quest has their children's best interests at heart. Moreover, Quest acknowledges the unique challenges faced by college dropout students in navigating their

career paths. The objective is to provide support and resources to these students, aiding them in making informed decisions about their future and ultimately achieving their goals. Lastly, Quest emphasizes the importance of building relationships with potential companies to create job opportunities for their students. The aim is to form partnerships with companies across various industries, providing students with real-world experience and internship opportunities that can lead to job offers [20], [21].



**Figure 3: Illustrate stakeholder categories.**

The realm of career development encompasses a diverse array of stakeholders, united by a shared objective of guiding students and young individuals toward success in their chosen career trajectories. This involves a wide spectrum of participants, ranging from high school students exploring various career avenues to educational institutions and businesses aiming to recruit talented candidates. The stakeholders involved in career development initiatives are extensive and varied, falling into several categories shown in Figure 3:

*i. Students*

1. High school students
2. College students
3. Individuals who have discontinued their college education
4. Those in the process of exploring diverse career paths
5. Those actively seeking internship or job opportunities

*ii. Parents and Guardians*

1. Parents of high school students
2. Parents of college students
3. Guardians entrusted with making career decisions on behalf of a student

*iii. Universities and Professionals*

1. University career centers
2. Professors and academics across different disciplines

3. Business leaders and professionals capable of providing mentorship, networking opportunities, and job prospects

*iv. Companies*

1. Small businesses looking to hire interns or entry-level staff
2. Large corporations aiming to establish partnerships with educational institutions or programs
3. Startups seeking to recruit talent or explore collaborative ventures

*v. Internal Teams and Staff Members*

1. Members of research teams
2. Contributors to development teams
3. Design team members
4. Module design team participants
5. Marketing and sales team representatives
6. Administrative and support staff

*vi. Other Potential Stakeholders*

1. Investors or sponsors interested in supporting educational programs
2. Community members or local organizations advocating for workforce development initiatives
3. Government agencies or policymakers committed to enhancing job prospects for young individuals.

*3.4.The key Players: Quest Employees*

The success of the Quest study and its space relies heavily on the collaborative efforts of the dedicated team steering it. The diverse skills, experiences, and expertise brought by the space employees make them indispensable contributors to the study's triumph. A closer examination reveals the distinct roles and responsibilities shouldered by these key players.

*3.4.1. Research Team Members*

The research team undertakes the responsibility of conducting thorough research and analysis to discern the latest trends and best practices in career development and education technology. They play a pivotal role in keeping the space abreast of industry developments and ensuring the relevance and effectiveness of Quest's programs and services. Additionally, they actively contribute to the development and enhancement of the curriculum for the various career development programs offered.

*3.4.2. Development Team Members*

The development team is tasked with creating and implementing technology solutions for career development programs. Collaborating closely with the research team, they design software and applications that facilitate accessible and engaging learning experiences. Their responsibilities also encompass ensuring the security and user-friendliness of the digital infrastructure.



### 3.4.3. *Design Team Members*

The design team takes charge of crafting the visual and user experience design for the space and its programs. Working in tandem with the development team, they create user interfaces and experiences that are not only intuitive but also captivating and efficient. Responsible for the layout, typography, graphics, and other visual elements, the design team ensures alignment with Quest's brand identity and values.

### 3.4.4. *Module Design Team Members*

The module design team focuses on designing and developing modules and courses integral to the career development programs. Their collaboration with the research team ensures content relevance, while their partnership with the design team guarantees visually appealing and engaging modules. Navigability and clearly defined learning objectives are also within their purview.

### 3.4.5. *Marketing and Sales Team Members*

The marketing and sales team takes on the responsibility of promoting the space and its programs and identifying and engaging potential customers. Through the creation of marketing campaigns, management of social media platforms, and establishment of partnerships with other organizations, they enhance awareness of the space. Collaborating with the development team, they devise targeted marketing strategies in alignment with Quest's brand identity and values.

### 3.4.6. *Administrative and Support Staff*

The administrative and support staff play a crucial role in ensuring the seamless operation of the space and its programs. Handling day-to-day operations, managing schedules, and ensuring a clean and well-maintained facility with necessary resources are all part of their responsibilities [22], [23].

## 3.5. *Stakeholder Participation and Expectations*

This platform offers a broad array of advantages to diverse stakeholders, including students, parents, universities, professionals, companies, and other interested parties. For students, the platform provides explicit guidance and resources to explore various career paths, gain work experience, and cultivate professional skills. Parents can trust the reliability of guidance, ensuring a safe and supportive environment for their children. Universities and professionals can capitalize on collaborative opportunities and access a pool of well-prepared students. Companies benefit by accessing a pool of job-ready candidates and supporting workforce development initiatives.

Students gain access to clear guidance and resources for exploring diverse career paths, internships, and work experience across industries. They can also utilize mentorship and networking opportunities with professionals, receiving training and resources for developing technological skills and staying current with industry trends. The platform provides job search resources and support for navigating the job market. Parents can rely on the platform's guidance to help their children make informed career decisions, ensuring a safe and supportive environment. They also have access to resources and support for navigating the educational system and exploring career options.

Universities and professionals find collaborative and partnership opportunities with the platform to enhance career development programs and services. Access to a pool of talented and well-prepared students is available for internships or employment. Companies benefit from

the platform's pool of well-trained, job-ready candidates, assured of relevant and up-to-date training for developing professional skills. Collaboration and partnership opportunities support workforce development initiatives, with access to resources and support for staying current with industry trends. Other potential stakeholders can trust that the platform contributes meaningfully to community or workforce development. Opportunities for involvement in supporting educational or workforce development initiatives are available, with evidence of the platform's effectiveness and impact. Additionally, stakeholders can be confident in the platform's well-managed and financially sustainable operations.

#### 4. CONCLUSION

The challenges posed by the disparity between academic learning and industry demands are significant, raising concerns for students, educators, and employers. The rapid pace of technological advancements further exacerbates this gap. The integration of technology is identified as a key factor for success in the modern world, impacting various industries and reshaping education. Experiential learning emerges as a solution, providing students with hands-on engagement to stay ahead of industry developments. The Student Success Barrier encompasses various challenges, from imitating peers' decisions to financial difficulties, emphasizing the multifaceted nature of obstacles hindering student success. However, the identified challenges also present opportunities for improvement, particularly through targeted strategies. Strategies for student success in modern education include mentorship programs, enhanced access to technology, hands-on learning, exposure to diverse perspectives, and mental health support. These strategies address the multifaceted challenges students face, promoting a comprehensive approach to education. Quest's commitment to guiding the next generation is evident, with a focus on providing essential skills for success in the modern workforce. The platform targets a diverse audience, including high school students, college students, parents, universities, professionals, companies, and other potential stakeholders. The Quest study addresses the crucial need for aligning education with industry demands, offering a multifaceted solution to bridge the existing gap. Through collaborative efforts, targeted strategies, and a commitment to stakeholder success, Quest aims to empower students and contribute meaningfully to workforce development.

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## CHAPTER 10

### ANALYSIS OF THE EDUCATION SYSTEM IN INDIA AND GOVERNMENT SCHOOLS' FUNCTIONS

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#### ABSTRACT:

India's educational system demonstrates a multifaceted environment with advantages and disadvantages. Even though there has been a noticeable increase in the number of people who can get an education, problems such as insufficient infrastructure, inequalities in socioeconomic status, and inconsistent quality still exist. Since they educate a sizable segment of the populace, particularly in places with low economic status, government educational institutions in India are essential in tackling these issues. Their duties also include creating a welcoming and encouraging learning atmosphere in addition to disseminating scholarly information. Students from a variety of backgrounds gain power and social mobility via government schools. However, issues like insufficient financing, a lack of teachers, and ineffective bureaucracy influence how successful they are. To solve these problems and update the system, strategic changes are being implemented. Sustained efforts to improve facilities, teacher training, and general educational quality are necessary for government-run schools in India to successfully evolve. This will have a transformational effect on the lives of billions of children as well as the country's educational landscape.

#### KEYWORDS:

Children, Education, Government, Medical, Schools.

### 1. INTRODUCTION

India's Education System is a complicated, multidimensional framework that takes into account the many social, cultural, and economic aspects of the nation. India's education system, with its roots in antiquated customs and contemporary goals, has changed dramatically over time. The system is defined by a blend of private and public entities, different quality standards, and an ongoing commitment to accessibility and diversity. India has a long and illustrious history of education, with venerable colleges like Takshashila and Nalanda functioning as Hubs of learning and scholarship. However, when colonial power arrived, the educational system saw a fundamental change. To create a cadre of administration to support imperial objectives, the British established a bureaucracy. The goals and organization of the Indian educational system have been significantly influenced by this colonial past [1], [2].

India made a determined attempt to restructure and reform the educational system after gaining its independence. With an emphasis on basic and secondary education, the government made major efforts to increase access to education. A significant turning point in the history of higher education was the creation of the University Grants Commission (UGC) in 1953, which is responsible for enforcing standards and fostering excellence in institutions. However, issues including poor infrastructure, a lack of skilled instructors, and regional differences continued to exist.

The focus placed on rote learning and exams is one of the characteristics that set apart the Indian educational system. The education system has often been accused of encouraging memorization over critical thinking and innovation, especially at the school level. A culture of

high-stakes exams has emerged as a result of the fierce rivalry for academic achievement, where students often feel tremendous pressure to do well [3], [4]. Concerns over students' mental health and well-being have resulted from this, which has prompted requests for a more comprehensive and student-centered approach to education.

Despite significant progress in raising literacy rates and broadening educational opportunities, issues with relevance and quality still exist. There are still differences in educational attainment between rural and urban regions as well as across socioeconomic categories. States differ greatly in the level of education they provide, and many areas struggle to find both skilled instructors and enough educational facilities. By encouraging universal access to basic education, programs like the Sarva Shiksha Abhiyan (SSA) and the Right to Education (RTE) Act have attempted to solve these problems nevertheless obstacles have arisen throughout implementation [5], [6]. The growth of private schools, particularly in higher education, is a noteworthy feature of the Indian educational system. There have been concerns expressed over the cost and the commercialization of education, even though these institutions add to the total capacity and variety of the educational environment. Debates over the role of the private sector in education have arisen as a result of the expense of private education, which has grown prohibitive for many aspirant students, especially in professional degrees like engineering and medicine [7], [8].

A rising number of People now realize that educational changes are necessary to keep up with the fast-changing global environment. There has been a change in favor of using technology in education due to the focus on information technology (IT) and the digital revolution.

The National Education Policy (NEP) 2020 is one initiative that seeks to modernize the educational system by encouraging skill development, flexibility, and transdisciplinary learning. The NEP emphasizes the value of experiential learning, critical thinking, and creativity in an all-encompassing and integrated approach to education. Nonetheless, there are several obstacles in the way of these changes' effective execution [9], [10]. Achieving the objectives outlined in the NEP requires sufficient funding for research facilities, teacher preparation programs, and infrastructure. It's also commonly accepted that the curriculum and evaluation techniques need a thorough makeover. It is very difficult for policymakers to strike a balance between innovation and tradition, theory and practice, and generalization and specialization.

The effects of globalization are also being felt by India's educational system. The need for a globally competitive workforce and the growing interdependence of economies have led to a reevaluation of the curriculum to bring it into line with worldwide norms.

To support a knowledge-based economy, there is an increasing focus on innovation and research promotion. Internationalization of higher education, exchange programs, and cooperation with foreign universities are becoming essential components of the Indian educational environment. Diversity and social inclusion are important factors in the Indian educational system. Affirmative action measures, such as reservations in educational institutions, are attempts to rectify past injustices experienced by underprivileged populations. Ensuring that all students have fair access to high-quality education is still a difficult task, especially for those who are disadvantaged by socioeconomic or cultural factors.

### *1.1 Need of Education:*

The complete development of people and civilizations depends on education. It is the cornerstone of development, giving people the values, information, and abilities needed for both individual and societal advancement. By encouraging critical thinking, innovation, and



problem-solving abilities, education empowers people and builds the groundwork for an educated and well-rounded citizenry. Beyond the enrichment of the self, education is essential to the growth of society. It stimulates economic growth by fostering entrepreneurship, advancing innovation, and producing a trained labor force. An educated public promotes tolerance and understanding between disparate groups, which strengthens social cohesiveness. Equal chances are mostly fueled by education, which is a potent instrument for ending poverty and advancing social justice.

Furthermore, education plays a critical role in molding morally upright and accountable people who benefit their communities. It lays the groundwork for a good and equitable society by instilling virtues like empathy, morality, and social responsibility. Fundamentally, obtaining an education is essential to pursuing knowledge, finding personal satisfaction, achieving economic success, and fostering a peaceful and educated world society.

### *1.2 Concept of Education in India:*

The term "Education" has a lot of synonyms. From the Sanskrit verbal root "Shas," which means "to discipline," "to control," "to instruct," or "to teach," comes the most often used Indian term, "siksha." In a similar vein, the Sanskrit verbal root "vid," which means "to know," is the source of the term "Vidya." "VIDYA" is hence the knowledge domain. This demonstrates that in India, education, mental discipline, and information transfer were given top priority. Education is a social construct that has grown theoretically, psychologically, and socially. It is focused on how man is developing in an ever-expanding civilization.

### *1.3 The current condition of Municipal schools in Mumbai:*

India has over 40% of the world's uneducated population. The inability of India to educate its people, especially the impoverished, is now the country's biggest problem. Thirteen Indian states have schools that are either dilapidated or lack essential amenities like drinking water and bathrooms. More than 60% lack playgrounds. One factor contributing to early dropout rates and poor attendance in BMC schools is the absence of restrooms. There has been a high percentage of elementary school dropouts due to a lack of hygienic facilities, with very few pupils advancing to the secondary level. Out of 100 youngsters, just 12 make it to class 10. Additionally, some data shows that the passing rate for children attending these institutions stays at 60%. Out of the 26,649 kids who took the middle school scholarship test (Class 5) in the previous year, 1,954 private students and 23 students from BMC schools qualified. In the seventh class of high school scholarship examinations, only six BMC schools. Figure 1 shows that due to the absence of Basic Facilities like benches, students sit on the floor which is visually inconvenient.



**Figure 1: Represents the Due to Absence of Basic Facilities like benches, Students sit on the floor which is Visibly Inconvenient.**

## 2. LITERATURE REVIEW

Srimathi H and Krishnamoorthy A [11] explained India's higher education system: opportunities and challenges which is India's higher education system has expanded tremendously and helped to strengthen the country. Due to the advent of the gig economy and technological disruption, India is deeply concerned about maintaining its economic trajectory, as the nation is poised to become the world's biggest labor force. The achievement of a significant portion of the global knowledge workforce is contingent upon the establishment of a high-quality, internationally benchmarked higher education system. To tackle the many issues, one must possess a solid understanding of reliable forecasting together with a dynamic and rapid approach to strategic planning. Successful drafts from the past may not be very useful. To keep up with the rapidly increasing demand both domestically and internationally, higher education must adapt with a balanced blend of skills and knowledge.

Charmode S [12] explained systemic flaws in India's medical education system which is India produces more medical physicians than any other country in the world and has the most registered medical facilities worldwide. Despite this, India has challenges related to inadequate medical education, inexperienced medical personnel, and a negligible global research contribution, all of which stem from the dysfunction of Indian regulatory agencies. Over the last 10 years, several authors both local and foreign have written widely on the shortcomings of India's medical education system, but they have mostly fallen short of providing workable answers. The current research critically examines the many facets of India's medical education system by conducting a thorough assessment of publications that have been published during the previous ten years.

Shrivastava D [13] described The contribution of e-government to fortifying India's higher education system which is A strong system of higher education is necessary for a country's overall growth. The management of colleges and universities has become more complex due to the extraordinary rise in the sector of higher learning. Numerous studies show that ICT integration improves and lessens the overall complexity of higher education management. The use of ICT (information and communication technologies) for the design, execution, and oversight of government initiatives, programs, and activities is known as electronic governance or e-government. E-government is anticipated to facilitate the provision of affordable and easily accessible citizen services and enhance transaction processing inside and between government entities. Because of the notable rise in colleges and universities' number as well as their privatization over the past three decades, e-government is defined as a collection of activities involving the effective role of technology for communication and information (ICT) for strengthening management and administration in India's higher education system has somewhat declined.

Kalam Chouhan [14] explained India's ancient educational system which is the old Indian educational system. The two ancient educational systems Buddhist and Vedic were created to preserve young culture and foster self-control, moral growth, social awareness, and personality development.

Mukesh H et al. [15] described the Indian higher education system's entrepreneurial potential which is Students' entrepreneurial potential is increased by entrepreneurship education, which encourages them to pursue careers in entrepreneurship. However, the great majority of young people in India who possess latent entrepreneurial drive are leaving college without the fundamental skills required for entrepreneurship. The whole economy is being harmed by the inconsistent approach to entrepreneurship development policies. The research examines students' capacity for entrepreneurship and the provision of entrepreneurship instruction in

higher education. It also uses the data triangulation approach to see if there is any alignment between them. The results show that although entrepreneurship instruction in higher education is below average, students' entrepreneurial potential is on the higher side.

Yeravdekar D and Tiwari G [16] explained India's System Of Higher Education And Its Effect On The Economy which is the degree to which the Indian higher education system affects the country's economy. Justifiably, the topic has gained unparalleled attention in the nation and is still the subject of in-depth discussion and investigation. The contradiction surrounding the cohabitation of inequality and economic development has also been extensively studied. This study is innovative in that it frames economic inequality and the nation's economic performance relative to other Asian countries within the context of deficiencies in the institution of higher learning. The authors contend that structural flaws must be found and fixed if higher education is to have a positive economic impact. The study addresses the issue by exploring the concurrent development of higher learning and economic expansion in the nation since its liberation from colonial domination.

Yan Y and Saguin K[17] described in-service training for teachers and career progression in India which is To ensure its success, government agencies responsible for designing and implementing public policy must have a significant degree of policy capacity. Capacity development is essential to both the study and the execution of public policy and administration. It has been challenging to determine the ideal combination of policy competence that governments should have because of conceptual and practical issues. To bridge the gap, this article proposes a conceptual framework that defines policy ability as the political, operational, and analytical abilities of governments. The essay, which draws on supplementary sources and an initial teacher survey, demonstrates how variances in policy capacity along several dimensions have resulted in notable variations in the efficacy of capacity-building projects, particularly as teachers view it.

Davey S et al. [18] Explained India's privatization of medical education which is the creation of a large number of physicians in the allopathic system for Indians can increase the scope and accessibility of medical education through privatization. However, can this be an alternative to developing human resources with the right skill mix, particularly Supplies, and Procedures A thorough analysis of important search terms since the previous 20 years, the primary indexed journals of major medical search engines, such as Pubmed, Cochrane, Bio-med the central region, and Google Scholar, among others, have been privatized in India. This includes e-journals.

Anant Bhushan Sidana [19] described an upheaval in India's higher education system which is The old methods of teaching and learning in the Indian educational system are now being replaced. This shift in the whole educational system has been brought about by the usage of e-learning materials, information and communication technology (ICT), and learning management systems (LMS).

The learning management system (LMS) is one of these instruments that has revolutionized higher education in India. It is now quite easy for instructors to develop their pedagogical approaches and strategies. Students may also benefit from LMS as it allows them to gather consolidated data at any time. In addition to these benefits, it saves money and time and may be used as a tool to create classroom training methods.

Kumar V [20] explained the Opportunities and Challenges in India's higher education system which is the goal of this study work is to identify the distinct possibilities and problems that the Indian H.E. sector presents. This essay also looks at ways to raise faculty members' levels of involvement in higher education. : The state of H.E. in India at the moment was deduced

using secondary data. Certain suggestions were made in light of the findings. Standardized measures of employee engagement, work performance, job participation, job happiness, and intention to remain were also included in the design of a survey questionnaire.

### 3. DISCUSSION

The socioeconomic gaps that exist are addressed in large part by sending impoverished students to government schools. These establishments function as rays of hope, giving kids who may otherwise be disenfranchised and shut out of the official educational system access to education. Particularly in emerging nations where poverty is a recurring issue, government schools become essential tools for social empowerment. Government schools for impoverished children primarily aim to close the educational gap by providing significantly subsidized or free education to those who cannot afford it. These schools serve communities when families find it difficult to satisfy even their most basic requirements, and they are often found in economically challenged locations. These organizations remove financial obstacles to learning by delivering education for low or no cost, allowing underprivileged youngsters to break away from the cycle of poverty via education.

The ability of government schools to foster inclusion is one of its main benefits for underprivileged students. These educational institutions accept students from all socioeconomic levels. Through this inclusion, children from all backgrounds may connect, learn from, and develop alongside one another in a setting that promotes equality and a feeling of shared purpose. By doing this, these educational institutions support community cohesiveness and social integration in addition to imparting academic information. However, some issues often cast doubt on the efficacy of public education for underprivileged kids.

Inadequate infrastructure, few instructional supplies, and packed classrooms might result from a lack of financing and resources. These issues are made worse by the lack of competent and driven educators, which lowers the quality of instruction delivered. Furthermore, unscrupulous practices and ineffective bureaucracy may steal funds from the intended recipients, making it more difficult for schools to carry out their essential functions.

Government schools for underprivileged kids have the power to effect radical change despite these obstacles. They play a crucial role in ending the generational cycle of poverty by giving kids the know-how and abilities needed to seize better chances down the road. Education affects families, communities, and the country as a whole in addition to the person. Government schools provide a platform for social mobility, empowering underprivileged youngsters to aim higher and make valuable contributions to society. Government schools serving underprivileged students often serve as catalysts for community development. By emphasizing education, these establishments foster a culture in which parents and other caregivers respect education, which increases community involvement in educational programs. Thus, the general improvement of the socioeconomic circumstances in these places is facilitated. Furthermore, communities may work together to solve other urgent challenges as education becomes a common goal, promoting a feeling of empowerment and community responsibility.

Comprehensive changes are desperately needed to improve the performance of government schools for underprivileged pupils. To solve the administrative and infrastructural issues that often beset these organizations, adequate financing, wise resource allocation, and open governance are essential. Opportunities for teachers to grow professionally and rewards to attract and keep talented instructors may make a big difference in the quality of education provided in these institutions. In addition, to support government initiatives, community engagement and collaborations with non-governmental organizations (NGOs) and other stakeholders are crucial. These partnerships may provide extracurricular activities,

infrastructural assistance, and instructional materials, among other things, enhancing students' overall educational experiences. The participation of the larger community also helps the schools feel more pride and ownership, which strengthens their function as community centers.

### *3.1 Impact and Benefit of Government Schools in India:*

The advantages and effects of government schools in India are many, and they play a vital role in the country's endeavors to provide a high-quality, easily accessible education to a population with a wide range of socioeconomic backgrounds. A significant portion of children's educational requirements are met by government schools, especially those who come from low-income families. By providing free or highly subsidized education, these institutions remove financial obstacles and foster social inclusion by making sure that even the most disadvantaged groups in society participate in formal education. As equalizers that promote inclusion and social cohesion, government schools in India provide several noteworthy advantages. These educational institutions provide a multicultural student population that includes members of different castes, communities, and socioeconomic backgrounds. By doing this, they foster a diverse melting pot where students pick up knowledge from their interactions with classmates from all backgrounds in addition to what they learn from textbooks. Through dispelling misconceptions and promoting a sense of oneness among young people, this inclusivity creates the groundwork for a society that is more tolerant and integrated.

In addition, government schools facilitate social mobility by providing a means of escape from poverty for a great number of kids. These schools provide students with the information and skills needed to pursue further education and obtain better prospects in the labor market by offering instruction at little to no cost. Giving people the means to raise their socioeconomic standing and enjoy more satisfying lives, in turn, helps to break the cycle of poverty. Government schools affect communal development in addition to the individual. In communities where education is becoming a shared goal, parents and other caregivers are participating in the educational process more and more. This increased involvement helps children succeed academically while also creating a feeling of school pride and community ownership. An educated society has a significant knock-on impact that affects many facets of social development, such as general well-being, cleanliness, and health.

### *3.2 Budgeting and Funding in India for Government Schools:*

A complicated and multidimensional part of India's educational system, budgeting, and financing for government schools represent the goals and concerns of a nation with a varied socioeconomic makeup. One of the most important factors in determining the standard, accessibility, and inclusiveness of the educational system is the distribution of financial resources. Given that the Indian government is the principal supplier of education, the budgeting process assumes a pivotal role in guaranteeing the efficient operation of schools and catering to the requirements of a heterogeneous student body. India's government schools deal with a lot of financial difficulties, and these issues often affect the quality of instruction provided. A careful balancing act is required when allocating finances for education, taking into account several variables such as building infrastructure, salaries for educators, instructional resources, and extracurricular activities. With millions of pupils enrolled in public institutions around the nation, India's vast educational system demands significant financial inputs to address the varied requirements of children.

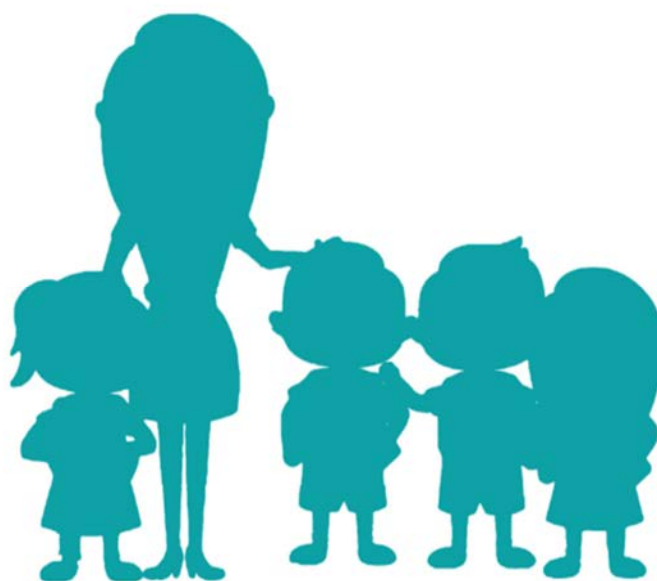
The government has always prioritized funding for education since it recognizes education as a major factor in socioeconomic growth. Ongoing criticism and discussion have, however, centered on the allocation and use of funding in the education sector. Although there have been admirable attempts to raise budgetary allotments for education, problems with effective money



usage and the just allocation of resources across various states and regions still exist. Variations in financing and resource availability among regions are often reflected in disparities in educational results. A major factor in deciding the total amount of money allocated to education is the federal government's Union Budget. School education is one of the many components covered by the allocation to the government's Ministry of Human Resource Development (MHRD), or the Ministry of Education as it is now termed. The federal government then distributes the money to the states following the principles of federalism, which gives each state the freedom to design and carry out educational initiatives following its requirements and goals. The goal of this decentralized strategy is to take into account regional differences and provide adaptability while addressing local difficulties.

### *3.3 Students/ Teachers Relationship and Understanding of Education:*

The interaction between students and instructors is symbiotic in the context of education, with both sides contributing to the process of learning as a whole. Students feel more at ease expressing their ideas, asking questions, and seeking clarification in an atmosphere where instructors and students communicate and understand one another well. The ability to understand difficult ideas and to think critically is greatly aided by this candid and cooperative discussion. A nurturing connection inspires students to take an active role in their education, converting the classroom into a vibrant environment for inquiry and learning. The nature of the interaction that students have with their professors has a big impact on their emotional and psychological health. Students need a feeling of security and belonging, which can only be given by a caring and understanding relationship, to grow fully. Teachers are important mentors who help kids develop resilience, emotional intelligence, and self-worth. Students are more likely to overcome obstacles, seize learning opportunities, and cultivate a lifetime love of learning when they feel respected and understood. Figure 2 shows Children spend approximately 5 to 7 hours a day with a teacher for almost 10 months, per year. They need to have a Healthy Relationship with their Teachers.



**Figure 2: Children spend approximately 5 to 7 hours a day with a Teacher for almost 10 months, per year. They need to have a Healthy Relationship with their Teachers.**



For kids, the bond between their teachers and students is crucial. Although it might be hard to find, a good connection between the instructor and the student can benefit both parties. Positivity may be characterized by a variety of traits, such as being personable and eager for the kids to learn. Positive relationships are formed in the classroom between a teacher and student who exhibit respect, effective communication, and an interest in both learning from and teaching from the perspective of the instructor. Children use a variety of methods to learn and accomplish their objectives which means teaching is challenging, particularly if there is improper communication. A greater understanding of the child's learning issues may be gained by the instructor by taking into account the child's difficulty, fear, or misunderstanding. The instructor will be more patient with the pupil if they are aware of the issues, which will help the child feel more comfortable or less confused throughout class. A more positive atmosphere is created in the classroom via the connection that comes from communication between the instructor and the students. A teacher must appreciate the importance of a student's feeling of belonging, which may help minority children feel more valuable and develop a sense of self-worth. There will be more understanding between the instructor and the student if the teacher shows that they are aware of the student's culture. Respectful instructors instantly gain the respect of their pupils by having engaged students in their classrooms.

### 3.4 An Ideal School:

A perfect school is a location where employees, instructors, and students can all work comfortably and accomplish their goals. Both educators and learners must be open to attending and participating in learning activities. Circulation and mobility should be effortless. The majority of schools nowadays utilize their corridors for a variety of purposes, but as they are the first area that students and staff will encounter, they should be regarded as very essential locations. Since the corridors are the sole ways to move around the school, they should be well-thought-out, light-filled, and very effective. The main purposes of these hallway areas might be to teach the kids valuable lessons and to display their finest artwork, which will motivate them to put in more effort.

## 4. CONCLUSION

Government schools provide pupils from a variety of backgrounds a platform for social mobility. Their roles go beyond traditional classroom settings to include fostering a welcoming and encouraging learning environment. However obstacles like low budget, a lack of teachers, and red tape prevent them from operating at their best. The National Education Policy 2020's continuous changes represent a dedication to revolutionary transformation. Government schools need to succeed, thus long-term improvements in infrastructure, teacher preparation, and general educational standards must be prioritized. The objective of a strong, inclusive, and contemporary education system in India that enables every student to realize their full potential requires a team effort comprising government efforts, community involvement, and partnerships with outside partners.

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## CHAPTER 11

### A COMPREHENSIVE EXPLORATION OF HEALTHCARE CHALLENGES, CANCER CARE, AND THERAPEUTIC ENVIRONMENTS: THE AASHRAY INITIATIVE

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#### ABSTRACT:

Healthcare extends beyond traditional medical care, encompassing preventative practices and fostering total mental, physical, as well as social well-being, as defined by the World Health Organization. However, in India, a significant urban-rural healthcare divide exists, necessitating attention to both healthcare expansions in rural areas and the challenges arising from medical migration.

The Aashray Initiative seeks to redefine post-care and hospice facilities by incorporating non-traditional therapeutic methods, emphasizing the importance of design elements such as light, color, and touch. This paper delves into the multifaceted realm of healthcare, specifically focusing on cancer care challenges and the creation of therapeutic environments, exemplified by the Aashray Initiative.

The overarching goal is to redefine post-care facilities and hospice care by integrating non-traditional therapeutic approaches, emphasizing holistic well-being. The study explores the distinctive needs of cancer patients, alternative therapies, and the crucial role of environmental factors in the healing process. By investigating medical migration and its impact on vulnerable populations, the paper advocates for policies that address both healthcare expansion in rural regions and the challenges posed by migration. The latter half of the paper provides an in-depth literature review, discussions on various types of cancer care facilities, patient needs, alternative therapies, and the economic implications of cancer. It concludes by highlighting the significance of the Aashray Initiative in creating a healing environment that prioritizes patient-centric care, comfort, and overall well-being.

#### KEYWORDS:

Cancer Care, Environments, Economic, Healthcare, Migration.

### 1. INTRODUCTION

Healthcare includes not just medical care but also a range of preventative care practices. According to the World Health Organization (WHO), health is not only the absence of illness or disability but also a condition of total well-being that includes mental, social, as well as physical dimensions. Additionally, a large concentration of hospitals is found in metropolitan regions, leaving rural communities to depend on smaller hospitals or clinics [1], [2]. Given that 70.00% of Indians live in rural regions and that metropolitan areas provide the majority of healthcare services, internal medical migration is becoming more and more common. The emphasis on the rural-urban divide tends to obscure the unique demands and expectations that come with this shift. Policies that support the expansion and improvement of healthcare in rural regions are necessary, but it's also critical to address the problems brought on by medical migration [3], [4]. Uncertain service quality is the primary challenge faced by public hospitals in Mumbai today. The following are the current challenges that Mumbai's public hospitals are facing:

- i. Inadequate infrastructure.
- ii. Insufficient staffing.
- iii. Overwhelming patient volume.

## 2. *India's Healthcare Environment:*

There has been a dual illness burden in India throughout the time of expanding wealth between 1991 and 2016. This entails a steady increase in chronic or non-communicable illnesses along with a rise in communicable diseases.

### *i. Population:*

With the second-highest population in the world, India's population has grown significantly from 760 million in 1985 to an approximated 1.3 billion in 2015. Though estimates of this movement vary, people continue to move from rural to urban regions; of those that migrate, around 32% choose to reside in cities. Urban centers struggle to accommodate this migration since they are already overcrowded.

### *ii. Infrastructure:*

India's current healthcare infrastructure falls short of meeting the demands of its population. While the federal and state governments provided universal healthcare programs that provide free medical care and necessary medications at government hospitals, a new study indicates that these facilities are understaffed and underfunded. Consequently, patients often resort to seeking medical care from private practitioners and hospitals [5], [6]. The aging or growing population, the economic boom, and rising health consciousness have all contributed to the burden of sickness, which has caused the healthcare sector to grow quickly. India has had significant expansion in the healthcare industry; nonetheless, as a percentage of GDP, the country spends the least on public and government spending in this domain, leading to the lowest per capita spending on healthcare. China, on the other hand, devotes 5.6 times as much money as India does, and the USA, 125 times as much.

## 3. *Medical Migration:*

Due to their non-native status, the migrant population is more vulnerable and more likely to experience different health problems. Numerous health issues are linked to their movement to metropolitan areas, poor knowledge of nearby medical resources, inability to manage psychological stress, involvement in inappropriate sexual behaviors, and frequent moves. Concerns about the climate, food instability, and other environmental dangers are further contributing causes. Cancer is an expensive, physically and emotionally taxing condition that makes life more difficult for migrant families already dealing with the pain of the diagnosis. The 90 lakh migrants from other parts of India have left their mark on Maharashtra, while an additional 479 lakh individuals have migrated inside the state, up from 342 lakh ten years ago, contributing to the state's shifting environment [7], [8]. A significant portion of this migration is ascribed to people moving from rural to urban areas in search of employment.

### *i. Exploring Cancer:*

A class of illnesses known as cancer is distinguished by aberrant cell proliferation. If left untreated, the illness may worsen and cause early death. Cancers may afflict people of various ages, socioeconomic statuses, and races, and they can appear anywhere in the body. Geographical location, prevailing social norms, and socioeconomic strata all influence the occurrence of cancer. For example, chewable tobacco usage is quite common on the Indian

subcontinent, which contributes to the higher incidence of mouth cancer there. Conversely, women from lower socioeconomic strata are more likely to get cervical cancer, which is mostly caused by inadequate genital cleanliness habits. Radiation and chemotherapy are common cancer therapies that may have some adverse effects, including:

- i. Anaemia
- ii. Bleeding and bruising
- iii. Appetite loss
- iv. Constipation
- v. Diarrhea
- vi. Fatigue
- vii. Edema Swellings
- viii. Hair loss
- ix. Nerve problems
- x. Lymphedema

#### *4. Side Implications:*

##### *i. Clinical Phrase:*

Physical symptoms include things like exhaustion, loss of weight, dyspnea, discomfort, stiffness, restricted mobility, and comorbid illnesses or traumas. Social issues include financial difficulties and the need for social assistance.

- i. Psychological, refers to managing feelings like fear, rage, and worry.
- ii. Spiritual: This has to do with dealing with guilt.

##### *ii. Phrase of Treatment:*

The physical realm includes difficulties such as exhaustion, discomfort, stiffness, altered bowel habits, and variations in weight. Social concerns include those about money, travel, lodging, employment, family support, and interpersonal relationships.

- i. Psychological, include worries about the disease spreading, anxiety about family and caregivers, worry about the future, depression over health loss, cognitive difficulties, fixation on sickness and death, and changes in body image.
- ii. Spirituality entails the desire to interpret one's experiences with significance.

##### *iii. Follow-Up:*

Physical problems include things like weariness, stiffness, pain, altered bladder, and gastrointestinal functions, problems with the heart and lungs, problems with sexual function and fertility, fluctuations in weight, neurological symptoms, problems with movement, comorbidities or injuries, problems with balance, and safety concerns. Social needs include those for money as well as emotions of abandonment or loneliness.

- i. Psychological: includes cognitive decline and fear of the cancer coming back.
- ii. Spiritual: involves questions about life's purpose and the need to rearrange priorities in one's demands.



### 5. Means of Fighting Cancer:

- i. *Medicine:* Chemotherapy is a systemic treatment in which chemicals are injected into the body to destroy cancer cells, including those that have migrated to distant locations from the original tumor. Chemotherapy may have adverse effects even if it is effective against cancer cells that grow quickly. It can also affect healthy cells that develop quickly. Chemotherapy continues to be an essential component of cancer treatment, despite adverse effect concerns.
- ii. *Transplant of Stem Cell:* Stem cell transplants are used to treat immune system-related or blood-related malignancies such as multiple myeloma, leukemia, and lymphoma. These include peripheral blood, bone marrow, and cord blood transplants.
- iii. *Antibody therapy:* The immune system of the body is used in immunotherapy to fight cancer. Immunotherapy aids in locating and eliminating cancer cells by strengthening or altering the immune system's ability to act.
- iv. *Physical Therapy:* High-energy particles or waves, such as protons, gamma rays, electron beams, or x-rays, are used in radiation therapy to harm or kill cancer cells. Although the radiation may also affect nearby normal cells, most of these normal cells usually recover from the harm that was caused.

### 6. Economics and Cancer:

A cancer diagnosis often leads to high personal health costs, which may drive families below the poverty line in some situations. Compared to non-cancer individuals, persons with cancer had a 2.56 times higher likelihood of filing for bankruptcy. More public funding for healthcare services needs to be a top priority in India, where the vast majority of people live in poverty. The expenses associated with cancer treatment include direct medical costs (drugs, hospital stays, examinations, consultations) as well as indirect costs (loss of income during treatment, effect on family members' income) [9], [10].



**Figure 1: Illustrate the Affordable Cancer Facilities.**

For many Indians, particularly those without health insurance, receiving cancer treatment remains financially difficult even though it is comparatively less expensive than in Western

nations. This problem is made worse by the increased rate of cancer because few people have health insurance and coverage for severe illnesses is uncommon. Infrastructure for cancer treatment and low-cost solutions for people and families living in poverty must be prioritized, with an emphasis on sustainable implementation. Figure 1 shows, the affordable cancer facilities.

## 2. LITERATURE REVIEW

N. Jain, *et al.* [11] Studied genomic testing is propelling the era of predictive, preventive, and personalized medicine (PM/3 PM). Technologies like whole-genome sequencing enhance diagnostic precision and targeted therapy. Experimental systems, including artificial intelligence, adapt to clinical needs. Advances in diagnostic techniques, influenced by genetics and cellular profiling, reshape medical interventions. Facial analysis, deep learning, and computer vision aid in syndrome diagnosis. Biomarkers, like DNA quantification for Down's syndrome, are integral to personalized medicine.

S. Hovsepyan, *et al.* [12] Studied examining the unique challenges faced by young adults and adolescents (AYAs) who get a cancer diagnosis in resource-constrained environments, with a focus on the Asian continent, Latin America, and Africa. These issues include the lack of cancer registries, poor infrastructure, a lack of specialized programs, a lack of psychological and social support, and a lack of efforts for education and training. The review highlights the urgent need for dedicated AYA programs to improve patient-centered care, reduce treatment abandonment rates, minimize diagnosis delays, and address emotional distress effectively.

M. Sarjani, *et al.* [13] Studied the psychosocial impact of breast cancer, with a significant prevalence of depression (46%) among patients. Recognizing the impact of the environment on patient recovery and quality of life, the study aims to design a breast cancer clinic that incorporates therapeutic elements. Drawing from Health Building Records, the research focuses on descriptive and qualitative approaches to identify space requirements conducive to medical and psychological healing. The results highlight how crucial a well-designed setting is to giving breast cancer patients excellent treatment and raising their standard of living overall.

S. S. Parsekar, *et al.* [14] Studied that cancer care poses significant challenges for both recipients and caregivers, with limited attention to caregiving in India, especially for breast cancer. This study investigates the perspectives and actions associated with psychological caring in different stages of breast cancer in both care receivers as well as caregivers. Through qualitative interviews with 39 caregivers or 35 care receivers, the research reveals some aspects of psychological caring, including offering support, company, as well as stress alleviation. It also highlights unfulfilled psychological requirements, such as support for motivation or decision-making, highlighting the need to add formal counseling services to the routine treatment regimen for Indian breast cancer patients and caregivers.

M. T. Hoybye, [15] studied the complex interplay between design, practices, and healing environments in cancer treatment hospitals. Conducted at Odense University Hospital, Denmark's ethnographic study, which focuses on 20 patients, reveals important ideas such as the ambiguity of space or care, personal space construction, social recognition, and self-practices. The results challenge conventional design concepts by highlighting the dynamic relationships between space and practice. The development of supportive hospital settings necessitates individualized treatment that takes into account the changing requirements of patients. This has implications for flexible space design that may improve the quality of life for cancer patients.

This paper aims to shed light on cancer care challenges, the impact of medical migration, and the potential solutions offered by the Aashray Initiative. The discussion encompasses the unique needs of cancer patients, alternative therapies, and the economic burden of cancer treatment. The paper emphasizes the need for a comprehensive approach to healthcare, integrating medical and non-medical elements to enhance overall well-being.

### 3. DISCUSSION

#### 3.1. *Types of Cancer Care Facilities:*

##### 3.1.4. *Palliative Care:*

Living with cancer and undergoing cancer treatment involves managing symptoms and side effects, and this is where palliative care plays a crucial role. Its primary objective is to provide relief from pain and discomfort associated with serious illnesses. The main goal of palliative care is to lessen symptoms including pain, nausea, exhaustion, and dyspnea. It also helps patients deal with the psychological effects of cancer by offering therapies including physical therapy, medicine, nutrition therapy, as well as profound breathing exercises [16], [17]. Emotional and spiritual counseling, along with practical assistance in managing insurance, legal, or employment matters, is also provided.

##### 3.1.5. *Hospice Care:*

Enhancing the quality of life for patients and their carers facing terminal diseases is the main goal of hospice care, a specialized kind of healthcare. It enables people with terminal illnesses to get compassionate assistance so they may live as comfortably and completely as possible.

##### 3.1.6. *Dharamshala:*

A constant stream of patients seeking short-term housing while their treatment which may last anywhere from a few weeks to several months or even years arrives in cities that serve as accessible cancer care centres. Affording accommodation in cities can be financially challenging for many patients, especially those from Below Poverty Line (BPL) families. To address this, Dharamshala aims to provide housing at minimal costs, prioritizing affordability over amenities. These facilities cater to the needs of those who travel long distances to access discounted or free cancer treatment.

##### 3.1.7. *Non-governmental organization (NGO):*

A relatively uncommon but emerging form of cancer care, NGO-run Caring Centers focus on providing psychological, social, and occasionally physical support to individuals undergoing cancer treatments or in recovery. These centers utilize various therapies and counseling programs to enhance the overall well-being of cancer survivors. While they do not engage in medical treatment, their emphasis lies in addressing the intangible aspects of healthcare. Some NGOs visit other healthcare facilities to provide similar services, contributing to the holistic support system for cancer patients [18], [19].

#### 3.2. *Needs of Cancer Patients:*

##### 3.2.4. *Physical Needs:*

The altered state of normalcy experienced by cancer patients often results in a pervasive feeling of sickness. Intermittent or chronic pain treatments, including medications, may induce perpetual nausea and gastrointestinal issues. Patients may have difficulties as a result of

physical appearance changes, including scars, hair loss, changes in the skin, variations in weight, sensitivity to warmth and scents, and loss of muscular tone. These alterations can limit daily activities and introduce additional stressors, including the financial impact of treatment, which contributes to mental stress and physical fatigue.

### 3.2.5. *Psychological Needs:*

Cancer treatment significantly impacts the mental and psychological well-being of patients, leading to an emotional roller coaster marked by personal progress and setbacks. The uncertainty surrounding the outcome of their battle against the disease induces fear and anxiety, contributing to mental fatigue. Patients also grapple with a potential degradation of dignity and a lack of privacy. Coping with these challenges requires a positive mindset, inspiration, and introspection, fostering renewed hope, energy shifts, and celebrations of milestones along the journey.

### 3.2.6. *Social and Spiritual Needs:*

Navigating the challenges of cancer treatment necessitates a support system, including family, friends, and caregivers, as well as, for some, a spiritual foundation. Whether through connection with others or a higher power, finding solace is crucial for patients. Support and positivity play a vital role in enhancing healing capabilities over the extended duration of the treatment. Design features that address these challenges may include provisions for prayer rooms and multiple social spaces.

## 3.3. *Alternative Therapies:*

### 3.3.4. *Aromatherapy:*

Fragrant oils are used in aromatherapy to provide a relaxing effect. Essential oils may be added to bathwater for use as an application during massages to infuse smells like lavender.

Aromatherapy may be introduced by using diffusers in buildings and adding fragrant plants to gardens or open areas. This can help relieve tension, discomfort, and nausea.

### 3.3.5. *Animal-Assisted Therapy:*

This therapy utilizes domestic animals to enhance participants' social and emotional well-being. Interacting with pets provides stimulation that fosters positive well-being.

Animal-assisted therapy includes activities like walking, brushing, petting, and caring for animals, aligning with specific therapeutic goals, strategies, and outcome measures.

### 3.3.6. *Art therapy:*

Concentrating on creative production allows individuals to slow down, relax, and think. Subconscious emotions may be more easily expressed via forms, colors, and pictures in art therapy. Through this imaginative method, participants may better understand their feelings, develop self-assurance, and produce content for group or individual therapy sessions.

### 3.3.7. *Counseling:*

Patients often require professional assistance to navigate and cope with their emotions and sentiments.

Creating an environment where patients feel free to talk openly, without feeling interrogated or bombarded with advice, is essential. Counselors, trained to listen and provide support, play a crucial role in helping patients let go of emotional stresses.

### 3.3.8. *Massage Therapy:*

This systematic kind of therapeutic touch aims to promote mood enhancement, ease tension, and promote physical and mental relaxation. It works well to lessen sadness, anxiety, weariness, and physical discomfort.

### 3.3.9. *Meditation:*

To unwind and quiet the mind, meditation involves concentrated attention or introspection. Over time, this practice fosters a sense of control and general well-being by assisting in the reduction of sensations of pain, worry, fear, and sadness.

### 3.4. *Music Therapy:*

Making use of the emotional connection that individuals have with musical instruments music therapy is a fruitful way to start conversations with others. It helps with pain and discomfort management, mood enhancement, stress reduction, quality of life improvement, and expression of sorrow and worries.

### 3.4.4. *Acupuncture:*

Acupuncture aids in the restoration of health and balance by promoting the body's innate healing ability. Its efficacy in reducing chemotherapy-related nausea and vomiting is well-supported by research. Acupuncture improves circulation, which aids in scar tissue repair and the regeneration of injured nerves (neuropathy).

### 3.4.5. *Therapeutic Environment:*

In hospitals, patients often struggle with anxiety, apprehension about their health, worries about their safety, as well as social isolation. A well-known idea in architecture is therapeutic architecture, which stresses that while the building itself may not be healing, spatial manipulation may establish an atmosphere that is helpful for both psychological and physical recovery. Beyond the location and length of therapy, a calm, therapeutic environment is necessary. Creating a therapeutic setting entails:

1. Reducing or eliminating environmental stressors such as noise, crowding, odors, and pollution.
2. Providing positive distractions, such as views of nature and access to healing gardens or meditation rooms.
3. Facilitating social support through spaces that encourage easy engagement with others.
4. Offering a sense of control over the immediate environment, including light, noise, visual content, and the ability to locate.

### 3.4.6. *The psychological impact of spatial design:*

Spatial design, as an art, encompasses science, expressions, aesthetics, technology, and the satisfaction of human needs. It plays a significant role in influencing human psychology by creating environments that impact social, physiological, and psychological aspects. The urbanization and technological dependence of modern lifestyles have led to health issues and diseases, emphasizing the importance of thoughtful design in improving human performance and well-being.



### 3.4.7. Environmental factors & the psyche:

Environmental elements that impact a space's immediate environment include things like noise, congestion, smells, lighting, pollution, proportion, size, and colors. Careful consideration of these components throughout design implementation may have transforming effects on people's psychological health in a variety of contexts [20]. The primary goal of Aashray is to construct a building with a central focus on its users, particularly the patients. The aim is to establish a space where patients are regarded as individuals rather than mere medical cases, fostering conditions that enable them to embrace life fully. Aashray aspires to be inclusive of all user groups within a hospice, placing special emphasis on the patients and accommodating all levels of terminal illness. The finished area achieves a delicate balance between comfort, usefulness, and well-being. The design incorporates components that provide an appropriate interior environment and cultivate a domestic ambiance to improve user comfort and well-being. This homely ambiance is crafted through factors like human-scale proportions, the thoughtful delineation between private and public zones, and the careful selection of materials. Research indicates that when individuals experience greater happiness and comfort, their bodies respond positively, contributing to the strengthening of the immune system. The healing process is initiated by the environment in which the patient lives.

## 4. CONCLUSION

The Aashray Initiative emerges as a pivotal force in reshaping cancer care and post-care facilities. By prioritizing patients as individuals and focusing on holistic well-being, Aashray aims to create a healing environment that positively influences comfort, mental health, and quality of life. The discussion underscores the challenges faced by public hospitals in Mumbai and the broader healthcare landscape in India. The paper advocates for a balanced approach that not only expands healthcare services in rural regions but also addresses the issues posed by internal medical migration. Furthermore, the exploration of alternative therapies, patient needs, and the economic implications of cancer treatment emphasizes the importance of a comprehensive, patient-centric healthcare strategy. As we navigate the complexities of healthcare, the Aashray Initiative stands as a beacon for transformative and inclusive healthcare practices.

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## CHAPTER 12

### AN OUTLINE ON THE ABUSE OF DRUGS IN ADOLESCENTS

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#### ABSTRACT:

Teenage drug misuse is a major public health hazard that is becoming more and more prevalent. The main problem identified by this paper is to summarise the most recent research findings of drug abuse and emphasize how critical it is to address this problem with all-encompassing preventative and therapeutic techniques. The main objective of this paper is to examine factors such as family dynamics, peer pressure, and socioeconomic standing to gain a deeper comprehension of the intricate interactions that lead to teenage drug misuse. The conclusion of this paper is that it highlights the necessity of cooperation between educators, policymakers, and healthcare specialists to create efficient programs that lessen drug usage and enhance the general well-being of teenagers. The future scope of this paper is to present an overview of drug abuse's prevalence, contributing variables, and outcomes in this susceptible demographic given in this abstract for spreading awareness regarding drug abuse.

#### KEYWORDS:

Abuse, Adolescents, Drugs, Health, Vulnerability.

#### 1. INTRODUCTION

Drug addiction among teenagers is a growing global concern that poses serious risks to the social, emotional, and physical health of this susceptible group. A key period of rapid growth in both mind and body, adolescence is defined by increased vulnerability to outside influences, peer pressure, or the search for one's identity. Sadly, these elements along with other stresses from society contribute to the rising incidence of drug usage among teenagers, which is why it is crucial to examine the many facets of this intricate problem. Adolescence, based on the World Health Organisation, is the time between the ages of 10 and 19 when people experience significant changes in their mental, emotional, social, and physical growth. Due to the turbulent nature of this stage and their need for autonomy and individuality, teenagers are frequently more likely to experiment with drugs. Many things contribute to the attraction of substances, such as curiosity, peer pressure, cultural influences, and the need for coping strategies when faced with challenges.

One of the more powerful factors throughout adolescence is peer pressure, which is crucial in starting and maintaining drug misuse in this group of people. Adolescents who want to feel accepted by their peers and conform to social norms frequently experiment with drugs in an attempt to find acceptance and social validation. To make matters worse, peer circles where substance misuse occurs can foster a culture where the consumption of drugs is accepted as the standard. An important contributing factor to teen drug usage is societal issues. Substance misuse can be encouraged by unequal access to education, limited personal growth possibilities, and economic inequities. Furthermore, the way drugs are portrayed in popular culture and the media, which frequently romanticizes or glamorizes these actions, normalizes the use of drugs as a recreational or escape strategy.

Adolescent drug misuse has far-reaching effects on people's health as well as the general well-being of society. Physically, the growing brain is especially susceptible to the negative effects

of medications, which may result in neurological changes and long-term cognitive deficits. Adolescent substance abusers frequently have mental health issues include sadness, anxiety, and heightened vulnerability to psychiatric diseases. Drug misuse during this crucial time can also worsen social interactions, impede academic achievement, and lead to the continuation of the downward spiral of inequality and poverty.

A thorough grasp of the root causes and hazards is necessary to address the complex problem of substance misuse among teenagers. Drug misuse is influenced by a complex combination of psychological, biological, social, and environmental elements that must be taken into account by effective preventive and intervention measures. Schools, parents, healthcare providers, and legislators must work together to develop focused initiatives that strengthen coping skills, encourage resilience, and create a safe space for teenagers. In conclusion, teen drug usage is a serious worldwide problem that needs immediate attention and all-encompassing treatment. To create effective preventative and treatment plans, it is essential to comprehend the multitude of elements that contribute to this issue.

Drug addiction is also known as substance use disorder, and it's a complicated and widespread problem that has afflicted communities all over the world. continuous drug use despite side effects, obsessive drug seeking, and persistent alterations in the structure and function of the brain are characteristics of this complex issue. The path from occasional use of drugs to addiction is complex, entailing complex interactions between the social, psychological, and biological elements. This investigation of drug addiction reveals information on its causes, effects, and many strategies used to manage this worldwide health issue. The complex mechanisms of the mind are at the core of the biological basis of drug addiction. The brain's chemical messengers, or neurotransmitters, are essential to this phenomenon. Drugs frequently work by flooding the reward pathway in the brain with dopamine, a chemical linked to pleasure and reward. This spike produces a euphoric feeling that encourages drug consumption. However, the brain gradually adjusts to this extra dopamine, reducing its normal production and making it harder to enjoy routine activities. As a result, using drugs more frequently to feel even somewhat happy reinforces the vicious cycle of addiction.

Moreover, a person's predisposition to drug addiction is greatly influenced by hereditary variables. According to research, some genes may make people more prone to addiction by affecting how they react to substances and how likely they are to become dependent on them. Additionally, a person's susceptibility to addiction may be influenced by differences in genes linked to stress response and impulse control. Although they can raise the risk, these genetic variables do not ensure addiction, which emphasizes the significance of gaining a thorough grasp of the molecular mechanisms that contribute to drug addiction. A significant influence is also played by psychological variables in the emergence and maintenance of drug addiction. As a coping strategy, people who are dealing with trauma, stress, and psychological issues may turn to drugs. narcotics can be an overwhelmingly attractive short-term diversion from mental distress, which can lead to a dependence on narcotics for self-medication. In addition, the psychological facet of addiction encompasses the mental mechanisms that underlie compulsive drug-seeking behavior. The complex interaction between ideas and behaviors, triggers, and cravings all play a role in the self-reinforcing cycle of addiction.

Social factors contribute to the complexity of drug addiction. Family relationships, peer pressure, and economic standing are a few instances of environmental factors that raise the likelihood of substance misuse. Addiction in the family can produce a predisposition, and peer pressure might encourage drug use. Addiction susceptibility may be made worse by economic inequality as well as restricted access to possibilities for work and education. In addition, the stigmas associated with addiction in society frequently prevent people from getting treatment,

which feeds the cycle of loneliness and silence. Drug addiction has far-reaching effects on communities, families, and society as a whole in addition to the addict. Increased healthcare expenses, overburdened justice systems, and decreased production are all signs of the impact on society. Families deal with broken relationships, financial hardships, and the agony of watching a loved one fall into the grips of addiction. Drug addiction is common in communities, and this has a direct impact on homelessness, crime rates, and the continuation of the poverty cycle.

It takes a comprehensive approach that incorporates early identification, intervention, and treatment methods to address drug addiction. Targeting the underlying reasons for drug use through educational initiatives that increase public knowledge of the dangers of drug use is essential to prevention efforts. Finding and treating risk factors early on is essential to preventing addiction from taking root. Different treatment modalities are used, such as medication interventions and behavioral therapies. The goal of behavioral therapies like contingency management and cognitive-behavioral therapy (CBT) is to alter the unhelpful thought and behavior patterns linked to addiction. Medications such as methadone for opioid dependence are examples of pharmacological therapies that can aid with withdrawal symptoms or cravings. Drug addiction recovery is a continuous process that necessitates extensive support networks. Peer support groups, counseling, and rehabilitation programs equip people with the skills they need to get by in life without using drugs. To treat co-occurring illnesses that can lead to the continuation of addiction, mental health care must be integrated. Understanding that addiction is a chronic and recurrent disorder emphasizes the value of ongoing care and a customized treatment plan.

The study explains that drug addiction is a widespread and intricate problem with a long history that stems from biology, psychology, and culture. Creating successful preventative, intervention, and treatment plans requires an understanding of how these variables interact. A caring and all-encompassing strategy is essential to ending the cycle and creating a future where people can overcome the difficulties of use and recover their lives as societies struggle with the effects of drug addiction.

## 2. LITERATURE REVIEW

A. Nawi *et al.*[1] study examined Drug addiction has negative effects, and excessive drug use is a global issue. Adolescence is usually when drug use starts. Many risk and protective variables are associated with drug misuse. In order to ascertain the risk or defences of using drugs among teenagers worldwide, a systematic review was conducted. Techniques are Three primary journal databases PubMed, EBSCOhost, or Web of Science were used in the review, which followed the Recommended Reporting Items for Systemic Reviews and Meta-Analysis (PRISMA) guidelines. This review did not include alcohol misuse or tobacco addiction. Strict criteria for inclusion and exclusion were used to screen the retrieved citations and extract the data. The paper must be in full, published between 2016 and 2020, and accessible through a freely available resource or one that the institution has a subscription to in order to meet the inclusion criteria. The scientific quality of the included studies was evaluated using the Mixed-method Appraisal Tools (MMAT) version 2018 as a tool for quality assessment. A descriptive review of the research that was included was conducted due to the wide range of the studies that were included. Findings: Of the 425 publications that were found, 22 of them were quantitative, and one was qualitative. These were all included in the ultimate evaluation. Individual, family, or community factors were the three main areas into which the risk or protective variables were categorised. High impulsivity, rebelliousness, emotional regulation impairment, poor religiosity, pain catastrophe, completing homework to the best of one's ability, excessive screen time, and alexithymia were the individual risk variables that were

found. the history of abuse or a bad upbringing; the presence of mental illnesses such major depressive disorder and conduct issues; behavioural addiction from prior e-cigarette usage; low perceived danger; high perceived accessibility to drugs; and a strong inclination to use synthetic drugs. Prenatal mother smoking, poor psychological control, low parental education, carelessness, inadequate monitoring, uncontrolled pocket money, and the presence of family members who use drugs or alcohol were the familial risk factors. Peers who use drugs is one communal risk factor that has been mentioned. Individual characteristics of optimism, a high degree of mindfulness, social anxiety, a conviction against substance abuse, the desire to preserve one's health, high levels of parental awareness of drug abuse, school connectedness, structured activities, and strong religious beliefs were found to be protective factors. The review's findings point to a complicated web of interrelated factors that affect teenage drug addiction. Consequently, substantial effort across all domain levels will be needed to implement effective teenage drug misuse prevention programmes.

L. Liu *et al.* [2] study examined the usage of drugs by adolescents as a widespread societal problem that puts a severe weight of diseases on individuals, households as well as society at large. In order to develop preventative and intervention strategies for teenage drug users, it is necessary to identify and assess the predictive factors associated with drug misuse. This study compares and contrasts the parenting styles of adolescent drug users and non-abusers and looks at the connections between parenting styles, peer support, and the identification of teen drug abuse using a structural equation model. Using SPSS 26 as opposed to AMOS 24, data from Chinese teenagers around the ages of 18 and 35 who either used substances ( $n = 363$ ) or did not abuse them ( $n = 229$ ) were collected and analysed. The findings demonstrate that methods of parenting are a significant predictor of identifying teenage drug usage and that various parenting philosophies have distinct influencing processes. These findings suggest that inadequate parenting philosophies may also serve as a risk contributor to teenage drug abuse. Furthermore, a mediation effect of social support has been observed between drug abuse identification and parenting approaches. The following are the precise paths in question: Identification of drug misuse follows both Parenting approaches taken by mothers and fathers with regard to drug usage and social assistance. Beyond this, nevertheless, the peer mediation model shows a high degree of stability and adaptability in the relationship between teenagers who take drugs and those who do not. Given that parenting practices and social support are important indicators of drug use among adolescents, family-social support antidrug programmes should be included when developing adolescent prevention and intervention strategies misuse among adolescents.

M. Sedibe *et al.* [3] study examined study investigated the experience of teenage students in South Africa's traditionally underprivileged townships about drug misuse. An inductive research methodology was used in conjunction using a paradigm for phenomenological investigation. The study employed a qualitative approach to research, and document analysis & interview were the main methods used to collect data. one-on-one discussions with three non-governmental organisations (NGOs) and non-profit organisations (NPOs), as well as lifelong learning (LO) instructors in a pair of secondary schools in Gauteng from various groups, were done in addition to purposeful sampling. Adolescent students from two secondary schools in Gauteng participated in focus groups. To further interpret the data from participant interviews, I employed an inductive analysis of content via open and axial coding. The Nested System by Bronfenbrenner and the Eight Steps of Psychosocial Development by Erikson served as the foundation for this study. The results showed that teenage students' lack of identity development and need for belonging are the main reasons why they engage in drug use. Additionally, it was shown that adolescents who were not successful in completing the adolescent stage ended up using drugs.



A. Yani *et al.* [4] study examined the provision of medical services over the internet or a computer is known as electronic health (E-Health). This programme may be viewed in real-time and offers various benefits. Consequently, using smartphone technology, drug misuse among teenagers can be avoided using this systemic approach. Numerous e-health apps are also developed, including Telemental Health, E-Health Lifestyle, Health Literacy, and crisis care, which is an application for those at danger of suicide. The phrases "e-health, drugs, and teenagers" were used in this literature search on the Pubmed database, Sciences Direct, and Proquest. The papers that were identified are filtered over the previous ten years, open access, and do not belong to a review type. After searching through 55,654 papers from the Pubmed, Science Direct, & Proquest databases and applying criteria for inclusion and exclusion, a total of 5 papers were reviewed. Drug misuse can be decreased via e-health, which is also affordable, conveniently available, real-time, and offers comprehensive information. Consequently, health literacy can be directly consulted or practiced by teenagers and their parents, which influences the growth of their knowledge.

T. Schwinn *et al.* [5] study examined that drug usage among early teenage girls has equaled, and in some cases exceeded, that of boys. While boys and girls have similar drug use risk factors, girls also face hazards unique to their gender. Interventions specifically designed to stop female drug usage are necessary. This study created and evaluated a web-based programme to reduce drug misuse among teenage girls. Facebook advertising were used to recruit the 788 females in the nationwide sample who were 13 and 14 years old. Girls who were enrolled were randomised at random to either the control or intervention condition. Every girl finished the online pretest activities. After the pretest, the nine-session, gender-specific preventive programme was accessed online by the intervention girls. The program's objective was to lower the risk factors and drug use among girls by enhancing their cognitive and behavioural abilities in areas including stress management, mood regulation, upholding a positive body image, and turning down offers of drug usage. Girls in both groups again filled out the posttest and follow-up questionnaires after a year. At the post-test, girls who got the intervention reported greater levels of self-efficacy, goal-setting, media literacy, and self-esteem, and they smoked less cigarettes than girls in the control group. Girls given to the intervention scenario also had greater alcohol, cigarette, as well as marijuana decline skills, coping skills, media literacy, and lower rates of gaze drug use. At 1-year follow-up, girls in the action condition also reported less excessive drinking and smoking cigarettes than girls within the control condition. The results of this study back up the usage of customised online drug misuse prevention programmes for girls in their early adolescence.

The above-mentioned studies do not explain that drug addiction throughout adolescence has far-reaching effects on society and perpetuates cycles of inequality in addition to negative effects on an individual's health. Society can set the stage for a future generation that is healthier and more resilient by tackling this problem comprehensively.

### 3. DISCUSSION

Adolescent drug usage is a complex and widespread problem that requires close examination. This discussion aims to investigate the intricacies of drug addiction among adolescents, including the variables that influence its prevalence, the effects it has on both people and society and possible preventative and intervention measures. A crucial developmental stage, Adolescence is defined by a confluence of physical changes, mind, emotions, and society. People are especially susceptible to outside influences during this time, and the temptation to use drugs becomes dangerous [6].

#### 3.1 Biochemical Weaknesses



An important factor that makes teenagers more susceptible to drug usage is the way the brain develops biologically. Adolescence brings about major changes in the brain, especially in areas related to reward processing, impulse control, and decision-making, according to neuroscientific research. Because the prefrontal cortex, which controls executive processes, Teenagers are less able to weigh all of the potential consequences of their decisions and are more prone to act impulsively since their brains are still maturing. Their neurodevelopmental characteristic makes individuals prone to substance experimentation, frequently without a complete comprehension of the possible consequences [7].

### *3.2 Social Factors and Interpersonal Pressure*

Adolescent behavior is greatly influenced by their social surroundings, particularly by their relationships with their peers. Peer pressure is the term used to describe the influence that peers have on an adolescent's decision to engage in a particular behavior or comply with a given norm. Adolescent drug experimentation may result from a desire for approval and belonging among peer groups, as substance use could be viewed as a social bonding activity. Substance misuse can be further perpetuated by the normalization of drug use in some social circles, which can foster an environment where participating in such behaviors is accepted. Teens may also turn to drug usage as a coping method for the difficulties they encounter in their social lives. Several problems, including peer rejection, social isolation, and bullying, might lead some people to turn to drugs as a way out of mental discomfort. To create focused preventive programs that address the societal causes of drug misuse, it is essential to comprehend the complex dynamics of peer pressure and the significance of social interactions [8].

### *3.3 Co-occurring behavioral issues and psychological factors*

Adolescent drug misuse and psychosocial issues interact in a complicated way. Substance abuse is a common coping mechanism used by teenagers for emotional and psychological issues like anxiety, depression, and stress. According to the self-medication hypothesis, people may use drugs as a coping mechanism for their mental distress or suffering, unintentionally becoming dependent on them to control their emotions. The terrain of teenage drug misuse is further complicated by co-occurring mental health issues. Substance misuse and mental health problems frequently coexist, posing a difficult situation known as comorbidity. Teens who suffer from mental illnesses may be more likely to use drugs as a self-medication method, which could exacerbate their substance abuse and mental health problems [9].

### *3.4 Environmental and Societal Factors*

Adolescent drug misuse is largely influenced by broader cultural and environmental issues, in addition to individual and interpersonal factors. Substance misuse can become a coping technique for everyday life's obstacles in an environment where there are economic disparities, restricted possibilities for personal growth, and poor access to excellent education. Adolescent attitudes and beliefs towards substances can also be shaped by the influence of popular culture and the media, which regularly glamorizes drug use. It is important to consider the influence of parenting methods and family dynamics. Adolescent drug misuse may be more common in families where there is dysfunction, a lack of encouragement, or uneven discipline. Adolescents who lack appropriate role models and efficient communication within their families may find it more difficult to build coping mechanisms and resilience, making them more vulnerable to outside influences [10].

### 3.5 Adolescent drug abuse's after-effects

Adolescent drug misuse has serious repercussions that affect many areas of life, such as mental and physical health, academic achievement, and social ramifications. The brain that is developing is physiologically more susceptible to the negative effects of medications. During this crucial time, substance abuse can lead to permanent changes in the way the brain functions and is structured, which can have an impact on memory, emotional control, and cognitive performance. Adolescent drug misuse is frequently accompanied by mental health problems, putting users at increased likelihood of experiencing anxiety, despair, and other psychiatric diseases. The significance of addressing both components simultaneously in intervention attempts is highlighted by the bidirectional relationship that exists between substance misuse and mental health [11].

Adolescent drug addiction also has a substantial impact on academic achievement. Substance abuse can cause problems with focus, memory, and general cognitive function, which can lower academic achievement and raise the risk of failing out of school. The long-term effects of educational failures can restrict prospects for those impacted and prolong poverty cycles. The financial toll that teenage drug usage has on society is significant. An enormous financial burden is incurred due to missed production, criminal justice participation, and healthcare costs. Furthermore, communities where substance addiction is tolerated may see a rise in crime, social disintegration, and strain on their healthcare systems [12].

Adolescent drug usage can have significant and varied consequences that include aspects related to the mental, social, physical, legal, or educational domains. The ramifications are complicated and depend on factors like the kind and extent of drug use, personal vulnerability, and length of time spent abusing substances. Long-term drug misuse during adolescence can lead to a variety of chronic health problems on a physiological level. The effects of stress on the body can be significant, ranging from liver damage and reduced immunological function to respiratory ailments and cardiovascular issues. Moreover, substance abuse can disrupt the complex processes of neuronal maturation, which can result in cognitive deficiencies, memory impairment, and reduced decision-making ability. The brain of adolescents is especially vulnerable [13].

Adolescent drug misuse is closely associated with an increased risk of several psychological illnesses in the context of mental health.

Addiction to substances during this crucial developmental stage may cause or worsen conditions like anxiety, sadness, and psychosis. The effects extend beyond mental health; cognitive abilities may also be negatively impacted, which could impair academic achievement and impede intellectual development. The effects are not limited to the person; they also penetrate society. Teens who struggle with drug addiction frequently feel alone and alienated, which strains their bonds with peers and family. This kind of social disengagement might intensify the downward cycle and increase the need for drugs as a coping method [14].

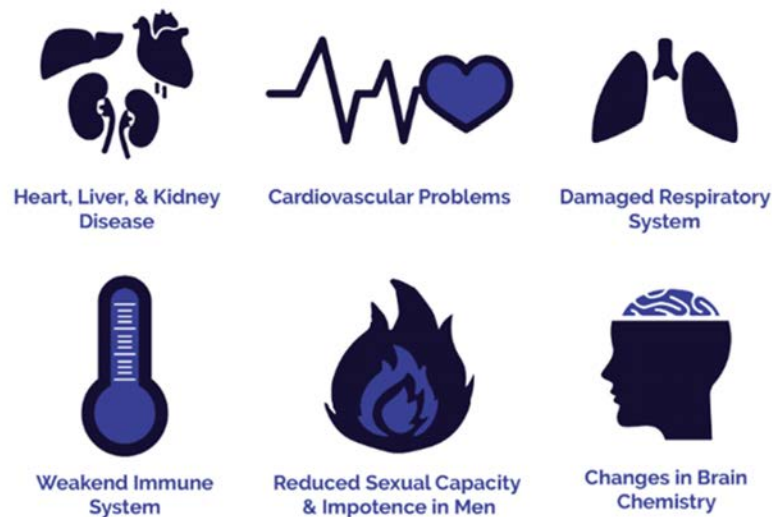
Social and behavioral implications can take many different forms, ranging from difficulty in the workplace and school to problems with the law and finances. Reduced career possibilities, absenteeism, and dropout rates may result from a sharp decline in academic achievement. Personal alienation can have negative societal effects as well, such as damaged family ties and the development of toxic peer relationships.

The latter in particular has the potential to reinforce negative behaviours and start a drug-using loop inside social groups. Another difficult aspect of the aftermath is the legal consequences, as drug misuse frequently leads to arrests, convictions, and convictions that can seriously harm

a person's chances for the future. The financial burden that results from the costly nature of maintaining a drug habit exacerbates the difficulties that adolescents in this situation encounter [15].

The danger of addiction hangs large over drug misuse among adolescents. Repetitive drug exposure can cause neurobiological alterations in the developing brain that can lead to dependency and addiction. As a result, those who start using drugs in their teens have a higher chance of experiencing addiction for the rest of their lives. Addiction's psychological and physiological components interact to produce a strong obstacle to rehabilitation and recovery. Adolescent drug usage has a major impact on relationships, both with peers and with family. The strain is most typically felt in family relations, where problems with trust, communication, and the general weakening of familial ties are commonplace. Peer relationships that involve substance misuse can amplify and prolong problematic behaviors, creating a climate in which drug use is accepted as the norm. As a result, attempts at recovery may be hampered since the person may encounter pushback from their peer group when trying to end the downward spiral of substance misuse [16].

Another aspect of the fallout from teenage drug usage is the effects on education. Academic decline may be brought on by compromised memory and learning processes as well as a decreased ability to concentrate and pay attention. The effect this has on prospects for further education and employment feeds a vicious cycle of disadvantage and makes it more difficult for the person to overcome the constraints of substance misuse [17]. In Figure 1 shown some long-term physical effects of repeated substance use.



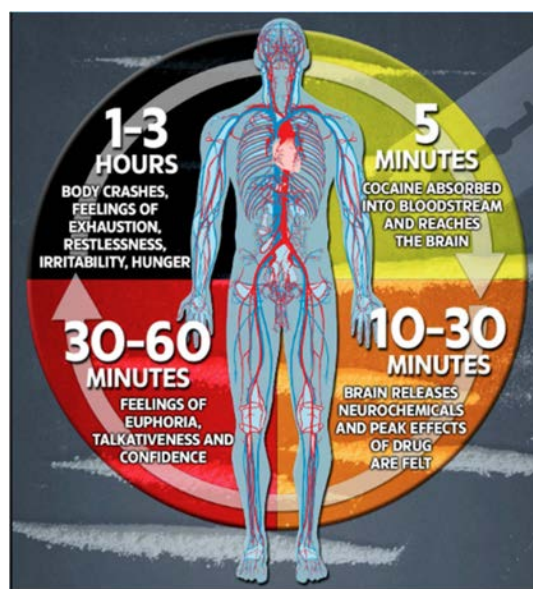
**Figure 1: Illustrates some long-term physical effects of repeated substance use [sbtreatment].**

To sum up, the consequences of drug usage among adolescents are complex, widespread, and long-lasting. Substance misuse at this crucial developmental phase leaves permanent traces on the physiological, emotional, legal, social, and educational dimensions. An all-encompassing strategy that includes programs for prevention, intervention, and therapy is needed to address the problem. To lessen the possible long-term effects, early detection, and focused support are essential. These measures give people hope that they may overcome the difficulties brought on by adolescent drug addiction and start down a path toward resilience and recovery [18].

### 3.6 Strategies for Prevention and Intervention

Adolescent drug misuse is a challenging issue that requires a multimodal approach that consists both is a challenging issue that requires a multimodal approach that consists both early intervention, prevention, and extensive treatment options. Adolescents who receive accurate knowledge about the dangers and repercussions of drug addiction might make more educated decisions thanks to educational programs. These programs must go beyond only disseminating knowledge; they should also include elements that improve skills, encouraging the growth of coping strategies, resilience, and decision-making abilities. When properly executed, school-based prevention initiatives can foster a good social norms-promoting atmosphere that deters substance use. The success of such projects depends on the cooperation of teachers, parents, and community organizations. Adolescents' attention can be diverted from drug use by offering them constructive channels for self-expression and substitute activities [19].

When it comes to recognizing and treating substance misuse problems before they get worse, early intervention is essential. Pediatricians and school counselors are among the healthcare professionals who are vital in identifying drug misuse in its early stages and assisting with the necessary interventions. Early identification of persons who are at risk can be facilitated by screening tools and tests, which can facilitate prompt intervention and assistance. Adolescent drug misuse treatment programs ought to take a comprehensive approach, treating substance abuse as well as any underlying psychological disorders. Treatments for teenage substance misuse that are effective include behavioral therapy, counseling, and family-centered approaches. To involve teenagers in the therapy process and encourage long-term rehabilitation it is imperative to create a friendly and judgment-free environment [20]. In Figure 2 shown the cocaine effects on the body system.



**Figure 2: Illustrates the cocaine effects on the body system [todeeney].**

Furthermore, a comprehensive and well-coordinated response to teenage drug usage can be facilitated by community-based efforts that entail cooperation between educational institutions, medical professionals, law enforcement agencies, and community organizations. Adolescent drug usage can also be significantly decreased by enacting laws that limit access to narcotics, control advertising, and encourage responsible prescribing practices. In conclusion, teen drug usage is a complicated, widespread problem with wide-ranging effects. Adolescent substance

misuse is influenced by a variety of factors, including biological weaknesses, cultural and psychological variables, and societal causes. Drug misuse during this crucial developmental stage has long-term impacts on a person's general well-being, academic achievement, and their physical and psychological well-being in society. Targeting the different factors that lead to the incidence of adolescent drug misuse requires comprehensive efforts to address the issue. A comprehensive strategy to address this issue must include evidence-based treatment methods, early intervention techniques, and prevention programs. For prevention and intervention initiatives to be successful, cooperation between parents, educators, healthcare providers, legislators, and community organizations is essential.

#### 4. CONCLUSION

In conclusion, substance addiction among teenagers is a complex issue with wide-ranging effects on both the individual and the larger community. The data points to a confluence of environmental, psychological, and biological elements that increase teenagers' susceptibility to substance abuse. Prevention, schooling, and support system-focused interventions are essential for reducing the harmful effects of drug usage. The focus should be on creating a nurturing atmosphere that tackles the root causes of risk and encourages teenage resilience. Furthermore, developing a thorough plan to address this widespread problem requires a holistic approach involving communities, schools, and parents. Society may work towards ending the cycle of drug misuse and promoting healthier outcomes for future generations by acknowledging the special needs of adolescents and putting evidence-based interventions into practice.

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## CHAPTER 13

### EDUCATIONAL DISPARITIES IN INDIA: A COMPREHENSIVE EXAMINATION OF CHALLENGES, INITIATIVES, AND COMPARATIVE PERSPECTIVES

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#### ABSTRACT:

Studying the functioning of Indian schools, their educational institutions, and the changes that have been or are being implemented. An ideal school and Mumbai's municipal schools are quite different from one another. The sizes of the current layouts and the issues with daily logistics and administration are only a few of the many limitations and limits that exist at different levels. India faces a significant literacy challenge, with nearly 40% of its population being illiterate, particularly among the underprivileged. This study delves into the critical deficiencies in schools across 13 Indian States, including the absence of essential amenities, poor infrastructure, and a lack of playgrounds, contributing to low attendance and high dropout rates. The study explores the current condition of municipal schools in other countries, comparing public and private schools in China, and delving into the transformation of a school in Wablewadi, Maharashtra, through community efforts. The study also addresses the issue of necessities in rural Indian schools, introducing an innovative Help Desk made from recycled cardboard. It highlights government initiatives like the midday meal program and educational programs implemented by organizations such as Pratham and Teach for India. The study evaluates the impact of Teach for India on students in terms of academic advancement, values, mindset development, and increased exposure.

The discussion encompasses budgeting and funding challenges faced by municipal schools, the importance of the student-teacher relationship, and the concept of education in India. It reviews different types of classroom arrangements and outlines the characteristics of an ideal school. The observations of specific public schools in Vile Parle East and Andheri East, Mumbai, reveal infrastructure issues, high student-teacher ratios, and challenges in maintaining cleanliness, emphasizing the need for comprehensive improvements in the education system.

#### KEYWORDS:

Community, Disparities, Educational, Population, Schools.

#### 1. INTRODUCTION

India grapples with a significant literacy challenge, with nearly 40% of its population being illiterate. The primary hurdle the country currently confronts is the inability to provide education, particularly to the underprivileged. Schools in 13 Indian States face critical deficiencies such as the absence of essential amenities like toilets and drinking water, along with overall poor infrastructure. Additionally, more than 60% of these schools lack playgrounds. The inadequate availability of toilets in BMC schools contributes to low attendance and early school dropouts. The absence of proper hygiene facilities has led to a considerable dropout rate at the elementary school level, resulting in only a minor fraction progressing to secondary education. Shockingly, merely 12 out of every 100 children successfully reach class 10. Additionally, collected data indicates that the success rate of students in these schools stands at 60 percent. Out of the 26,649 students who took the middle

school scholarship exam (Class 5) last year, only 23 students from BMC schools qualified, in contrast to 1,954 private school students. Similarly, for high school scholarship exams (Class 7), only six BMC school students out of 24,473 successfully qualified [1], [2].

- i. *The current condition of Municipal schools in other countries.*
- ii. *Public v/s Private schools in China*

The rationale for examining China as a model is rooted in the striking similarities between their population and spatial constraints, akin to those faced by India. Table 1 Compares the Educational Environments in China's Public and Private Schools.

**Table 1: Contrasting Educational Landscapes: Public Schools vs. Private Schools in China.**

Public schools	Private schools
Government-funded public schools in China boast an array of amenities such as a swimming pool, observatory, and multiple gymnasiums. Beyond standard academic courses, students can opt for over two hundred elective classes covering diverse subjects like equestrianism, skiing, fencing, automotive design, animation, advertising, and numerous others. The curriculum even includes Mock Olympic Games, where students learn event planning and management. Notably, the school maintains high standards of cleanliness and hygiene.	Migrant children in China, whose families have relocated to urban areas for employment opportunities, attend private schools instead of public ones due to financial constraints or other factors. These private schools, characterized by lower fees, often face challenges related to hygiene and limited space.

### *1.1. Municipal school in Wablewadi, Maharashtra*

In 2012, Dattatreya Ware, the headmaster, observed a lack of enthusiasm among children attending the school, with only 30 students regularly participating in classes. Concerned by this situation, he convened a meeting with parents and decided to revitalize the school, opting not to seek external donations. Through the collective efforts of the community, they successfully generated around Rs. 17 lakh to initiate a crucial makeover for the school. The renovation project, entirely funded by the 66 households in the village, was completed in approximately one year. "All the tasks were carried out by the parents without the involvement of hired laborers. Presently, the school is equipped with air conditioning, operates on solar power, and employs e-learning and activity-based teaching methods. Remarkably, the school has surpassed 90 students [3], [4]."

### *1.2. Recycled cardboard desks*

"In contrast to the amenities often taken for granted in developed world schools, such as desks, chairs, and pencils, many rural schools in India lack these necessities. Children in these settings commonly sit on the floor to complete their schoolwork, devoid of desks, and transport their books and materials in flimsy plastic shopping bags. Addressing the need to provide efficient and cost-effective solutions for these schoolchildren, the Mumbai-based non-profit organization Aarambh has introduced the innovative Help Desk. This portable desk, crafted from recycled cardboard, serves a dual purpose by also transforming into a convenient carrier for transporting books home. The absence of desks can lead to issues like poor posture, eyesight

problems, and even suboptimal handwriting among children who spend extended hours seated on the floor. The design process involves tracing the outline onto sheets, utilizing laser cutting techniques, and then folding the cardboard. The Help Desk functions both as a compact desk and, when folded, as a backpack with a briefcase-style design for easy carrying of belongings [5]."

### *1.3. Initiatives and policies implemented by the government*

The midday meal initiative is a government program ensuring that students in public schools throughout India receive a daily midday meal. Widely regarded as successful, this program operates in alignment with the Right to Education (RTE) Act, mandating free and compulsory education for all children aged six to 14. Pratham, a collaboration between UNICEF and the Municipal Corporation of Mumbai, implements various supplementary educational programs. These initiatives include learning support classes, libraries, and additional learning resources to complement school education. Teach for India, inspired by the Teach for America program, involves Indian college graduates and professionals applying for two-year fellowships. Selected individuals teach at government-run and low-income private schools that lack adequate resources, contributing to educational enhancement. The Swachh Vidyalaya program underscores crucial elements, including sanitation, daily handwashing with soap before the midday meal, access to drinking water, effective operation and maintenance (O&M), and behavior change activities [6], [7].

This study focuses on India's substantial literacy challenge, with nearly 40% of the population being illiterate, particularly among the underprivileged. In 13 Indian States, public schools face critical deficiencies, affecting attendance and leading to early dropouts. The study also explores the educational landscapes of public and private schools in China, drawing parallels with India's challenges. After that literature of the previous study is discussed in the literature review section. The discussion section evaluates the impact of Teach for India on students. The study also highlights the critical role of the student-teacher relationship, underscoring effective communication, understanding, and respect. Finally, the study ends with a conclusion section that explains the outcome and future of this study.

## **2. LITERATURE REVIEW**

Skinder S. et al. [8] focused on the unique challenges faced by the Gurez Valley in Jammu and Kashmir, situated near the international border with Pakistan. The region experiences extreme geophysical conditions, including being cut off from the rest of the world for about six months due to adverse weather and historical restrictions. Despite being covered by the Border Area Development Programme, Gurez exhibits low levels of development, particularly in education. The study employs Kendall's Rank Order method to assess educational situations and disparities across villages. Census data from 2011 reveals a significant gender gap of over 30% in literacy rates in Gurez. Results indicate that many villages, especially in the Tulail zone, have literacy rates below 50%, with some like Malangam and Gujran as low as 24.91% and 35.87%, respectively. Gender disparities are also highlighted, with 17 out of 28 villages having female literacy rates below 40%, and substantial gaps between male and female literacy rates in certain villages.

Husain Z. and Sarkar S. [9] addressed the often-overlooked aspect of changes in educational attainment disparities over the life cycle, focusing on gender disparities in India. Utilizing unit-level National Sample Survey data (2004-2005), the study employs the Sopher-Kundu index for bi-variate analysis of gender disparities at various educational levels up to high school. Surprisingly, while substantial gender disparities exist at lower education levels, a reversal is observed at higher levels in several states and urban areas at the all-India level. Econometric

analysis, employing the variable parameter variant of the generalized ordered logit model, indicates a robust increase in females' educational attainment over the life cycle, although disparities persist even after accounting for socio-economic traits.

Ray Chaudhury A. and Sinha M. [10] investigated changes in regional disparities in educational transitions from lower to higher levels before and after the liberalization period. It explores the association between educational participation, transitions, and labor market outcomes such as employment likelihood and expected earnings after education. Utilizing datasets from six quinquennial employment and unemployment surveys and the Periodic Labour Force Survey (2019–20), the study employs sequential logistic regression models. Findings indicate significant regional disparities in school and college/university education participation and transition across Indian states, with a satisfactory decline in school education disparities but persistence in college/university education disparities from pre-liberalization to post-liberalization periods.

Das P. [11] focused on quantifying the distributional content of education and its impact on earnings distribution across genders in different demographic groups in India. Analyzing survey data, the research explores educational disparities among children aged up to 14, considering gender and household-specific characteristics. Findings indicate that, in rural areas, girls face lower access to full-time education compared to boys. Conversely, in urban regions, girls have better access to primary-level education than boys. The study reveals that overall coverage is higher in urban areas than in rural ones. Furthermore, it identifies that the Household Opportunity Index (HOI) is higher among urban children than rural ones, with parental education being the most significant contributor to the inequality of opportunity in obtaining full-time education at the primary or upper primary level.

Saha A. et al. [12] investigated the rural-urban gap in self-rated health (SRH) among older adults in India, focusing on the moderating effects of marital status and living arrangements. Utilizing data from the Longitudinal Ageing Study in India (LASI) wave 1 (2017–18) with a sample of 30,633 individuals aged 60 years and above, the research reveals a 7% higher prevalence of poor SRH in rural areas compared to urban counterparts. Unmarried older adults living alone in rural areas are found to be 38% more likely to report poor SRH than their married and co-residing counterparts. Other significant factors influencing SRH include age, socio-cultural background, economic status, health, and geographic location. The study underscores the need for special policy attention to unmarried older individuals living alone, emphasizing the importance of care, support, and improved healthcare services to enhance their overall well-being.

Singh H. et al. [13] addressed a gap in existing studies by examining household expenditure on secondary education in Haryana, India. Most prior research focused on elementary and tertiary levels, neglecting the secondary level. Through a recent primary survey with quantitative and qualitative data, the study reveals that households in Haryana allocate 7.22% of their annual income per student for secondary education. Notably, government schools account for 2.26%, while private schools show higher expenditure at 10.68%. The research identifies socio-economic and cultural factors leading to systematic expenditure patterns, reinforcing gender disparities and privileging certain social groups, particularly in urban and intermediate areas. The study underscores the need for state policies to address these inequalities by regulating the commercialization of non-state school education.

The previous studies outlined various aspects of educational challenges and disparities in different contexts in India. The current study refers to an extensive study or document that thoroughly investigates and analyses the unequal educational conditions, opportunities, and

outcomes within the educational system of India. The examination encompasses various dimensions, including challenges faced, initiatives implemented to address disparities, and a comparative analysis with relevant perspectives.

3. DISCUSSION

Teach for India's objective for our students is to guide each child we engage with onto a distinct life trajectory. We evaluate the impact in terms of three key dimensions: academic advancement, values, and mindset development, and increased exposure and access. Leadership plays a pivotal role across all these dimensions, with a focus on cultivating student leaders capable of bringing about transformative changes in themselves, their classrooms, schools, and communities. Figure 1 displays the Affected Schools.

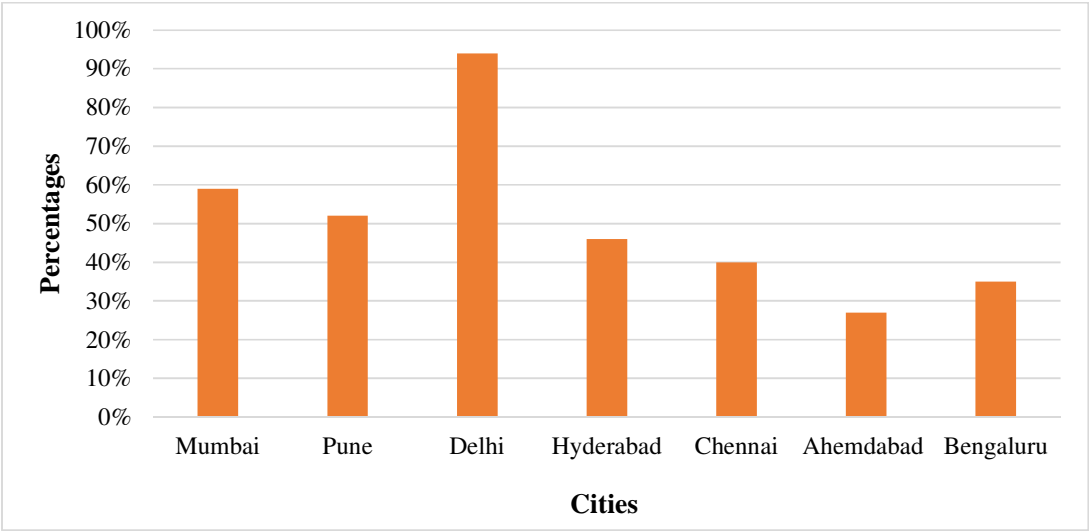


Figure 1: Illustrate the Schools Impacted.

3.1.Stakeholders at a Municipal School

Individuals associated with a Municipal school as stakeholders are linked to the school both at a primary and secondary level. The stakeholders in a municipal school are shown in Figure 2.

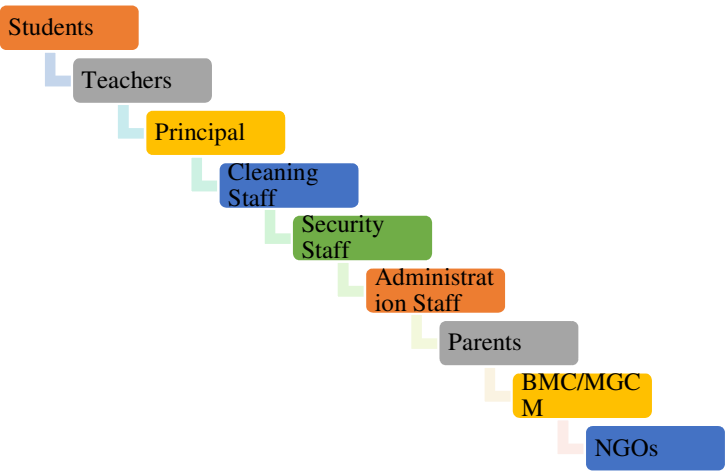


Figure 2: Illustrate the Stakeholders at a Municipal School.



**Figure 3: Illustrate the Regulations given by the government.**

### 3.2. Budgeting and funding

When questioned about the budget's main emphasis, the Education officer responded, "Our primary goal is to integrate technology as an instructional tool. We aim to digitize the entire curriculum, presenting it online through presentations and videos for students to revisit at their own pace. Additionally, we plan to install projectors in schools and create software for electronically assigning all activities."

The current education budget allocated by the Brihanmumbai Municipal Corporation (BMC) is Rs. 2311.66 crores for the fiscal year 2017-18, reflecting a reduction of 82.74 crores compared to the previous year's budget of Rs. 2394.40 crores (2016-17). Each school receives an allocation ranging from Rs. 8000 to Rs. 10000, primarily designated for construction purposes. To increase student enrollment in municipal schools, the BMC acknowledges the necessity of enhancing educational standards in these institutions. An activist pointed out that among the city's 1,100 primary schools, 923 offer classes from I to VII, while 177 are limited to Class IV, leaving only 253 schools that comply with the Act by providing free and mandatory education up to Class VIII. This situation constitutes a direct violation of the prescribed educational standards [14], [15].

Parents anticipate that, beyond just the process of digitization, civic schools should extend their educational offerings up to Class X. A significant number of children either terminate their education after completing Class VII, or their parents are compelled to seek affordable options in private schools. According to the RTE Act, there should ideally be a government school within a 1 km radius of every residence. In addition to investing in infrastructure, the BMC should allocate resources for transportation across all schools. In cases where providing transportation is challenging, the BMC should consider offering transportation allowances to parents. This approach holds the potential to effectively reduce the dropout rate.



### *3.3. Understanding the student-teacher relationship*

Students engage with their teachers for around 5 to 7 hours daily, spanning nearly 10 months each year. Cultivating a positive and healthy rapport with their educators is of utmost significance for their well-being. The relationship between teachers and students holds significant importance for children. Establishing a positive connection between the two is challenging but can be achieved, benefiting both individuals involved. The qualities essential for fostering a positive relationship may vary but generally involve creating a conducive learning environment, being approachable, and inviting students to engage in the learning process. Teachers and students with effective communication skills, mutual respect in the classroom, and a genuine interest in teaching and learning can cultivate a positive relationship. Since children employ diverse learning strategies to achieve their goals, teaching can become challenging without proper communication. Recognizing and understanding a child's problems, fears, or confusion provides teachers with insights into the child's learning difficulties. Once teachers are aware of these challenges, they can exhibit greater patience, contributing to a sense of security and reduced confusion during classroom learning. Effective communication serves as a vital link between students and teachers, creating a positive atmosphere in the classroom.

Teachers must acknowledge the value of students' sense of belonging, particularly for minority students, as it significantly contributes to building self-worth. Understanding and respecting students' cultural backgrounds further enhances the teacher-student relationship. Teachers who demonstrate respect automatically gain favor, fostering an environment where students actively participate in the learning process [16], [17].

### *3.4. Education*

It is characterized as the thoughtful, optimistic, and considerate fostering of knowledge pursued with the conviction that everyone should be allowed to partake in life. "It encompasses the wise, hopeful, and respectful cultivation of learning, driven by the belief that everyone deserves the opportunity to partake in life. Education provides us with an understanding of the world, transforming it into a more positive entity. It nurtures a unique perspective on life, fostering the development of opinions and viewpoints.

There is ongoing debate regarding whether education is the sole source of knowledge. In the context presented here, education is viewed as a process that invites truth and possibility, dedicating time to exploration. Knowledge acquisition stands out as the primary outcome of education. It not only imparts information about the world but also facilitates its transformation into something more meaningful. Education instills in us a particular way of looking at life, enabling the formation of opinions and perspectives. While some argue that education is distinct from knowledge, asserting that it is the process of obtaining information, the reality is that information cannot truly become knowledge without the transformative power of education."

Education empowers individuals to decipher information and extends beyond the confines of textbook lessons; it encompasses the broader teachings derived from life experiences. In its broadest context, education refers to any intentional act or encounter that molds the mind, shapes character, or enhances physical capabilities. Technically, education denotes the systematic process through which society purposefully imparts its amassed knowledge, skills, and values to succeeding generations. Viewed as a comprehensive endeavor, education serves as a means of offering valuable knowledge and experiences to children, fostering the fullest possible development of their inner capacities. In essence, 'education' encompasses both the acquisition of knowledge and experiences, as well as the cultivation of skills, habits, and

attitudes that enable individuals to lead enriching lives in the world. It is essentially a developmental process that involves guiding individuals through diverse life experiences to bring forth their optimal potential [18], [19].

### *3.5. Concept of education in India*

Numerous synonyms exist for the term 'education.' The prevalent Indian term 'siksha' finds its roots in the Sanskrit verbal root 'shas,' signifying 'to discipline,' 'to control,' 'to instruct,' or 'to teach.' Similarly, the term 'vidya,' originating from the Sanskrit verbal root 'vid' meaning 'to know,' denotes the subject matter of knowledge. This highlights that in India, the primary focus was on disciplining the mind and imparting knowledge. Education, viewed as a social concept, has evolved philosophically, developed psychologically, and is rooted in societal foundations. Its essence lies in nurturing individuals in a perpetually growing society.

### *3.6. Types of classroom arrangements*

1. Traditional
2. Grouped (facing each other)
3. Horseshoe
4. Grouped (facing the teacher)

### *3.7. An Ideal School*

An exemplary educational institution ought to create an environment where students, teachers, and staff feel at ease while carrying out their respective roles. Both students and educators should be eager to attend and engage in the learning and teaching processes. The seamless flow of movement is of utmost importance. Although corridors in many schools serve multiple purposes, their significance should be acknowledged as these spaces constitute the initial point of contact for people entering the school. Therefore, well-designed, well-ventilated corridors are essential, considering they are the primary circulation pathways within the school and need to be highly efficient. These corridor spaces can serve as valuable mediums for conveying important messages that contribute to the children's growth. Additionally, they can be utilized to showcase students' outstanding work, inspiring greater effort and achievement.

Regarding the layout, it is advisable to arrange classrooms, staff rooms, and toilets for easy accessibility. Ensuring the cleanliness of toilets throughout the day poses a significant challenge in such educational institutions. Additionally, schools ought to incorporate essential facilities such as computer labs, science labs, and libraries. Specifically focusing on classrooms, it is essential to guarantee sufficient lighting, proper ventilation, and the provision of suitable furniture and equipment.

Providing windows or alternative means for students to connect with the world beyond classroom confines is essential. The inclusion of benches in an ideal school is a topic open to debate; many argue that benches are indispensable. An interactive classroom can be effective, contingent on the teacher being well-prepared and equipped to manage the class. The school has the potential to organize open learning sessions, utilizing the available open space for conducting classes. It is essential to optimize the use of the school's grounds efficiently. The school environment, both within and around the premises, should be well-ventilated, creating a liberating atmosphere for children to engage in learning activities freely. Additionally, the designated areas for teachers need to be user-friendly and properly maintained. Ensuring the comfort of teachers is crucial, fostering a positive energy that inspires effective teaching [20], [21].

### 3.7.1. Dixit Road Public School (Vile Parle East)

Observations of the specific school revealed several noteworthy aspects. The presence of a playground and adjacent open space around the school building was evident. The classrooms operated at full capacity, with a considerably high Teacher: Student ratio, reportedly averaging 1:70, surpassing the recommended maximum of 1:90. Notably, students were sitting on the floor, often with broken parts of the benches. Additionally, the absence of a dedicated space for lunch and less-than-ideal cleanliness in the washrooms were apparent issues. Despite periodic cleaning efforts by the staff, it was visibly insufficient. The toilet: student ratio was notably low, further complicating the maintenance of restroom hygiene. Continuous dripping from the taps added to the observed challenges.

The school boasts an auditorium, and its layout remains consistent across all four floors. The ground floor primarily serves the primary section, with a few classes on the first floor. Despite having ample space, a significant portion of the building was either wasted or not utilized to its full potential. Notably, this facility accommodates a total of seven schools, encompassing various mediums, a night school, and a college. It's worth mentioning that the government owns the building, eliminating the need for any rent payments.

### 3.7.2. Nityanand Public School (Vile Parle East)

Observations about this specific school include the presence of a playground and some open space around the school building. The classrooms were at full capacity, with a notably high Teacher: Student ratio, averaging 1:70, and the maximum allowed being 1:90 according to the authorities. Unfortunately, the children were seated on the floor, using broken parts of benches, and there was no designated area for students to have their lunch. The washrooms, despite periodic cleaning by the staff, were not maintained adequately, evident in a lower-than-ideal toilet: student ratio, contributing to challenges in maintaining cleanliness. Additionally, there were continuous water drips from the taps.

The school is equipped with an auditorium, and its layout remains consistent across all four floors. The ground floor and a few classes on the first floor are predominantly utilized by the primary section. Despite having ample space, a significant portion of the school building was either underutilized or left unused. Interestingly, this building serves a total of seven schools, including various mediums, a night school, and a college. Notably, the government owns the building, eliminating the need for any rental payments.

### 3.7.3. Mohili Village Public School (Andheri East)

The school is situated in Asalpha village, Sakinaka, Andheri, with operating hours from 7:15 to 1:00. The student body consists of 60% Muslims, followed by Hindus. Three mediums of education are offered: English, Hindi, and Urdu, with the English medium section taught by 'Teach for India.' Upon entering the school premises, an unkempt playground is observed, where a few students are casually roaming. The 6th-grade English medium classes take place on the 4th floor of the building. The classrooms, sporting old-school aesthetics with worn-off dull green and orange walls, provide just enough ventilation through two windows and four fans. Adequate lighting is ensured inside the classroom.

Instead of benches, the children sit on the floor during classes. Anju, a fellow teacher from Teach for India, mentioned that benches were initially available but some broke, leading to half of the students sitting on the floor and the other half on the remaining benches. This arrangement caused disruptions, prompting them to consolidate the remaining benches in two classrooms. The students appeared somewhat distracted, likely due to the absence of benches.

affecting their posture and concentration. Pin-up boards on two walls feature posters, charts, and timetables. Additionally, projects displayed around the ceiling contribute to brightening up the class.

The dynamic between educators and students exhibits a notable flexibility in this context. Teach for India teachers have introduced an alternative teaching approach, shifting away from the previous practice by BMC teachers, who resorted to physical discipline for incomplete assignments or misbehavior. The new method involves a system of 'reward and punishment,' fostering mutual respect between teachers and students and creating an environment conducive to open discussions. A significant portion of the student population hails from economically disadvantaged backgrounds. Some parents, recognizing the benefits of sending their children to school, appreciate the respite it provides at home, allowing their children time and space to engage in academic pursuits rather than household chores. The allure of the mid-day meal program further contributes to school attendance[22], [23].

Unfortunately, certain families lack a conducive environment for academic and personal development, with students facing challenges such as abuse from inebriated family members or extended periods of neglect. The detrimental impact of these circumstances is reflected in the compromised mental well-being of the children. Teach for India goes beyond traditional teaching roles by addressing household issues. In instances of parental unemployment, they actively assist in job searches. Additionally, the organization engages in fundraising initiatives to support school renovations and repairs. The generated funds also enable educational outings for students, enriching their overall learning experience.

#### 4. CONCLUSION

The study sheds light on the critical challenges facing India's education system, particularly in municipal schools. With nearly 40% of the population being illiterate, the inadequate provision of education to underprivileged communities emerges as a significant hurdle. The deficiencies in infrastructure, such as the absence of essential amenities and poor overall conditions in schools across 13 states, contribute to a low success rate, with only a minor fraction of students progressing to secondary education. The comparative analysis of China's public and private schools reveals stark differences in amenities and educational experiences. While government-funded schools in China boast extensive facilities, private schools attended by migrant children face challenges related to finances, hygiene, and limited space. The case study of a municipal school in Wablewadi, Maharashtra, highlights the transformative power of community efforts in revitalizing an underperforming school. The initiative, entirely funded by the local community, led to significant improvements, showcasing the potential for localized solutions to educational challenges. The introduction of innovative solutions, such as recycled cardboard desks by the non-profit organization Aarambh, emphasizes the need for cost-effective measures to address the lack of necessities in rural Indian schools. The Help Desk serves a dual purpose, providing a portable desk and a convenient carrier for students, addressing issues like poor posture and suboptimal handwriting due to the absence of desks. Government initiatives, including the midday meal program and collaborative efforts by organizations like Pratham and Teach for India, aim to enhance educational standards and provide supplementary support to public schools. However, challenges persist, including budgetary constraints, inadequate infrastructure, and the need for broader policy changes. The study underlines the multifaceted dimensions of education, not limited to academic advancement but encompassing values, mindset development, and increased exposure. The importance of positive student-teacher relationships, effective communication, and understanding students' diverse learning strategies emerges as crucial for fostering a conducive learning environment.

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