INTERNATIONAL CONFERENCE PROCEEDINGS ON ENGLISH LANGUAGE AND LITERATURE IN THE PEDAGOGICAL PERSPECTIVE: EMBRACING THE LANDSCAPE SHIFT THROUGH INNOVATIVE PRACTICES (ICELLP 2K22)

27-28 MAY, 2022

Organized by

Department of Basic Science & Humanities (English)

Narula Institute of Technology, Agarpara, Kolkata

In collaboration with

Indian Society for the Promotion of English Language and Literature (iSPELL)

May 2022

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Department of Basic Science & Humanities
Narula Institute of Technology

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PREFACE

The Department of Basic Science and Humanities (English) of Narula Institute of Technology organised two-day International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices. This conference is specially designed to bring together an interdisciplinary team of researchers to share their information and research experience on recent trends in Science, Technology and Professional communication. There were invited lectures by eminent resource persons from reputed University and Institutions, paper presentation, and interactive sessions. The faculties from different colleges, research scholars and students had given opportunity to demonstrate their own works and get valuable suggestions from experts. It also aimed to create a teaching-learning environment and encourage academicians, researchers and students to develop various competencies and enhance their self–efficacy in different techniques. We had the pleasure to welcome the eminent speakers and several outstanding researchers from different universities and Institutions of repute.

We would like to take the proud privilege to thank our Managing Director, Principal, Registrar, the organizing committee members, the reviewers, all colleagues and friends, the entire cast and crew who helped us to organize this conference.

Dr. Sumit Nandi,
Associate Professor and HOD
Department of BS & HU,
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ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

New Technologies and Education

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Abstract*:* After invention of computer, education has become a good deal with greater less difficulty in comparison to earlier lifestyles. Maximum college students would agree that the laptop is the finest invention in the world because it is able to store a large amount of data without creating any problem data for them. By a click of the mouse, students will be able to get all of their data analyzed that help them to keep abreast with nowadays's fast transferring world. Long gone are those times of full of life handwriting exercise. The laptop has become as a blessings for college kids who can now publish their assignments in neat and legible sheets. Coloured graphs and diagrams can be inserted. There is a very little scope of spelling errors and even grammatical mistakes. It could be cited that these days PC has become an importantpart of EdTech.

Keywords: e-Learning, EdTech, internet, teaching and learning, educator

I. INTRODUCTION

Technology has impact on nearly each and every part of lifestyles today, and schooling is no exception. In many methods, era has profoundly modified training. Firstly, it has greatly modifies the definition of education. Today, large amounts of facts (books, audio, pics, movies) are available at one's fingertips through the internet. Opportunities for communication and collaboration have also been improved via technology. Historically, school rooms were fairly remote, and collaboration has been confined to other students inside the same lecture room or constructing. College students can share what they are studying with others students in other classrooms in other states who are monitoring the equal excursion. Students can collaborate on institutional tasks via the usage of technology-primarily based gear together with Wikis and Google docs.

The partitions of the school rooms are now not a barrier as technology permits new approaches of gaining knowledge of, speaking, and running collaboratively. Technology has additionally all started to alternate the roles of instructors and rookies. It is a powerful device that could guide and rework schooling in many ways, from making it simpler for instructors to create instructional substances in enabling new methods for people to work collectively. With the global reach of the net and the ubiquity of smart devices that could connect with it, a brand new age of every time anywhere, education is dawning.

Now-a-days it becomes a viable method to transmit any volume of data in the right away, effectively, and without problems with the help of digital equipment. A few years back, attending a workshop or lecture overseas was a great adventure for both students and instructors. But nowadays, humans avoid attending mass occasions and prefer to manipulate their studying and education online. This is why the fashion of e-gaining of knowledge is growing. E-gaining of knowledge is the process of delivering or schooling through electronic gadgets. E-learning may be applied for both worker training and pupil education. Computers. laptops, capsules, cell telephones are used for knowledge delivery. Knowledge increases with in own speed and anyone who desires to spread his thoughts and ideas can put in on internet with the profound use of digital knowledge.

It is worthy to mention that nowadays, people not need to do the labour of going through piles of manuscripts worldwide. As more and more human beings are becoming aware of what is going on in the world, more of them can consider themselves as knowledge-arrier to the others. There are medical doctors who may be consulted online, attorneys may make clear criminal points and teachers can assist college students with their assignments. There are internet cafes that allow people to play on-line video games – maximum of which show loads of violence and aggressiveness. If, however, gambling of video games may be confined and supervised, kids can expand better response time, visual activities and dexterity.

But the arrival of computer systems and the internet has rung the dying kneel on a number of conduct that are essential for the improvement of an amazing character. Studying is one such habit that loses its life rapidly. Be it the everyday newspaper or work of fiction, the practice of group reading is lowering. Communicative competencies are deteriorating and fitness too is struggling because of the long hours of sitting in front of the laptop. It depends on our accurately utilization of laptop to turn it into a boon instead of a bane for us.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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- The following new technologies will change education in 2022:-

All emerging technologies in education share a common goal; change the learning process of students. This technology promises to improve the performance of teachers and students. With such technology running our modern world, education is sure to be reinvented.

To better understand how emerging technologies will help transform education in 2022, we need to look at eachone. Agreement:

A. Augmented Reality (AR) & Simulations

Augmented reality and simulation have left their mark on the visual world. Today, the monitoring of students' learning and collaboration with their teachers has begun. AR has been around for a while. However, due to its ever-evolving nature, it is considered one of the most emerging technologies in the world. According to research on AR and education,it has been suggested that it will have a greater impact on how education is viewed by 2022.
Augmented Reality is said to be the best way to capture people's dreams and imagination. In 2022, it promises to help students realize such dreams to improve the learning process.

B. Adaptive Learning

As the name suggests, adaptive learning is a technology that provides learning activities for students based on their needs and learning style/behavior. Think of personalized learning as a piece of technology that can be customized to each student's needs in a short amount of time. It helps students adapt to unique learning paths based on their interests and learning abilities.
Adaptive learning plays a central role in the education system. However, technology is built to help business coaches deliver business training more effectively. Looking at the rate of growth experienced by technology, 2022 is considered one of the many things that can change education.

C. Education Technologies Based on Artificial Intelligence (AI)

Artificial intelligence is considered one of the most talked about technology trends in the world. It believes in the development of world technology due to its intelligent approach to various systems. Although it is used in various fields, AI is not limited to the education sector. More specifically, its presence has helped the world evolve, and by 2022, education will evolve even more than that.
By 2022, AI will revolutionize education. It is more likely to do this by first supporting view distribution. This can be useful when students need to work on essays, term papers, or research papers on certain cultural traditions.
For example, Google bots and most search bots will try to read a short synopsis of an online search. However, a better scenario involves sharing the story from a first-hand source. This is what AI aims to achieve.

D. Usage of 5G Technologies in Education

5G is the fifth generation of wireless technology. With its advanced features, anyone who uses it can enjoy high-speed, low-latency wireless technology. Students will benefit more from this unique innovation as it promises them faster downloads of student files and resources and a stronger network.
Recommendations are made on the features that 5G can bring to education. Many have holographic instructors who can lead discussions on specific topics. Another suggestion is that students can better participate in distance learning and participate better in virtual reality experiences.

E. Automation

Automation is driving a large part of the world we live in. Business and economic sectors are leveraging automation to deliver faster experiences as engagement increases. The education sector will benefit from automation.
With automation, students can have a better chance of automatically taking lectures at specific times. Lectures can be digitized. A better way to adopt the use of artificial intelligence is through automation.

F. Competency-Based Education

People should expect education skills to play an important role in education. With this specialized technology, students are matched with learning activities designed for their learning ability level. In more detail, competency-based learning allows students to develop learning experiences based on the ability to master skills. This allows students to learn at their own pace

regardless of their environment. Through competency-based education, students can achieve good results. It helps to measure the results based on the ability of students to show in certain subjects.

G. Learning Analytics

Learning is a very broad process and requires effective tracking and analysis to better understand the results. As an emerging technology, it is now used by teachers to better record student learning behavior.
Another unique benefit of tracking student performance and behavior is that it allows many instructors to make targeted improvements to courses. Academic excellence is an important factor that contributes to the learning experience of every student. Learning analytics can help teachers deliver to their students. Hopefully this will become a mainstream technology.

II. INNOVATION

EdTech (Education Technology) is truly a manner of integrating technology into education to gain knowledge of reviewsthat brings about better gaining knowledge of outcomes. There are lots of motives why educators shifted to EdTech, changing the traditional paper-and-pen teaching method.

Technology is an innovation of human beings. So while an educator can follow generation in teaching, it is also modern. EdTech permits instructors to offer multimedia to address numerous learning styles, such as animation, live video, and so on. Besides, it enables instructors to create online courses in which college students can examine their very own spaceand at their personal tempo. Here students and teachers can connect, discuss, share their reviews, and act upon situations collaboratively. e-Learning is an educational tool that will help in collaboration with the aid of permitting college studentsto participate and discuss. Instead of being in a lecture room and paying attention to teachers' communication for long hours, college students engaged in e-Learning can be a part of a web institution/platform and learn together by using interacting with their friends. In this example, teachers are available for extra timing and act as mentors to help college students to broaden themselves. This collaborative activity has bridged the distance between the instructors and students and additionally enables college students to fortify their interpersonal capabilities. Firstly, EdTech is a blessing to the students, no matter how instructors train in each online and offline mode. We no longer continually having to go to a specific magnificence at a particular time. Moreover, students can study each time and anyplace. Secondly, EdTech changes the way towards students approach learning. It makes learning more fun and exciting for students. Thirdly, EdTech changes the way students approach learning. Students engaged in learning, learn better, remember better, and also apply knowledge better to real life. lastly, technology makes schooling smarter, more effective, as a result, satisfying learners' needs more. Genuine educators carry valuable understanding to learners, both in idea and in real lifestyles.

III. CONCLUSION

At the end we realize that there is a lot to digest whilst we communicate about instructional era tendencies. But, keep in mind that era has seeped into training and renewed its whole teaching and studying method. Specially e-Learning, an educational device that no longer only will increase the accessibility and convenience of schooling, but also additionally changes the studying behaviors and inexperienced persons dreams for gaining knowledge. The timing has in no way been better for the usage of era to enable and enhance getting to know at all levels, in all locations, and for humans of all backgrounds. Operating in collaboration with families, researchers, cultural establishments, and all different stakeholders, those businesses can take away inefficiencies, reach past the walls of traditional lecture rooms, and form robust partnerships to support anywhere, all-the-time learning. Even though the presence of technology Does not ensure fairness and accessibility in learning, it has the strength to lower barriers to both in methods formerly not possible. It is a time of wonderful opportunity and development for the use of technology to aid mastering.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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Vol. 9, Special Issue 2, May 2022

Adoption and Implementation of E-Governance for Smart Education inWest Bengal

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Abstract: The UN has set Quality Education as one of the 17 global Sustainable Development Goals. In keeping with that, the Ministry of Statistics and Programme Implementation, Govt. of India prepared the National Indicator Framework developed in which the government declared a vision to ensure free and equitable education for all boys and girls in thecountry, at pre-primary, primary and secondary schools; besides ensuring access of any and all types of education for both men and women, thus eliminating all gender disparities; build education facilities which are child, disability and gender sensible and also encourage safe and inclusive education. Targeting comprehensive care for India's youth population of 28%, the Right of Children to Free and Compulsory Education (RTE) Act (2009), the National Early Childhood Care and Education Policy (2013), the National Education Policy (2020) have also been developed. Besides, The Integrated Child Development Services (ICDS) Scheme is catering children aged less than six years through a network of 1.38 million Anganwadi Centers (AWCs) across the country offering pre-primary education to about 28.5 million children (2019). Early Childhood Care and Education (ECCE) helped in inclusion of robust educational pedagogy with the curriculum in Anganwadis. The government also vowed to ensure use of information and communication technology (ICT) for pedagogical purpose and also follow such best practices on innovative ICT through research and development. Given the importance of digitalization in the education system, internet access in schools is fast expanding and more than 80% of the teachers have been trained on ICT. The six focus areas of ICT in education programme as emphasized by the UNESCO policy are (i) teacher training, (ii) teaching and learning, (iii) non-formal education, (iv) monitoring and measuring, (v) research and (vi) knowledge sharing. However, the COVID-19 pandemic has already affected the progress as the poorest and vulnerable group of students suffered due to closure of schools, forgetfulness andinattentiveness, child marriage and child labor etc. But at the same time, with schools and workspaces transitioning online due to COVID-19, ICT skills have become critically important. It is noteworthy that, use of ICT under a comprehensive initiative of Atma Nirbhar Bharat Abhiyaan 2020 called PM eVidya by the Department of School education, Ministry of Education (MoE), particularly during the COVID-19 pandemic have won UNESCO's recognition. This is undoubtedly an encouraging picture for state-of-the-art e-learning technology and the Govt. of India has developed multiple free e- Learning platforms across various branches, such as, Swayam, Diksha etc. as a matter of fact, the e-learning market in India was worth 247m USD in 2016 and grew to 12bn USD in 2020 and it is expected to grow three times in next five years. This study has made an effort to study how e-learning has helped the quality of education and its implementation.

Keywords: E-learning, ICT, Smart Education, E-governance

I. INTRODUCTION

By its Right of Children to Free and Compulsory Education (RTE) Act, 2009 India had already made free and compulsoryeducation up to the age of 14 years a fundamental right of citizens. Besides, technology has taken over our entire life and education is no exception to that. Technological advancement has great effect on how learning is imparted by teachers and consumed by students. It is now being accepted that, online method of education is the only method which suits everyone, as a subscriber who can be a student or any user, and s/he does not need to be present at any particular place at any particular time and e-learning gives learner the comfort to learn when and where s/he wants to. Moreover, unlike classroom teaching method, students can access the same lesson as many times as so required on e-governance driven platforms, the contents from e-Learning platforms keep updating regularly, interesting simulations often makes interesting meta-verse for students to enjoy study. With these progress and wider outlooks in India, education has adoptedtechnology, ICT and e-governance to spell out the modernized smart education.

II. BACKGROUND

In India, as per the National Family Health Survey 2019-21 (NFHS-5), 71.5% of adult women & 87.4% adult men are literate. In India, in recent years Quality Education has seen massive growth due to the application of e-governance in this sector. Information and Communication Technologies (ICTs) initiatives helped to provide technology driven smart education. Kofi Annan, the former United Nations secretary general, once pointed that in order to attain the SDG on quality education we must ensure that information and communication technologies unlocks the door of modernized education systems. Modernized education leads to skilled manpower and improved quality of education. Smart Education system makes efficient use of IT

IARJSET

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technology that takes advantage of Internet-of-Things (IoT) and cloud computing technologies to track and act on multiple components in a smart education system. Now, it is widely believed that, the Internet and broadband connectivity have a tremendous potential to solve the pressing challenge of educating the whole nation. However, there are challenges like low internet coverage and widespread school dropouts. As per Telecom Regulatory Authority of India (TRAI), around 84 crores out of estimated 140 crores of Indian population that is 60% of Indian population possess internet connections presently. Also, according to National Statistical Office (NSO), there is one school dropout of every eight students. But amidst challenges, still under Digital India programs like PM eVidya and Digital Infrastructure for Knowledge Sharing (DIKSHA) portal and mobile app created by Ministry of Education, with a goal to spread smart education, more than 502 crores digital learning sessions could be hold and also 4.6 crores teachers have completed teaching courses online till date as per India Report Digital Education 2021 by Ministry of Education. Already, e-Learning is becoming fundamental base for effective application of Information and Communication Technologies (ICTs) in the teaching and learning processes. It is creating a rich digital environment with help of computers and Internet applications which enable the learners to access the learning resources anytime and anywhere and to achieve mutual platform of interaction with educators. Rapid advancement in Information and Communication Technologies (ICTs) has revolutionized every aspect of human life and even education. Recent developments in these technologies have provided foundations for Internet of Things (IoT) in education. The IoT is helping in building smart education system with the help of big data and cloud computing which enables students to access ICT materials through laptops, tablets and smartphones. The use of IoT in education allows teachers and students to interact remotely via a webcam and the internet. This way, the data exchanged between the network members on a e-Learning platform can be stored using block chain technology in a transparent and secured way and thus it helps learners and academic institutions to record academic results and guarantee results through a secure network. Block chain technology is also being used now to store academic history which becomes useful for employers in future to employ a student.

III. PURPOSE

The technology is widely used in today's e-Learning platforms or smartphone-based learning apps. The purpose of this study is to examine how and to what extent e-governance enhances the quality education and encourage e-Learning. Also, it investigates upon how smart education fosters to build up learned manpower for technology implementation.

IV. METHODOLOGY

The study analyses factors affecting usage of Information technology, using of Information and Communication Technologies (ICTs) and practice of e-Learning in educational sector. This study is conducted following both qualitative and quantitative research approach based on primary and secondary data. To validate research data sample survey method is used in this study. Primary data has been collected through comprehensive questionnaire administered to officials of State Education department in West Bengal. Officials of both the School Education and Higher Education Department have been surveyed. Questionnaire has been applied to collect data from the respondents through personal interview. This is a cross-sectional Research considering data collected only from West Bengal and from selected institutions in the state government sector and for a specific time period between 2006 and 2016. The basis behind the selection of a single state rather than multiple states of India was to eliminate the macro-environmental diversity that exists among states due to geographical, social and cultural differences. Moreover, the collection of data from a fairly homogeneous environment is expected to further facilitate the control of plausible impacts arising from uncontrollable external variables. The study includes studying the contemporary situation as a result of E-governance implemented in education sector as selected by the Researcher through convenience sampling. 74 Sample populations, who are responsible in implementing smart education and administering ICTs for e-Learning, have been selected from the teaching and administrative officials of the Education department. Personal Interviews and Survey through Questionnaires with the officials at this level has been the primary source of data in the mentioned departments. The response to the questions has been rated on 7-points Liker scale from lowest rating to highest rating. Here, the from among the set of respondents of the sample size, person respondents have been grouped in two separate groups based upon the serial numbers in which they have been surveyed by this researcher. The people respondents who have been surveyed as first, third, fifth in the serial have been grouped in one section. Again, those people respondents who have been surveyed in second, fourth, sixth, eighth and so on in line have been grouped in another group. The group consisting first, third, fifth, seventh and so on persons have been identified as the "odd respondents' group" and the group consisting the second, fourth, sixth, eighth and so on persons is named the "even respondents' group". These two groups of people's responses thus have been separately grouped and statistically calculated to collect separate mean values and separate standard deviations values for comparison and finding the Cranach's alpha and Pearson's Correlation analysis. Considering Cranach's Alpha's max value is 1, as per thumb-rule, more than 0.7 reliability has been achieved. The Pearson value of r convincingly showed that there is either positive values (as one variable increases, the other also increases) or negative values (when one increases, the other variable decreases) of the linear relationship between two research questions at any point of time. The two sets responses collected from odd

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numbers of respondents (viz. the first, the third, the fifth, the seventh person and so on) and even numbered respondents (viz. the second, the fourth, the sixth and so on) and correlation between them calculated with CORREL function in MS Excel and the obtained Correlation Coeff is 0.836215. As per S-B prediction of reliability, if the result of correlation is between (0.8) to (1), it indicates high Internal Consistency, and in this case the value obtained for S–B correlation is 0.9108. Over and above, Guttman's reliability believes to be another pretty good measure of reliability has also been carried out and the Guttman Reliability, G-R coeff is found to be 0.888. Further the researcher used the weighted least squares method (WLSMV) method for confirmatory factor analysis (CFA) model of the ordinal dataset which are non-normal and continuous. The responses of odd and even values are separately calculated for mean and standard deviation values and then the two sample or unpaired t-test have been carried out for each of questions to calculate the p-value. The p-value obtained for each of X1 to X14 are observed to be less than the significance level. Secondary data collected from different published materials like books, articles, reports by academics and regular internet surfing has been maintained to serve the purpose of the study. Study findings reveal that in spite of having some limitations, Information and Communication Technologies (ICTs) are contributing a lot to provide quality education and helps to develop human skills making them fit for the competitive global market of providing smart education through e-Learning.

TABLE I SUMMARY OF RESPONDENTS

Survey inferences	Agree	Neutral	Don't Agree
Idea about e-governance	93	5	2
E-governance is in popular use	90	9	1
Regularly new projects are taken up	87	12	1
There are increasing number of e-Learning App	65	32	3
E-Learning Apps are popular	50	46	4
E-Learning platforms are safe for educating	49	48	3
E-Learning is faster way of learning	65	34	1
E-Learning improves skills	53	44	3
Recommend ICT for transformation of a student	49	49	2

V. FINDINGS

In pursuance with the Fourth prioritized Sustainable Development Goal of Quality Education for all as determined by the United Nations, the Ministry of Education of the Govt. of India in its implementation plan of the National Education Policy, NEP 2020 has included 'Students' and 'Teachers' Holistic Advancement through Quality Education (SARTHAQ). SARTHAQ is an implementation plan to achieve NEP themes such as Early Childhood Care and Education, Foundational Literacy and Numeracy, Curtailing Dropout Rates and Ensuring Universal Access to Education at All Levels, Curriculum and Pedagogy, Teachers, Equitable and Inclusive Education, Efficient Resourcing and Effective Governance, Regulation and Accreditation of School Education, Teacher Education, Reimagining Vocational Education, Adult Education, Technology - Use and Integration, Financing: Ensuring Affordable and Quality Education for All. To address the challenge of remote learning and building of digital education platform in India, the Ministry of Human Resources Development (MHRD) has taken up comprehensive PMeVidya envisaging that it will benefit 25 crore school going students. Digital Infrastructure for Knowledge Sharing (DIKSHA) portal reports that, DIKSHA contents are widely used by States and West Bengal already held 65 thousand+ such digital learning sessions. 60 crores+ books have been digitized and QR coded energized textbooks have been made available in 18+ languages in schools.

Now, as per reports of Unified District Information System for Education (UDISE), there are 15 lakh+ schools in India till 2019-20. In West Bengal, there are 63.5 thousand+ schools as per banglarshiksha portal data. The national figure for total teachers in schools stands at 85 lakh+ and in West Bengal it is 4 lakh+. The government has extended funds amounting Rs.1000 crore in 2020-21 and Rs.950 crore in 2021-22, toward smart education using e-governance under Samagra Shiksha scheme. The cabinet committee on economic affairs approved the extension of Samagra Shiksha Abhiyan (SSA) 2.0 for school education. For this scheme, a financial outlay of Rs 2, 94,283.04 crores was made to implementation from the period April 1, 2021, to March 31, 2026. The Centre's share is Rs 1, 85,398.32 crore. Till date there are 65 thousand+ ICT labs and 29 thousand+ smart classrooms in India. However, in 2021-22, the government has given approvals to 42,311 digital classrooms and another 10,778 ICT labs all over India giving boost to end the digital divide. Also TRAI data shows that only 6% of Indians possess internet connections presently in India.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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Vol. 9, Special Issue 2, May 2022

Fig. 1 Challenges of e-learning in India

Now, in order to spread smart education, getting all schools of India connected to the Internet is indeed a far-fetched goal requiring multiple stakeholders' collaboration like, (i) funding in terms of grants, utilization certificates, approval processes, feedback mechanism etc., (ii) infrastructure in terms of identifying location or remoteness of schools, the challenge of connectivity, and how a connected school can serve increasing demand of education. Furthermore, it is important to analyze, (iii) various technologies and funding mechanisms for affordable and safe Internet access in remotest of schools. And lastly, (IV) human resource in terms of learned manpower who can help empower students, teachers and entire communities once connectivity has been established and turn the school into a digital hub of prosperity.As per National Association of Software and Service Companies (NASSCOM), in 2021, 30% to 32% of Indian workforce has knowledge of IT. If a bigger share of this learned workforce helps knowledge building of the education sector that will greatly benefit this sector.

VI. CONCLUSION

There is a direct proportional relationship between e-governance and e-learning. Also in today's technology savvy world, quality education is only possible with smart education. Study findings reveal that in spite of having some limitations, Information and Communication Technologies (ICTs) are contributing a lot to provide quality education and helps to develop human skills making them fit for the competitive global market of providing smart education through e-Learning.To add to this, the Indian economy is predicting 170 crore+ smart users in India by 2026 which will definitely help the spread of e-learning.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

STEM Education Research: Enhancing Problem Solving Skills in Science, Technology, Engineering and Mathematics Study

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Abstract: STEM subjects comprise of Science, Technology, Engineering and Mathematics. It has been found that many students leave the STEM subjects or do not want to join these courses as they face problems in understanding. This problem is particularly found among girl student and in most of the institutions the number of girl students is much less than the number of boys, As the science and engineering problems becomes more and more complex it becomes increasingly important to employ a systematic approach. Interactive Video tutorials are being designed keeping these issues in mind so that they can help students learn problem solving and reasoning skills using suitable examples in an interactive environment. The tutorials are designed in such a way so that students are forced to analyse the problem qualitatively and spend time deciding which principles of science are appropriate. Consistent use of qualitative analysis and planning tasks can help students develop reasoning skills. Also, students can reflect upon the problem-solving process at the end of every problem and thus it will force them to think about what they learnt by solving the problem. It helps them to restructure, extend and organize their knowledge and developing their cognitive skills. The nature of the research- guided video tutorials along with rewinding and stopping ability makes them suited for all students in introductory courses. The video tutorials are based on the interactive teaching/learning process in classroom environment. The teacher gives the students a real-life problem and divides the class into several groups. The students will discuss among themselves and the discussion will be recorded. This live discussion will help the teacher to understand the difficulty in their concept. This information will be incorporated in the tutorials. The video tutorial will assign students a problem with different answers. If the student chose the wrong answer the tutorial will tell why the answer is wrong. So the student can correct his/her misconception. The interactive tutorials will help students in doing their homework. It will also help students having learning disability.

Keywords*:* Interactive Video tutorial; teaching/learning method, STEM subjects, Interactive learning, Flipped classroom

I. INTRODUCTION

Students enter college STEM courses with school-level knowledge of the subject which may facilitate their learning. However, students can also have some preconception regarding how a science course should be taught, based on their prior experience. The science courses consist of lectures, laboratory, homework, quizzes and exams. Students often sit quietly in lectures and listen to the teacher called “the sage on the stage”. They also do not engage themselves in the learning process. Courses based on discipline-based educational research are generally interactive and students remain engaged with one another and class activities often. The research focuses on developing learning techniques by researchers through years of hard work.

In STEM problem solving students are given a situation and he/she performs a sequence of steps to achieve a goal. To solve problems effectively one must analyse the problem, followed by planning, implementation, assessment and reflection. Different levels of cognitive achievements as given in Bloom’s Taxonomy are Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. Active participation of students in classroom is important because teaching by telling does not work. Most of what is told by the teacher is lost in time and the rest may stay in the notebook.Different steps in Interactive learning are i) Clarify goals and objectives of lesson at the beginning ii) Share with students a list what they should be able to do after instruction. iii) Success of instruction depends on alignment of student’s prior knowledge. So, a pre-test has to be conducted to identify weak students iv) Design (course materials, assignment etc.) v) Assessment of what they have learnt. Students in interactive learning are given an opportunity to reconstruct, extend and organize their knowledge. Discipline-based education researchers have developed many instructional strategies to improve conceptual understanding and problem-solving skills through active engagement by the students (Fig 1). In laboratories students are directed to discover important ideas through guided inquiry. They are expected to be physically and/or intellectually active during class.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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Vol. 9, Special Issue 2, May 2022

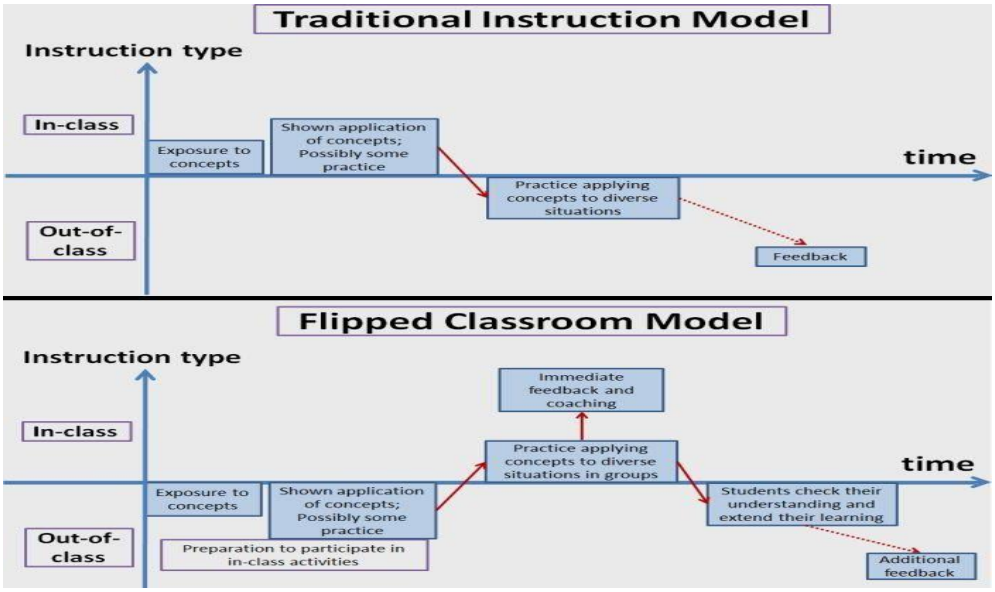

Fig. 1 Traditional Instruction Model and Flipped Classroom Model

II. EXAMPLE OF INTERACTIVE TEACHING

During class, the teacher briefly lectures (5-10 minutes) about a particular concept or idea. Then, he poses several conceptual questions regarding that concept in the form of multiple-choice question. For each question, students first answer it individually (via a classroom response system (an electronic clicker) A, B, C, D or E to denote their choice forthe multiple-choice question), then they discuss their answer with a peer, after which they answer it again.

A. Problem on Newton's third law of motion

A big car moving with a velocity 100km/hour collides with a small carmoving with 50 km/hour coming from opposite direction. Which car will exert more force on the other? These are 4 answers given a) The big car will exert more force on the small car b) The small car will exert more force on the big car
c) The force exerted by the truck is equal to the force that small car exerts on the big car d) None of the above. The students are divided into a few groups and given 2 minutes time to discuss over it. Each group gives different answers. The instructor will ask each group to explain their answer and counter question if their logic is not right. In most of the cases students will choose answer a). Because they think that the big car will exert greater force on the small car. The correct answer is c). The force exerted by the big car will be exactly equal to the force exerted by the small car on the bigcar. The reason is: Newton's third law of motion. Then the instructor will ask: if the forces are equal then what else willbe different? The answer is: acceleration because Force=mass x acceleration because Force=mass x acceleration (Newton's second law of motion Thus the students should experience different diverse /contradictory situations to solveeach time stretching their knowledge a bit above the existing level .
Example: Problem on acceleration: A car is moving along north at 60 km /hour then changes its velocity to 30 km/hour along west in 7 seconds. Find out the average acceleration during this period. The teacher should explain the concept of acceleration in Newton's second law of motion first and give students some real life situations to solve.

B. Learn by analogy

Here is an example how analogy between different parameters can help students to correlate different physical phenomena.

TABLE 1: RELATION BETWEEN DIFFERENT QUANTITIES IN LINEAR AND ROTATIONAL MOTION

Linear Motion	**Rotational Motion**
linear distance	angular distance
linear velocity	angular velocity
linear acceleration	angular acceleration
force = mass x acceleration, linear momentum = mass x linear velocity	Torque, angular momentum/ moment of momentum
mass	moment of inertia

IARJSET

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Now the teacher will ask questions: Write the expression of angular momentum or torque. Help of audio visual is also advised in some cases.

C. Student interactions can be of different types

i. Student-teacher interactions, (teacher's role in class)
ii. Student-content interaction, (e.g., reflection activities, connecting concepts with real life)
iii. These can also be interactions between students and equipment
iv. Student-student interactions, which define how students interact with one another (e.g., collaborative problem solving, classroom discussions in small groups followed by full class discussion, small group work, students actively criticizing each other's' ideas, etc.) .

III. INTERACTIVE VIDEO TUTORIALS

These tutorials involve problem solving techniques in an interactive environment. Research-based real life problems are given to students so that 80% can answer correctly they are kept actively engaged in discussion because when theytalk to each other they become cautious. This think aloud discussion should be recorded to incorporate in video tutorials. Interactive video tutorials perform the following steps:

- Students will be given research based multiple choice questions to show their level of understanding at everystage of problem solving
- If they click the wrong answer the tutorial will tell them why it is wrong
- This step shows the difficulty students have with related concepts
- Tutorials are web based, self-paced
- Address diverse variety of students (learning disability)
- Help students doing homework and self-study
- Helpful for teachers to prepare assignments for students

Future Impact of using Interactive Video Tutorials

- Comparison of performance between two groups of students. One group is using them while the other group isnot using them
- Distance education tools
- Underprepared students (remedial classes)
- Design curriculum and research project for students
- Learning problem solving technique for competitive examinations like GATE, UPSC, AIEEE, NEET, JEEetc.

IV. CONCLUSION

STEM education merging science, technology, engineering, and mathematics helps us to solve the challenges of our day-to-day life and in turn development of our society. It gives people skills that make them more employable. Science helps students to think logically and excel at research. Technology and engineering helps them to apply science in transforming society with sustainable solutions. Mathematics enables people to analyse information, eliminate errors, and make logical decisions while designing solutions. STEM education combines these disciplines into a integrated system. This requires a special mode of learning known as interaction-based assignments which can be done through interactive video tutorials. In this paper an attempt has been made to explore the application of interactive video tutorialsin STEM education to enhance problem solving skill of the students.

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Educational Games as a Learning Method

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Abstract: In the information age where emerging trends indicate the rapid rise in the screen time consumption overlapping with a steep decline in attention spans of young adults and teenagers alike, new challenges emerge with regards to teaching methods. Educators often find it hard to reach out to the class via the conventional teaching mechanism which fails to appeal to the experience of modern youth, nor does it provide them the stimulation and dopamine hits which a high budget production of a AAA studio game and or social media. With the pandemic acting asa tectonic shift for students and teachers alike it's high time to reevaluate the conventional teaching strategies and explore unconventional methods which connect better with the internet generation and how games can be on the forefront of this movement. We explore the role pre information age games played in society and how much of an impact they can create as an educational tool.

Keywords: Attention span, Screen time, Dopamine hit, Strategy

I. INTRODUCTION

Even before the emergence of the internet games have always played a crucial role as a tool for propagation of educational,moral and religious thoughts and playing them has contributed to refining critical thinking and decision making since the ancient world. Games like Senet and Royal Game of Ur which were considered as rather simple pass time soon captivated the minds of people as a way to connect with the afterlife and divinity.

While discussing ancient board games one cannot forget the ancient games of India which later assumed the form of many modern day board games still played to this daywhile the most renowned game chess derived from ‘chaturanga’ which consisted of four players representing four arms of the Gupta Army (infantry, horse cavalry, chariots and elephants) stressed an emphasis on strategic thought and teamwork to outwit the enemy forces a game of ‘moksha patam’(later snakes and ladder) had a more spiritual aim to teach individuals how to reach higher level of consciousness and leave behind the earthly bounds to reach moksha.

Game of Chau par has featured in the epic ‘Mahabharata’ as a means for commentary about morality of one's actions. These examples demonstrate the power games hold as a teaching method and for such a long time. If it was possible in the timesof ancient India, Egypt and Babylon what is stopping games from creating a similar impact today as an educational tool.

Fig. 1 A set of Senet

Fig. 2 Royal Game

IARJSET

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Vol. 9, Special Issue 2, May 2022

Fig. 3 Chaturanga

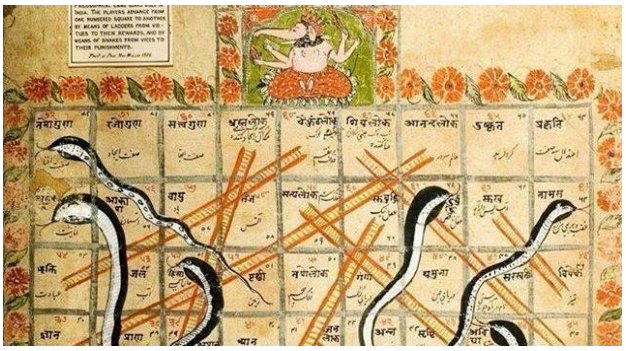

Fig. 4 Mokshapatam (Snakes and Ladders)

Fig. 5 Pacheesi (Earlier version)

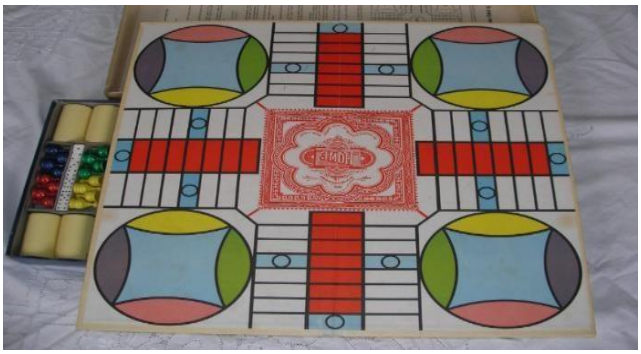

Fig. 6 Pacheesi (Modernized version)

II. BENEFITS OF GAMES

The use of games as a tool to subconsciously instill values and skills ever since ancient times, games like Kreigsspiel were specifically created to train officers of the Prussian army matters concerning warfare. Similarly values such as Teamwork, Planning, Management and technicalities of a subject among many others but one of the fundamental benefits of aiming is that it helps in students accepting established rules and following them in order to win. Games also combine intrinsic and extrinsic motivations of a student in order to achieve a result. Such mechanics increase their involvement in classes and assignments through high scores, levels, in-game achievements which helps tointernalize the knowledge gained through the game.

Karl Kapp classifies students/players into four distinct categories:-

- The achiever – Players who want to come on top and get the high score
- The explorer – Players who like to explore the surroundings of the game and become familiar to theenvironment
- The socializer – Players who like to communicate with their teammates
- The killer – Players who like to beat other players in 1 on 1 competitions

Games can be created to cater to these archetypes so more and more people can relate and engage with the game whichstimulates their instincts and interests.

III. MODERN GAMES & FUTURE PROSPECTS

Games such as Europa Universalis 4, Hearts of Iron 4, Sid Meier's Civilization series, Age of Empires and the Total Warfranchise has sparked a rejuvenated interest in history a subject topic often described as boring by students. Adventure Escape genre of games put forward several mathematical, reasoning, and graphical pattern recognition questions while framing it within a story of survival and escape capturing the imagination of the mind and engaging themin such academic topics. Typing of the Dead inspired from House of the Dead (a zombie FPS) made typing more fun than ever with the adrenaline rush of shooting monsters. These examples just scratch the surface of the innumerable possibilities that lay ahead if we find the perfect balance of equal parts knowledge and equal parts fun. The impact of the pandemic on the education system is undeniable for the duration of the lockdowns. Teachers and students alike were forced to continue classes from their homes using nontraditional tools but the transition to online education was anything but smooth. One of the reasons for that can be attributed to the use of conventional methods usedunder unconventional platforms.

IARJSET

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ISSN (Print) 2394-1588

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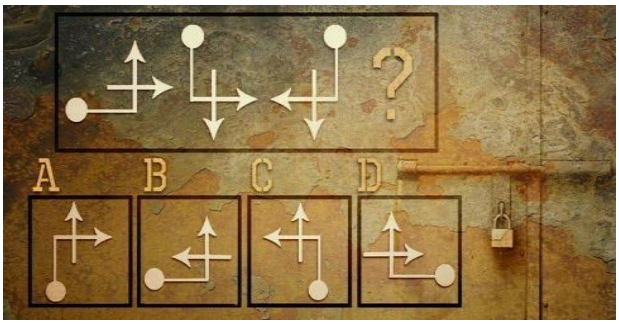

Fig. 7 Adventure Escape

Fig. 8 Sid Meier's Civilization

Fig. 9 Hearts of Iron IV

Fig. 10 Europa Universalis IV

But eventually newer ways were found Kahoot! Was an instant hit to keep students motivated both in class subjects as well as from stress of the pandemic. While the pandemic presented many problems and shed light on the growing cracks on an aging education mechanism which is lagging behind in the information age it also presents an opportunity to be the launching pad for the new and revamped educational mechanism which makes education feel less like a chore and embrace it as a part and parcel of life. The Pandemic has created a huge demand for tools like Kahoot and more companies,institutes and administrations should look for developing such platforms to be more mainstream and not as a last resort. Following the principle of Supply and demand it is optimal to take advantage of this demand allot resources to liberate both the students and students from an increasingly monotonous cycle in which both tracking and making progress is way dull compared to the mechanisms of a game designed to hit all the right spots in the brain and produce a much- desired dopamine hit.

IV. CONCLUSION

This abstract is based on the principle that necessity is the mother of invention and the need of the hour is to revamp an aging education mechanism which was proved to be lacking in several areas during the pandemic, especially in keeping the students motivated amidst the stressful environment. This calls for mass mobilization and an all-hands-on deck approach to brainstorm solutions. Games can help immensely in this new teaching approach and occupy a prominent role in future developments. If the majority of our social, financial and recreational life is online why shouldn't our education join the internet revolution? This abstract tries to look at education process through a different lens and the aspects it is lacking in through the perspective of students born in the information age and their experiences with conventional methods and the tough transition through the pandemic. Its evident that a change is necessary, and we should look towards all possible tools at disposal and how games are an untapped resource which should be further looked into.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

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Vol. 9, Special Issue 2, May 2022

Learning & Teaching through Arts

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Abstract: In our modern-day society education and its methods have a significant role in every waywe want to shape our future. We have numerous smart teaching methods now with thousands of educational videos posted daily online so that students can learn what they want at their own pace. So among those methods of education, 'Art Integrated Learning' is a teaching-learning method that is based on learning through the arts. It is a kind of educational method where instead of books and e-gadgets we use art as a medium to teach and learn and to understand concepts within any subject of the curriculum. It helps the learner to discover his creative side and invent new ways of building connections between different concepts through various art forms. The methods can be very much age-appropriate and they can be divided into every stage throughout all levels of schooling. These stage-wise objectives of learning through arts will help the students to respond with their imaginationand emotional strengths and above all will allow them to learn at their own pace based on their ownage, social context, and ability.

Keywords: Education, Globalization, Learning ability, Language, Collaborative

I. INTRODUCTION

A school's curriculum should treat the arts as equally important to academics. With globalization, cultural diversity, and economic uncertainty on the rise, a new type of education is required that provides students with open-mindedness, risk-taking, critical thinking, emotional intelligence, and engagement rather than just bookish knowledge. Art Integrated Learning(AIL) has an important role to play in that regard. Through its access points, it provides an equitable learning environment for all learners through the facilitation of experiential learning. In an arts-integrated learning environment, students engage in art activities and construct personal meaning through their learning.

II. IMPORTANCE of TEACHING and LEARNING THROUGH ARTS

Art-based learning aims to improve the student's cognitive (planning, remembering, and reflecting)as well as affective (social and emotional) and psychomotor (use of body and movement) abilities.Practical education in fine arts helps students to see what they look at, hear what they listen to, andfeel what they touch. Through engagement in the fine arts, students can stretch their minds beyondthe boundaries of the printed text or the rules of what can be proven.

As evidence of the benefits of Learning through the Arts, the following empirical studies have beencited:

- *Arts and disadvantaged groups* - The integration of the arts in an elementary school wasassociated with improved test scores in Mathematics and English. Students living in poverty benefitted from an integrated approach to education, according to a Washington-basedresearcher.

- *Arts create innovative processes* - Arts can unlock new pathways of learning for students.Many students in Japan found that integrating art with core subjects can be an effective teaching strategy.

- *Arts and cognitive processes* - Arts lead to dramatic changes in the brain such as strengthening the `attention network`. Active in processing language, auditory perception, attention, etc.

- *Arts and Socio-emotional development* - Art relates to cognition, achievement, motivation,and self-concept in students. Arts when integrated with the learning process work splendidly as effective education. Because of this integration of thinking and feeling, creative arts therapies offer an opportunity to affect social/emotional and academic behaviorpositively.

- *Arts as Pedagogy* - Students in AIL classrooms are more engaged in the learning process and have more confidence and openness to handle new situations than theirpeers in non-AIL classrooms.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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III. STAGE WISE OBJECTIVES of LEARNING and TEACHING THROUGH ART

Students can learn through the arts at all levels of education. In art integrated learning, children are encouraged to use their imagination and emotional strengths. Each child's needs vary with his or herage, social context, and abilities. Here are some stage-by-stage objectives for engaging children in art integrated learning:

A. Pre – Primary

A child at this stage is highly inquisitive and energetic. Children are attracted to creative activities such as drawing, painting, clay work, and music. Arts education should form the basis of all education at this stage. The purpose of participation in visual and performing arts is:

- Make learning fun and engaging.
- Encourage children to pay attention to their environment through keen observationand unrestricted exploration
- Promote sensitivity to the environment.
- Encourage emotional expression, communication, and creativity.
- Encourage children to express themselves freely and spontaneously.

B. Primary

For art education to become a teaching-learning tool, it needs to be integrated into all subjects. Art isan effective way to cultivate a child's curiosity, imagination, and sense of wonder. Their impact should be positive on general intellectual, social-emotional, motor, language, and literacy skills. Theobjectives of AIL at the number one stage are to assist children:

- Enjoy joy and eagerness to analyze.
- Discover ways to stay in inclusive surroundings.
- Discover ideas of mathematics and science in the world around them.
- Be aware of interdisciplinary connections.
- Discover and understand body movement and coordination.
- Expand expressive communication and vital thinking skills.
- Foster an inquisitive mindset in the direction of learning and knowledge.
- Understand and regulate their feelings.
- Create awareness of rich heritage and cultural diversity.

C. Upper Primary

During this stage, children are ready to understand more complex connections between concepts andtheir surroundings. AIL can help children build on simple concepts while also meaningfully connecting them to academic content. Children also improve their ability to work in groups and explore ideas collaboratively.

The goals of AIL at the upper primary level are to assist children in thefollowing ways:

- Examine concepts from distinct viewpoints.
- Develop an understanding of themes, subjects, and concepts, as well as be aware ofinterdisciplinary connections.
- Develop a pluralistic mindset and an appreciation for various options.
- Encourage collaboration and mutual respect.
- Improve your communication, language, and problem-solving abilities.
- Develop an awareness of environmental and societal issues
- Make art and use their artistic abilities in everyday activities
- Respect, care, empathy, and compassion are all-inclusive practices to learn.
- Encourage the development of social, emotional, and cognitive skills
- Understand and regulate their feelings
- Raising awareness of the rich cultural diversity and heritage

IARJSET

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IV. ARTS TECHNOLOGY INTEGRATION

Arts integration evolves in lockstep with technological advancements. The challenge in integrating arts into today's technology-first education is effectively managing the sheer amount of informationthat technology makes available, not by putting production labs on school campuses or having accessto the latest computer software. Students must learn to select relevant data, evaluate it, and draw critical conclusions from it to make sense of it, answer questions, or create new ones. Technology also opens up new avenues of expression, whether through digital art or artificial intelligence, which,when combined with arts-technology integration, can foster the creativity and inquiry that arts education promotes.

V. UNESCO ARTS INTEGRATION PROGRAM

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) advocates the need for the integration of arts, culture, and creativity in all educational platforms. UNESCO Bangkok took the initiative of upholding research activities related to Arts Education. The very firstinternational congress on art education was held in Seoul (Korea) in 2006.

VI. CONCLUSION

Art integrated learning offers several benefits to ensure learners have a better overall development. They can learn complex concepts efficiently and consequently perform better in exams and tests. If exposed to integrated learning at an early age, learners can focus better, acquire enhanced motor skills, and have other positive outcomes that promote their mental and physical growth. Due to the current economic recession, many schools across the U.S. see their arts programs cut off in favor of core curriculum subjects such as English, math, and science.

Research shows that arts education is crucial in children's learning process and development. In 2013 a congressional resolution sought to include "A" for Art in the STEM acronym, changing it to STEAM. Therefore, art integrated learning is a practical approach to learning-teaching. It offers a richer and more memorable learning experience to the students. Teachers have a significant role to play in the implementation of this learning technique. They should make it a part of their teaching methodology to bring the best out ofthe students. In this discussion, we focused on the importance of art as a component of a student's life and its application at every stage of their learning. We referenced not only why teaching throughart is important, but also how students find it to be fun and relevant. We discussed how Art IntegratedLearning is changing the lives of many students, and we hope our project will accelerate its progress.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

A Study of Problems and Challenges of ICT Enabled Online Education during the Covid -19Situation: A Case study of West Bengal State University

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Abstract: Information and Communication Technology (ICT) in education is a form of education that uses technologyto support and improve information delivery. ICT is contemporary model which has combined in many streams and isan essential portion of teaching learning process. A teacher has faced numerous challenges while trying to conduct ICTenabled online classes and imparts lectures during the pandemic ever since the teaching was shifted from offline to online mode. Covid-19 has created several crises for students and academicians alike who are still groping in the dark and trying to cope with newer teaching-learning methods, methodologies, tools and concepts. This appears more like aquest since the acquaintance with the virtual world is largely a matter of confusion and doubt for many. The pandemic situation has made certain sudden demands on humanity and unlike corporate houses who deal on both ends of the spectrum of the virtual world with mature adults; the educational institutions have more difficult and complex tasks inhand.Learners accustomed to the realities of the physical classrooms, teachers' voices, lunch- break, jostles and friendlychatter are hurled into complex teaching-learning ambience where the teacher is a remote image and removed from thefamiliar spaces.

The purpose of this paper shall be to highlight the numerous possibilities that lie in the process of delivering and receiving knowledge and of embarking upon latest technical knowhow that may aid in making educational resources available to all categories of students viz. advanced, mediocre or weak, urban or rural, in the hope that the pandemic may neither deprive any learner of her/his right to education nor create any anxiety in the manner and mode of learning.This research discusses the various challenges faced by teachers while taking online classes and handling the challenges faced by the students in order to cope up with the new learning process. The technically challenged studentsof remote area of the colleges under West Bengal State University faced number of constraints in learning through
online sessions.

Keywords: Information Communication Technology, Technological Challenges, Online Tools, Online Learning Courses, Virtual World.

I. INTRODUCTION

The corona virus disease 2019 (COVID-19) was detected in China in December 2019, spread throughout the world within a few months and was declared a pandemic by the World Health Organization on 11th March 2020. The campuses of colleges and Universities closed in 2020 throughout the globe and shift all their academic programs online(Bao, 2020). Universities were not prepared for such a transition fromclassroom-based education to completely online education. Infrastructures and strategies of colleges and Universities were not ready to on go this sudden shift (Zhang,Wang, Yang, & Wang, 2020).

This paradigmatic shift of education from offline to online mode operates more differently for the sections of students occupying the rural or semi-urban sections. The routine for online teaching was framed immediately to avert the constraints of teaching break for the college students under different Universities. Faced with an economic crunch,many parents too refused to allow their children to avail themselves the benefits of such programs since these programsrequire internet services. While the western methods of teaching-learning have long adjusted to the on-line mode (Covidor no Covid) in their curriculum and education, the Indian or the sub continental processes are still to accept such methods. Explaining to students of the immediacy of attending on- line classes has itself posed several challenges. The teacher is often faced with a problemof having complete control over her/his students since their body language or facial expressions are not always possible to view.
Under such circumstances, the patience of teachers and learners is put to test, if not serious trial. Learners need to adjust to faster teaching processes and teachers need to explore better or efficient teaching practices.

There has been a lot of advances in educational technology in the last few decades and the same proved to be immensely useful during this pandemic (Chatterjee & Chakraborty, 2020; Dhawan, 2020). Several ICT based online platforms to support online educationwere available (Nash, 2020). Nevertheless, it was a challenge for universities to map their educational activities in an

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

online space. Additionally, teachers and students faced a wide range of logistic, technical, financial, and social problems (Lassoued, Alhendawi, & Bashitialshaaer, 2020; Peters et al., 2020). The mental health of many students around the world has been affected during the pandemic and the lockdowns. Students have been suffering from stress, strain and anxiety (Cao et al., 2020; Islam, Barna, Raihan, Khan, &Hossain, 2020). Such psychological issues often hinder students from adapting to online education. Moreover, not all students have equal access to and expertise on, digital technologies.

West Bengal State University is a reputed University in West Bengal, India offering undergraduate and post graduate programs in different disciplines of Science, Social Science, Commerce and Management, etc. The university has different colleges under it located in different areas of urban, semi urban, rural as well as remote areas. Theuniversity suspended regular classes from March 2020 as a nationwide lockdown began in India on 25th March 2020. The academic programs of the university are based on intense classroom, laboratory-based as well as field based activities. It was too difficult to move all these academic activities online immediately. Initially it was assumed thatthe situation will normalize within a few days and the campuses could be reopened. As a temporary measure, teachers recommended students to join free online learning courses. FOLC which are ICT aided and study from the assignments, lecture notes etc given by them via e-mail and watssapp. But, as lockdown kept on expanding and the pandemic was threatening the lives of mankind, university strategized its teaching-learning process and the academic activities were moved onto an online platform. The teachers and students of the university gradually adapted to the scenario. The intense use of Google Classroom and Blackboard to dispense course material, give assignments and information related to their courses was done to do all the pre and post class activities. This allowed the teachers to share notes and multimedia resources related to their courses with students. But they started to deliver live lectures and discussion sessions through Google Meet, Zoom meet, etc to do all the in classactivities. Additionally, the tachers are taking help of virtual laboratories to teach science courses (Jain et al., 2018; Ray& Srivastava, 2020).

Furthermore, depending on the nature of their courses, various ICT based online tools have been used to support problem solving, programming, and designing activities in order. The opinion on online education during the COVID-19 pandemic of undergraduate students of different colleges of the University is surveyed and studied. The perception of the students on content delivery, interaction in online education and the health and social effects is surveyed in this field study report. A survey has been conducted in which undergraduate students of different colleges of West Bengal State University have been asked about their opinion on different aspects of ICT enabled online education during the ongoing pandemic. Huge responses have been received from 358 students. The students felt that they learn better in physical classrooms (65.9%) and by attending free online learning courses (FOLC) (31.6%) than through online education. The students, however, felt that the professors have improved their online teaching skills since the beginning of the pandemic (68.1%) and online education is useful right now (77.9%). The students appreciated the ICT based software and online study materials being used to support online education. However, the students felt that online education is stressful and affecting their health and social life.

II. MATERIALS AND METHODS

To conduct the study there should be a proper approach. On the basis of Research approach two approaches- Psychological Study through Questionnaire and data analysis has been made.

A. Psychological Study through Questionnaire

A questionnaire with 20 statements related to ICT based online education during the COVID-19 pandemic was preparedto analyse the psychological aspects of the undergraduate students. A student had to respond to each statement on a 5- point scale where a score of "1" represented "Strongly disagree" and a score of "5" represented "Strongly agree." The statements were related to the teaching-learning process in general, content delivery, teacher-student interaction, assessment and health and social impact of online education.

TABLE II THE QUESTIONNAIRE

Practical issues	
PI1	Teaching -earning is better in offline physical classroom mode compared to online education.
PI2	FOLC is better compared to Online education.
PI3	Improvement in online teaching skills of teachers since the beginning of theCOVID-19 pandemictill date.
PI4	Online education is the only alternative during the COVID-19 pandemic situation.
Issues related to direct teaching	
DT1	Availability of adequate study materials in online classrooms.
DT2	PPT presentations and video lectures make a lecture more informative.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Familiar interactions and data analysis was done by interacting with students through asking questions to compare online education with physical classroom-based education (PI1) and FOLC (PI2). Questions were made regarding improvement of teaching abilities of teachers since the beginning of the pandemic (PI3) and online education, the alternative in the current pandemic circumstances (PI4). Other questions regarding availability of enough online resources (DT1), and if the courses can be enriched by PPT presentations, video conferencing (DT2), assignments (DT3), and more specialized online tools forproblem solving, programming, and designing (DT4). A series of questions were asked to the students regarding their interaction with teachers in a physical classroom than through online education (TL1). Could the use of digital pen by teachers improve the knowledge ofstudents (TL2). Is it necessary to show the faces of the teacher and students while interaction (TL3). How effective is questions in chat box by students (TL4) during the lectures. Other interrogations regarding online tests and questioning (OA1), assignmentsand examinations (OA2) were made.

Health issue related questions (HI1, HI2, HI3, HI4) effecting the physical as well as mental health of the students as a result of online education were asked. Finally, the students were asked if online education is affecting their daily life (SI1) and imposing financial challenges (SI2). The questionnaire was send to 387 undergraduate students of different colleges under West Bengal State Universitythrough Google forms and their responses were recorded continuously.

TL1	Teaching-learning Interaction between teachers and students takes place better inphysical classrooms than through online platforms.
TL2	Use of a digital pen makes a lecture more interactive.
TL3	Keeping the audio-video in 'on' mode of a teacher and students make theinteraction more user friendly.
TL4	If the teacher allows the students to post comments in the chat box during a lecture,then itbecomes interactive.
Online Assessment	
OA1	Online tests and Questioning effectively evaluate the knowledge of students.
OA2	Weekly assignments and monthly tests help in the learning process.
Health issues	
HI1	Phobia of internet connectivity may hamper Online education especially in remoteareas.
HI2	Overuse of Internet connectivity may cause a financial constraint among students.
HI3	Excessive screen time is causing owl disease in students.
HI4	Online assessment creates more anxiety than traditional forms of assessment.
Social issues	
SI1	Online education is affecting the daily life of students and their families,particularlythe first generation learners.
SI2	Online education is demanding more technological devices and internet issueswhich arevery expensive for financially challenged section of students.

III. DATA ANALYSIS

The correlation and covariance between the different aspects of online education were analyzed. Further, a model was constructed to examine the influence of the different aspects of online learning on the social issues related to online education. A least square analysis method was used to evaluate the model.

IV. RESULTS AND INTERPRETATION

The responses from 358 students were recorded. The mean age of the respondents was 20.09 years (*SD*: 1.13). Out of he respondents, 34 (9.5%) were female and 324 (90.5%) were male. The students had a mixed opinion about ICT based online education during the COVID-19pandemic. A majority ofthe students (65.9%) felt, that is, agreed or strongly agreed, that learning takes place better in physical classrooms thanthrough online education and only aminority of the students (31.6%) felt that online education is better than attending FOLC. Nevertheless, the students felt that teachers have improved their online teaching skillssince the beginning of the pandemic (68.1%) and online education is an alternative in the current circumstance (77.9%).

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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Narula Institute of Technology, Agarpara, Kolkata, India

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TABLE IIII RESPONSES

Indicator	Percentage of respondents					Mean score	
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	*SD*
PI1	4.7	8.7	20.7	31.0	34.9	3.827	1.142
PI2	14.5	25.4	28.5	20.1	11.5	2.885	1.219
PI3	3.9	7.5	20.4	36.0	32.1	3.849	1.077
PI4	3.4	4.7	14.0	30.7	47.2	4.137	1.043
DT1	3.1	5.9	17.3	29.3	44.4	4.061	1.062
DT2	4.7	13.1	23.5	29.9	28.8	3.648	1.164
DT3	1.4	6.7	22.9	30.7	38.3	3.978	1.004
DT4	1.7	4.2	22.1	34.9	37.2	4.017	0.955
TL1	3.6	7.8	13.4	21.2	53.9	4.140	1.139
TL2	2.5	4.2	13.1	33.0	47.2	4.182	0.983
TL3	14.8	20.9	28.2	20.9	15.1	3.006	1.272
TL4	3.4	4.5	15.9	42.2	34.1	3.992	0.992
OA1	14.0	13.4	24.6	31.0	17.0	3.237	1.278
OA2	11.2	14.5	29.1	30.4	14.8	3.232	1.200
HI1	6.1	8.9	19.0	28.8	37.2	3.818	1.201
HI2	2.5	6.4	8.4	23.2	59.5	4.307	1.035
H13	5.3	7.5	12.6	24.3	50.3	4.067	1.186
HI4	11.2	16.5	18.2	19.3	34.9	3.503	1.398
SI1	6.7	8.4	17.0	29.6	38.3	3.844	1.213
SI2	5.3	7.3	23.7	30.4	33.2	3.791	1.139

The students appreciated the online resources and tools being used by the teachers to disseminate information. The students (71.7%) felt that adequate study material is nowavailable online. The students also felt that PPT presentation, video conferencing improve teaching learning (55.7%) and assignments improve knowledge (65.2%). The students (73.1%) felt that online tools for problem solving, programming, and designing can enrich courses.

IARJSET

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The students expressed how they thought lectures can be made more interactive. The students(75.1%) felt that they can interact better with teachers in a physical classroom. The students (81.2%) felt that teachers can make lectures more interactive using devices like a digital pen. Interestingly, only 36.0% students felt that the interaction can improve if teachers and students show their faces during lectures. The students (73.3%) felt that communication between teachersand students through chat box during lectures will make them more interactive. Only 48.6% students felt that online assessments can properly evaluate their knowledge and 44.2% students felt thatregular tests facilitate the learning process.

The students felt that online education is affecting their health. Nearly 63.8%students felt that online education is causing phobia of losing internet connectivity among them. A large majority of thestudents (81.7%) felt that online education is leading to overuse of digital technologies and challenging their financialconditions. 72.6% students felt that excessive screen time iscausing stress and affecting their sleep. The students (58.2%) also felt that online assessment causes more anxiety than traditional forms of assessment. The students also felt that online education has societal implications. 66.9% students felt that online education is affecting their daily life and 64.6% students felt that online education is demanding more technological devices and internet issues which are very expensive for financially challenged section of students.

V. DISCUSSIONS

The collected opinion of students during the COVID-19 pandemic through questions anddiscussions reflected that physical classrooms are difficult to replicate on an online platform. The comparisons are somewhat uneven. However, online education can be betterpersonalized because of smaller class size and homogeneous background of the students.

While many significant developments have been made within this last year or so regardingthe process of conductingonline classes but there is a requirement of dialogue on the issue of technology in terms of ICT. While we must admit that there is a long way to go for us before we adopt a completely online mode of teaching but we can take baby steps towards the goal. These technologies are of course costly today but with time they might be available at cheaper costs,especially, when they could be bought in massé.

VI. CONCLUSION

Online education has been on the fringe for a long time. The COVID-19 pandemic made it the mainstream. A survey was conducted to know the opinion of undergraduate students in different colleges of West Bengal State University on different aspects of online education during the COVID-19 pandemic. It was found that the students considered online education a viable alternative under the current circumstances. There is scope for improvement of teachers to make ICT enabled online education better acceptable among students. The network issues area majorhindrance in smooth conduction of classes.

The COVID-19 pandemic has led to adoption of ICTenabled online education on a large scale around the world for the first time. There is a need to train faculty on the use of online modalities and developing lesson plan with reduced cognitive load and increased interactivities.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Hologram Technology for Effective Learning: A review

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Abstract: Learning is the difficult process. Understanding complex theoretical things without clear visualization is very difficult. Hologram technology can solve this problem. From technical education to medical and even in nursery education hologram technology can be deployed to teach students with more conceptual clarity. With swept-volumetric display technology, we can make portable and user-friendly devices that may be used by educational institutions and teachers for effective teaching. This technology can help to bring in more conceptual clarity, enable visualization of concepts, and ensure efficient communication between learners and educators. Using the hologram technology, the technical, medical, nursery and all other teaching –learning processes can be made more effective and interesting. In this paper the technological aspects of volumetric display hologram technology along with its integration in educational institutions is critically discussed.

Keywords: Hologram technology, volumetric display technology, swept volume display.

I. INTRODUCTION

Modern technology has completely reshaped the entire education system over a period of time. In this age, the education is available to everyone because of the internet. In modern era classrooms are also equipped with modern technologies like smart boards and digital multipurpose LCD screens. Other than these some other technologies which are developed recently can also be used by educational institutions and teachers to educate students. Technology that can be used in theeducation ecosystem to teach students more effectively is Hologram technology. With the help of this technology, visualizing complex things becomes easier for students. But learning is a difficult process and in the technical educationor medical education, there are lots of concepts that a student needs to visualize for fully understanding the topic. Just like a chemical reaction, students need to imagine the whole 3-D process to understand the mechanism and logic behind the reaction. In physics, to understand the magnetic or electrical phenomena in motors, transformers, inductors, or any kind of circuit, students need to visualize the whole particle movement and theoretical magnetic line in mind. Even in medical studies, students need to visualize the human anatomy, human nervous system, blood flow, cell working, etc. which is indeed a herculean task. The Teachers also face difficulties when they explain these complex things to the students. Hologram technology is the answer for visualization of critical and complex things. In nursery education, kidscan learn the things more effectively using hologram technology. If we teach them with holograms, then they can remember the concepts for a longer time and can grasp them easily.

II. ANALYSIS

Hologram technology is a three-dimensional projection method which can create a 3d image or holographic image that can be seen without using any special equipment such as cameras or glasses. The image, also called a holographic imagecan be viewed from any angle, so the students can take a complete look at how a particular thing works. Many types of hologram technologies can produce holographic images, like RGB fan-type holograms, autonomous drone-type holograms, laser-plasma holograms, and many others. But for educational purposes, volumetric display-type holograms[1-5] are best due to their user-friendly and easy-to-install nature. It is also a user-friendly technology that can be used by old teachers as well.

The three types of volumetric displays are:

1> swept volume display2> static volume display3> Free space displays

Out of these three methods, swept-volume displays and static volume displays are the most well-developed methods that can be integrated into classrooms for effective learning. [9] The free space display hologram, is the most futuristic and high-resolution hologram creating technique but it is not fully developed. In Swept-volume display hologram[6-11] the laser light beams are projected to a display that includes illuminated spinning screens, spinning LEDs or translating projection surfaces.
This kind of display uses a coated paddle (like phosphor-coated) or screen that spins inside a glass chamber under vacuum to

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

reduce the air resistance during its spinning time. An electron beam hitting the paddle creates a point emitting visible light. Steering the electron beam and spinning the screen creates a volumetric image from the emissive points. This 3d image can be visible from any direction. 24 frames per second (FPS) is the standard for films and that is enough for us to interpret motion. A swept-volume display needs to achieve similar results at every "pixel" of resolution in the Z axis so that we can smoothly see the projection. To put this into perspective, if you want a 500x500x500 24 FPS resolution volumetric display, you would need to move a 2D 500x500 display up and down and at 12,000 FPS to make 24 FPS for each of the 500 Z axis pixels.

LCD refresh rates top out at around 480 Hz which is not enough, so we need to use laser projection. Instead of moving an entire display up and down, a couple of stepper motors can be used to move a thin panel of translucent film in the Z axis. In this kind of device, we need to take a 3D model and it should be cut layer by layer from above and arranged side by side. After that we need to synchronize the frequency of the spinning panel and projection of the laser light. Static-volume displays might form images by up conversion in nonlinear gases or solids (like glass) or by projecting onto several diffusing planes. In this method, a glass chamber filled with gases is used as a 3D screen. A 3-D position within that gas is illuminated with two beams at wavelengths which is not visible to the human eye. These two wavelengths combine in the nonlinear material to produce visible light which scatters from that position to form an emissive image point; scanning the two beams createsa volumetric or 3-D image.

Out of these types and methods of hologram, swept volumetric display type holograms are the most practical and most user-friendly system [12-14]. With the help of this swept volumetric display type hologram technology, we can build a portable and user-friendly hologram machine that can be used by educational institutions to teach complex topic and theories to students. This kind of device can be installed in classrooms just like 2d projectors. With the help of this technology, teachers can also teach complex scientific theories very easily with visualization. With this visualization methodology, students also get a very deep and clear knowledge of what they are studying. By integrating this above mentioned sweptvolumetric hologram methodology, we can make technical and medical studies more effective and more interesting. To integrate this hologram technology in our education sector, we first need to build a portable machine that can project a clear hologram.

This machine should be economical and easy to operate. If this comparatively new technology is integrated in the education sector, then not only the education sector will be benefitted, rather than that the ongoing research will also gain momentum. In the education sector, especially the technical and medical studies, visualizing things plays a major role. Although, these days' institutions use smart boards and animations to explain theories, reactions, and 3d models, but a three-dimensional thing can be perfectly explained only in three dimensional space. When we try to fita 3d model in a 2d plane or a 2d display we need to distort the actual shape or we need to use the animation. Making an animation requires skill and time as well. If we want to make a true original animation of a three-dimensional object, we need to make a 3D model of that using some software, or we need to draw that particular thing frame by frame in every angle to make an understandable animation for students. Both methods require time and money as well. With a 3d display,we can easily make a hologram of a real or CG 3d model by simply making a three-dimensional figure in 3D graphic designing software like blender. So teachers can directly use the 3D model as a hologram to explain the concepts.

Some more research is to be carried for this technology as it is still underdeveloped. Due to developing and less awareness about this technology, educational institutions are unable to integrate this revolutionary and awesome technology in theirclassrooms.

III CONCLUSION

Volumetric display hologram is a new technology and the majority of the educational institutions are not using this technology to teach the students. This technology has lots of potentials. It can change the whole education sector by its unique visualization methodology. In learning processes, visualization is more effective than reading, so with this visualization methodology, students can easily grasp the concepts and remember them for a longer time.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Application of ICT in Language Teaching with Special Reference to Language Learning Apps

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Abstract: ICT stands for Information Communication and Technology and can be defined as the all the devices, tools, internet, hardware, software, content, resources, cell phones, interactive digital content, internet, satellite communication devices, radio and television series use to create, store andhelp user and provider to interact whenever necessary. Now ICT as a teaching medium is becoming acknowledged by both students and teachers day by day because of the portability it offers. Laptops, mobiles, and the internet are some of the examples of ICT which make the process of teaching and learning possible anywhere anytime. We also remember how the Covid-19 pandemic has impacted a lot of sectors including education, large enterprises, health, economy, labor markets, etc. This impact caused due to many restrictions that came with the pandemic that hindered the normal workflow that was followed pre-pandemic, this restrictions included maintaining social distancing, travel restrictions, lockdowns that lasted for months, and many more. So, in order to get the work done while abiding by the restrictions that were imposed along with the pandemic. ICT platforms were introduced to ensure the maintenance of social links, provide services remotely, continue to fulfil business requirements and also for virtual education. Also, various telecom players like Jio, airtel, Vodafone, have brought an internet revolution in India by introducing internet at very cheap rates, because of this the students are getting smarter day by day due to the huge flow of information and knowledge which was not possible before because of the expensive internet plans available in India. So, in order to fulfil this gap between teaching and learning, the use of ICT is necessary for the classroom.

Keywords: Covid- 19, Globalization, restrictions, lockdowns, pre pandemic, ICT platforms, Paradigm,virtual education.

I. INTRODUCTION

The use of ICT for teaching and learning has always been subjected to mixed opinions. Some supportlearning in the online medium and some are reserved for the same idea. ICT tools help to engage thelearners in all the possible way by listening, watching, and interacting online and create multisensoryteaching and increase the retention in the learning there are any difficult topic, subjects or concepts,it can be animated and presented in a way that is helpful for learners and also easy for the teacher toteach by using animation in smart classes. Learning language has always been a physical process where one need to be associated with a physical classroom with a teacher and books. This process was first broken with the introduction of language teaching software like Rosetta Stones first CD- ROM collection in mid-90s. Since then the developers have been adapting their products to meet thelatest technology available and also to meet the customer expectations. Many online-language learning apps were developed at first as websites and later with time its services were transferred to its mobile-app format. It is expected that the online language learning market will grow at a CAGR 18.7% and will reach avaluation of $21.2 billion by 2027. This market will register this unprecedented growth due to variousdriven reasons.

- **Impact of COVID-19:** The pandemic brought along many restrictions along with the closure of various educational institutes. According to UNESCO, the nation-wide closure of educational institutes has affected over 60% of the total student population. All the companieswere also shut down because of this pandemic and had to allow work from home to its employees. Due to this the working professions were interested to learn new language to enhance and include new skills to their working profile. The online language learning apps saw this as an opportunity and introduced their classes for free which attracted a huge customer base irrespective of their designation, age or qualification and later many free users got converted to paid subscribers.
- **Globalization demands communication across borders:** Globalization has connected people irrespective of their country, culture and language. But companies in order to maintaintheir global presence overcomes the language barrier in a survey it is found that 60 % of theonline consumer avoids but from the foreign online market place and 72.4 %of the online consumer prefers to buy products where the information is given in their native language.
- **Rising spending in the education sector:** Survey has found that two-thirds of school students in low-income countries

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

will not even learn the basic primary skills by 2030. So, in order to fight the global education crisis, the respective governments are announcing huge packages. For e.g., India in February, 2020 announced $13.4 billion for the education sector, and also there has been made huge changes and addition in the New Education Policy. These initiatives ensure the growth and adoption of ICT-based educational solutions and hence helping online language learning apps to grow.

- **Language and culture in entertainment:** The English language has made the movies by Hollywood, English songs, and series popular among Indians. Also, Korean songs like PSY's Gagman Style have been a hit and this led to the formation K-POP fan base in India. This trend has encouraged Indians to explore Korean culture deeply. Survey has shown that there has been a 370% increase in consumption of Korean series during the lockdown. This really motivates people to learn foreign languages like Korean to under their culture and this is where online language learning apps get there user base.

Some famous online language learning apps are Duo lingo, Babel, Rosetta stone, Buzau, and many more. Among all these apps Duo lingo has the largest number of downloads among all the other language learning apps. It has over 500 million registered users. This goal is achieved by them because of Duo lingo's free services like they offer game-like learning solutions for over 35 different services and all this for no cost has hooked millions of users across the world and its way they grew into a very successful business. The below figure shows the total downloads of all the leading language learning apps available in the market. In which we can observe Duo lingo is far ahead of its competition with 61% of total downloads among others.

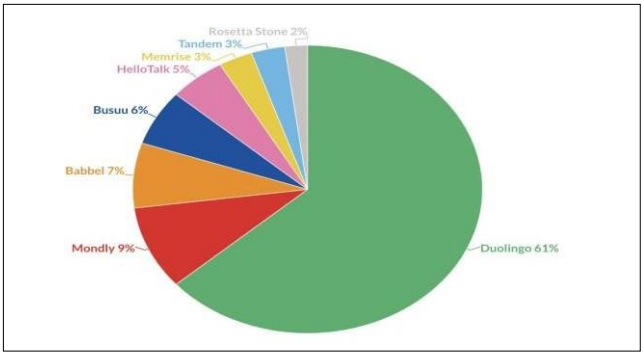

Fig. 1 Total downloads of all the leading language learning apps

How do these online language learning apps make money?

Famous language learning apps like Duoling, Babble, and cake app show ads to its user who is using the app for free or rather availing of the free services of the apps. It is found that 17% of Duo lingo'srevenue comes from displaying advertisements in their apps.Those users who are tired of ads are given the option to join their no advertisement version at a monthly or yearly subscription, for e.g., Duo lingo offers a plan known as Duo lingo plus which offers the user advertisement free services and also Duo lingo plus brought 74% of their revenue in Q2 of 2020.

This language learning app also conducts fluency certification tests as there are many users who learns new languages for employment or entry into a university. Duo lingo charges $49 for its fluencytest which registered 9 % of its revenue in 2020

Lastly, these online learning apps sell virtual items, user can earn points by engaging with the apps or can directly buy these points using money. Duo lingo has a similar model where user gets gems if they engage with the apps or can buy out these gems. Duo lingo accounts for 2.4% of their revenue using this in Q2 of 2020. In the below graph we can see that Babble has higher revenue than Duo lingo, but it is expected that Duo lingo will surpass Babble by 2021.

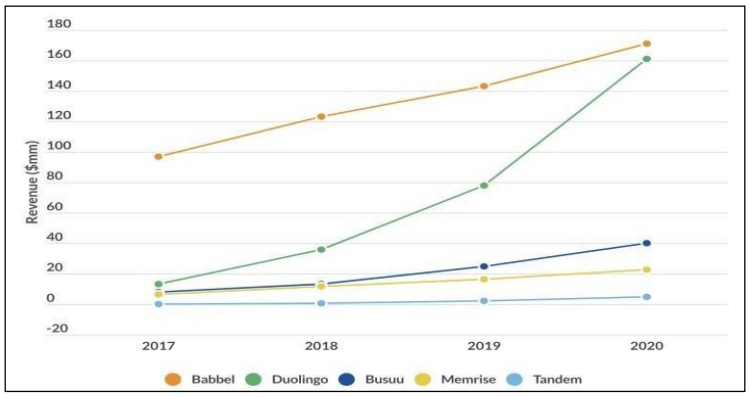

Fig. 2 Comparative Revenue of the different language learning apps

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

How long does it take to learn German in an offline classroom environment?

The answer is very much subjective and varies from student to student. Generally, if one attends classes twice a week and is highly motivated to learn the language then he/she can learn up to B1 level in a span of 6 months.
This B1 is a scale in CEFR. CEFR stands for Common European Framework of Reference, this is aninternational standard which rates one's language speaking skills, the ratings are given in a six point scale, where a beginner in a particular language is considered to be A1 level, an intermediate is considered to be B1 level and an expert is considered to be C1 level. So we can say that one needs atleast 6 months in classroom environment to be at an intermediate level in learning a language like German.

How long does it take to learn German in an online learning language like Duoling?

Online learning apps like Duo lingo has their language learning course structured like a tree, if one wants tocomplete the tree as soon as possible then it will even take a day to complete, the course tree is considered to be a B1 level and currently the Duo lingo course tree for German consists of 123 topicsand these topics consist of total 454 lessons.
As number of lessons and topics are huge so duo lingo divides them into check points where the firstcheckpoint is after 11 topics and 36 lessons, second checkpoint is after 7 topics and 20 lessons, third checkpoint is after 12 topics and 36 lessons, fourth checkpoint is after 19 topics and 62 lessons, fifth checkpoint is after 17 topics and 72 lessons, sixth checkpoint consists of 17 topics and 68 lessons, seventh checkpoint consists of 20 topics and 76 lessons now finally eighth checkpoint consists of 20topics and 84 lessons. So in total there are 123 topics and 454 lessons thus completing this German tree is equivalent to learn 2500 words.

In order to complete the tree, duo lingo has certain features like daily streaks which motivated the user in this process. There are four different mode one can set goal to complete the tree, those are, Casual (10 XP per day), Regular (20 XP per day), Serious (30 XP per day) and Insane (50 XP per day). Now completing each lesson gives us 10 XP, and maintaining the insane streak every day willtake us around 100 days in order to complete the whole tree.
But we must not forget that our brain tends to forget the previously taught things and the Duo lingo'salgorithm is smart enough to drop down the strength of the topics forcing us to go back and revise the previous topics in order to increase the retention.

Now we can consider extra 80 days to in order to revise the old lessons so the total days adds up to 180 days which is 6 months. Hence we can say one will need 6 months in order to learn the languageGerman from online language learning app like duo lingo.

Advantages of using ICT in language learning: As discussed above the working of duo lingo, oneof the most famous app for learning language we can point out some advantages of this ICT base language learning solutions over regular offline courses.

- **Easily Accessible:** ICT tools like mobiles, laptops, digital readers can be accessed at any timeas per the need of students hence students can learn as per the need.
- **Can be used remotely:** There is no need of attending any school physically for teachers as well as students both can interact and participate in the teaching and learning process. Village students or any interested children can learn in prestigious institutes via online class and distance learning program.
- **Interactive content:** We can use images, sounds, videos to make learning process easy and interactive for all the age groups and these also helps to clear the concept of any particular topic or subjects and can be used for all the subjects.
- **Enhance multisensory teaching:** ICT tools helps to engage the learners in all the possible way by listening, watching and interacting online and create multisensory teaching and increase the retention in the learning.
- **Time-Saving:** There is no need to attend the classroom or any formal institutes for learning and one can attend the class or learn as per one's need hence it saves time of travelling, getting ready and you can also fast forward the lecture that is impossible in real teaching.
- **Students are in lead positions:** Students can select the content, the teacher, devices and learn as per their convenience, affordability and needs.
- **Watch visualization or stimulation of difficult concept:** Any difficult topic, subjects or concepts can be animated and presented in a way that is helpful for learners and also easy forthe teacher to teach by using animation of smart classes.
- **Useful for differently-abled children and individuals:** ICT tools are blessing for children with special needs as they enhance learning capacities for differently abled individuals and help in creating an inclusive classroom. ICT tools and devices like digital braille, voice to text converter, enhance audio system for hearing affected individuals, digital maps, online communities to help each other, etc.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Demerits of ICT based learning language solutions: Although there are many advantages for ICT based language learning solutions but it has been found that many users found duo lingo to be reallyhelpful for beginner and for a certain level after that one need to give their individual efforts like listening to podcasts, reading newspaper and speaking the language. Mastering the online language learning will not be enough. There are also other demerits discussed below.

- Students can engage in other tasks while learning on ICT devices, which means online contents maybe be sometimes distracting.
- There are so many language learning apps available which maybe be problematic for studentsand can keep them in a dilemma about where to study or learn from
- ICT devices are expensive to setup for students, teacher and schools as well, this hampers learning for lower income class children.
- For exams online mode of examination can be full of malpractices.
- We can't deny the fact that in this era where our data is being stored online and data is considered to be the new currency we are always on a verge of losing our data to hackers andscammers and while signing up for this online language learning apps we have to give someof our personal information and if there is some data leak in that company then our personaldata can be used for malpractices.

II. CONCLUSION

As discussed above ICT has a lot of uses and has become an integral part of the education ecosystemin the post pandemic era. ICT with internet connection has also changed our daily lives drastically. ICT has connected people across the globe which enabled a better exchange of information, knowledge and culture, for this individuals has got a chance to improve their communication skills, meet new people and learn about new education opportunities. This is the reason why this online language learning app industry has got a great success. There is no doubt in saying that ICT based language learning solution has made us respect other's culture but we must not neglect the negativeas aspects of these language learning apps which is discussed above because internet is really huge and it is up to us whether we want to visit the bright side of ICT based solution or the dark side of itbecause when we cross the line of desire it becomes greed. Now if we use ICT based language learning solutions in a disciplined and controlled way then we can minimize most of the negative aspect of it.

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ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

An Innovative Method for Effective Teaching-Learning Process in the Flipped Classroom

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Abstract: This study looked into flipped classrooms as an innovative teaching-learning technique. The concept of flipped classroom was justified as a student-centered and activities-based educational learning model that aims to replace the traditional mode of teaching and learning and why it is necessary to incorporate such into our teaching methodology, as well as the importance and effective ways of implementing flipped classroom. It was clear that the flipped classroom is more activity-based learning; it is friendlier to both students and instructors, and students were actively participated in the session. To summarise, the flipped classroom is a contemporary way of instruction that allows for active engagementof both the learner and the instructor in the teaching and learning process, making learning more practical and aiding student retention. Based on the foregoing, it was recommended that flipped classrooms be implemented in schools to allow students to benefit from technological advancements around the world in order to learn and be better informed; it will also provide students with ample opportunities to compete with their counterparts in other parts of the world; and instructors should be provided with adequate and required training in order for them to perform in accordance with the norms and standards.

Keywords: Flipped classroom, flipped learning, smart learning.

I. INTRODUCTION

According to Jonathan and Aaron [1], there are several reasons why teachers should consider flipping their classrooms. It speaks today's students' language: It is evident that we are in the jet age, and the languages of yesteryear are becoming barbarous, thus in order to keep the kids engaged, you must speak the language they comprehend. It benefits busy students: Because students may study depending on their abilities and strengths, busy students have more opportunities to do more. The flipped classroom layout enabled struggling students to engage in and contribute to class discussions, allowing them to deal with their classmates. It allows kids of all levels to excel: Because all students were actively participating in classroom discussion, all students had the potential to do very well due to the tagline "what I do, I remember." It enablespupils to rewind and pause their teacher: The flipped classroom allows students to ask questions at any moment for a better comprehension of the idea, and the recorded charts, videos, or slides can be repeated or replayed as needed to get positive outcomes.

Increasing student-teacher engagement through flipping: There is no fear of intimidation or harassment in the conversation. It allowed teachers to get to know their students better: Students are well known to the teacher since they are all actively participating in the class, and there is opportunity for accurate identification because it embraces the differentiation technique. Increased student-student interaction: It fosters friendly and reciprocal interactions among pupils. They regard themselves as colleagues rather than rivals. Flipping allows for true differentiation:students study at their own pace, which the instructor values more.It alters classroom management: Unlike the old way, the classroom becomes an activity-based setting. Alters the manner of communication with parents: Because of the use of flipped classrooms, students are more mature in their thinking and reasoning, and thus more constructive in their interactions with individuals outside of school, including their parents. It informs parents: It informs and synthesises parents about current events in and around our immediate surroundings. Transparent classrooms: The classroom becomes more transparent when subjects are discussed openly and in the presence of all students who have the freedom to share their thoughts.

II. HOW TO IMPLEMENT A FLIPPED CLASSROOM

A. Plan

Decide which lesson you'd want to flip. Outline the main learning objectives as well as a lesson plan. This indicates thatthere must be an appropriate guideline for the presentation's style and method. It must meet the requirements of the standard and the educational objectives.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Vol. 9, Special Issue 2, May 2022

B. Record

Make a video instead of presenting this topic in person. A screencast is effective. Make sure it includes all of the major points you'd discuss in class. To minimise unwanted dissent and distortion in the classroom, the film must be topical, brief, and self-explanatory.

C. Share

Please share the video with your pupils. Make it interesting and easy to understand. Explain that the subject of the video will be thoroughly explored in class. This must be done in order to avoid any mistakes; ensure that you transmit only what you plan to at a certain time.

D. Change

Your pupils are ready to delve deeper than ever before now that they've seen your lesson.

E. Group

Separating students into groups and assigning them a work to do is an excellent technique to debate the issue. Write a poetry, a drama, or a movie, for example. The students must be correctly managed throughout their presentation of what they know or learned, otherwise the teacher will have classroom management failures.

III. INNOVATIVENESS OF THE WORK

Unlike traditional classrooms, professional educators in a Flipped Classroom continuously watch their students duringclass time, giving them with appropriate comments and assessing their work.

Three important stages are outlined here. The flipped classroom paradigm is discussed.

- The Pre-Class Period
- The in-class discussion
- The post-class period

These could be expressed graphically as follows (Fig.1):

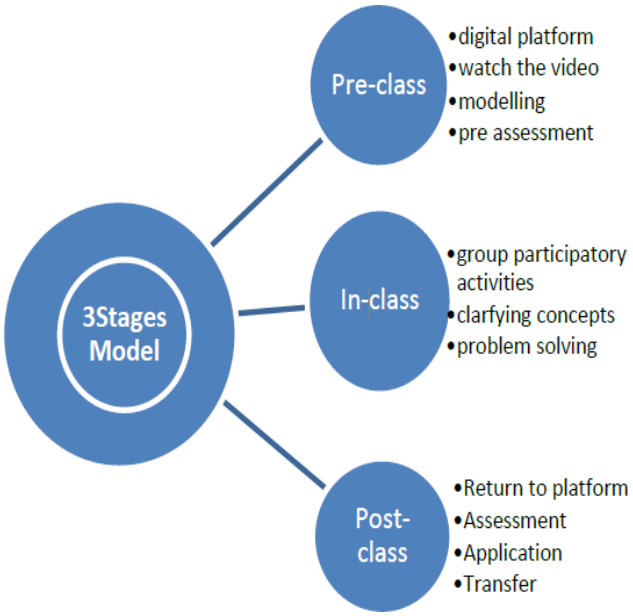

Fig. 1 Proposed 3 stage model

As a result, proper pre-class preparations for the flipped classroom will be made, allowing the instructor to acquire the necessary resources and technological know-how for an efficient delivery of the subject matter. Teachers may need to master new technical skills to generate video lectures by generating lectures and in-class tasks or resources. As a result, in order to properly manage flipped classes, the instructor must gain sufficient information.

The second stage is all about the students' actions; flipped classroom is activity-based learning in which students are completely

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Vol. 9, Special Issue 2, May 2022

involved in solving problems, clarifying topics, and manipulating pertinent devices while being closely supervised by the instructors [2,3].

The model's last step addresses the application of the subject matter in real-life situations with the goal of resolving economic and social-political difficulties in our local area and beyond.

IV. CONCLUSION

The flipped classroom is clearly gaining popularity, especially in this era of pandemic, when physical contact in classroomactivities is limited and the conventional methods of education in our schools have been replaced by a more pragmatic and modern way that allows for root learning. In contrast to the traditional teacher-centered mode of education, the flipped classroom is more student-centered. Students stand to benefit more since they are completely engaged in all aspects of the teaching-learning process, which follows the "do it yourself" philosophy. Based on the foregoing, it was suggested that flipped classrooms be used to allow students to benefit from global technological advancements in order to study and become more educated.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Vol. 9, Special Issue 2, May 2022

Mobile Learning in the Modern Classroom

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Abstract: With the development of the smartphone, the conventional textbook and blackboard method to teaching is no longer enough for this new generation of learners. Technology in education has cleared the way for a more free approach to learning, where not only instructors and students, but also parents, are always linked. The smartphone provides new learning possibilities and methods for fostering the development of abilities that are essential for students moving forward in the twenty-first century. However, many people are concerned about the distractions and obstacles that smartphones provide in and out of the classroom, and the learning possibilities they present are sometimes overlooked.

Keywords: Mobile Learning, Modern Classroom, Smart Learning, Online Learning

I. INTRODUCTION

Mobile learning is defined as a vital component of learning and education that aids in the facilitation of learning experiences. Various novel services and apps are being developed as ICT (Information and Communication Technologies) technologies and mobile technologies grow at a faster pace. As a result, it's critical to investigate the elements that influence students' intentions to use mobile learning in higher education institutions [1]. Mobile learning may not be an option, but rather a need as a modern platform of learning in the future, in order for students to be prepared to keep up with the times and technology. In higher education, mobile learning plays a larger part in the development of instructional methodologies. Students will be able to access and utilise learning resources more easily and rapidly using mobile technologies [2].

Mobile learning has a long history of being particularly well-developed in the domains of informal education. However, in recent years, there has been a rising interest in using those technologies in formal education. Acceptance of mobile technology by teaching staff is one of the important components necessary to properly use this integration technique [3]. Mobile technology's continued expansion in society has become a reality [4]. Governments in certain nations have met the necessary level of satisfaction in providing mobile services to their citizens, while others are still falling short [5].

II. BENEFITS OF MOBILE LEARNING

Ubiquity and mobility are two of the most important features of mobile learning. Ubiquity refers to having access to technologies whenever and wherever they are needed, whereas mobility refers to learning while on the move [6, 7]. The learning activity itself, such as decision-making, vocal communication, and contact between instructors and students, is not the only component of the mobile learning strategy [8]. Smartphones have become an inextricable part of students' life. When considering the advantages, it's vital to remember that cellphones allow students to learn in the way that they choose. With this in mind, consider the advantages of using a smartphone to expand kids' learning prospects (Fig.1).

Fig. 1 Proposed benefits of mobile learning

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

F. Anytime and anywhere

To begin with, the smartphone is carried on the person and is therefore available everywhere and at any time. This makeslearning information accessible no matter where you are or what time of day it is. As a result, students can have uninterrupted access to technologies that help them learn more. Learning is practically there at their fingers.

G. Collaboration

The mobile phone's ability to synchronise communication makes it an amazing social tool that may improve collaboration among students, instructors, parents, and the rest of the school community. Social connection is increased by the smartphone, which keeps the school community linked at all times.

H. Ownership of Learning

Mobile learning offers a variety of interaction options that may be adapted to individual interests. This feature of mobilelearning allows students to take charge of their education and cultivate a sense of ownership. Having alternatives allowsstudents to study in the ways that they are most comfortable, which improves the overall learning experience.

I. Accessible, Portable Learning Aid

We live in a society where smartphones are readily available and easy to use, and they are found in almost every family.There will very certainly be a smartphone, regardless of whether there is a laptop, tablet, or desktop. The smartphone, which is ubiquitous in families of all demographics, provides a portable platform that may be used as a strong learning tool.

J. A Platform for Practical Tools

Last but not least, the mobile phone can easily calculate and show personalised and personalised material for the user. As a result, geo-location, social networking, search features, newsreaders, and simulations may all be easily customisedto give useful learning aids on the smartphone.

When instructional information is given in an interactive and dynamic way—through quizzes, polls, surveys, and videos—students are more inclined to participate in learning. This form of distribution is substantially aided and supported by smartphones. By combining traditional techniques with mobile learning, young learners' education may begreatly enhanced. When the function of the smartphone in the learning process is correctly understood, this blended- learning strategy may be incredibly successful. Vocabulary practice, brainstorming, self-reflection, performance feedback, and, more recently, augmented reality have all been proven to be very helpful while learning using a smartphone.\

III. INNOVATIVENESS OF THE WORK

The advantages of mobile learning are not without their drawbacks. One worry that has been raised is the distractions that may be produced by students accessing non-educational content on their phones, resulting in lower student engagement.

This type of distraction, however, is not unique to mobile learning. Before the introduction of smartphonesand mobile phones into the classroom, there was always the risk of distraction. It's passing notes or building paper aeroplanes if you're not texting or playing a game on your phone. Distractions are related to a lack of student participationtowards the end of the day. You won't have to worry about distractions if you can get your kids involved in a task, whether it's on a laptop or through a mobile app.

IV. CONCLUSION

There were various elements that impacted people's intentions to utilise mobile learning, and no single research can account for all of them. To be able to adopt mobile learning in universities, university administration must keep in mindand comprehend the variables described in the research discussed during this study. Furthermore, university administration must encourage instructors to attend adequate trainings in order to have the necessary skills and information to use and execute mobile learning.

Furthermore, instructors must motivate students to embrace the benefitsof mobile learning in their studies. Some students who are less inventive may need to be prodded to get started with mobile learning.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

The Influence of Pandemic-Based Online Education on the Teaching and Learning System

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Abstract: The majority of global industries were affected by the pandemic caused by a Coronavirus epidemic. This includes the academic world, which comprises of millions of enrolled students and active professors who formerly attended regular courses in their institutions but were forced to stay at home owing to the epidemic. To continue the educational process, most countries, including India, used online classes. Both teaching and learning take place in this manner using electronic devices that are relatively new to the teaching-learning community. This study sought to ascertainhow online classes fared among Indian professors and students. Furthermore, it attempted to comprehend the users' experiences as well as the specific set of obstacles that this style of teaching presents. Four different surveys were developed for school kids, instructors, college students, and professors. The questions focused on many areas of online education, such as setting up online education at home, knowledge transfer, comfort, assessment, and future possibilities.The questions were distributed through Google forms. Instructors (school teachers and college professors considering all courses) and students (school and college students considering all courses) from various educational institutions aroundthe country provided replies. The data was gathered, and the results were examined in two ways: first, from the standpoint of teaching vs the learning group, and second, from the perspective of school versus college groups on online versus normal classrooms. Despite the fact that online training/distance education has been used for a long time, research on the aforementioned issues has been limited. This is the first research of its type, reflecting the benefits and drawbacks of the new-normal online education from home in the collected voice of professors and learners in India. The study discusses the benefits and drawbacks of online education vs traditional schools. This sheds further information on how to develop technology to make them more efficient. Furthermore, this study provides an appropriate foundation for changing or creating educational policies, legislation, and plans to provide equal access to resources for all.

Keywords: Online education, online education India, online classes.

I. INTRODUCTION

The COVID-19 disrupted our daily routine and prompted a new way of living inside the confines of the walls in order toprevent the spread of this virus, which is very contagious. According to UNESCO, 186 countries would have enforced national closures by the end of April 2020, affecting 73.3 percent of all enrolled students. As a result of the entire lockdown, educational institutions have resorted to online techniques to guarantee that students' learning is not disrupted, as traditional face-to-face learning was not viable in this unique scenario. Traditional learning methods were largely accepted in poor nations like India prior to the creation and dissemination of COVID 19. However, institute closures andpressure to finish the mandated syllabus within a set time limit in accordance with the academic calendar drove educational institutions to forgo their worries and adopt emergency remote education. The national government of India declared the closure of all educational institutions, including schools, colleges, and universities, on March 16, 2020, in order to stop the spread of coronavirus infection in India, which has climbed to 114 positive cases. In addition, the centrehas written a letter to all Chief Secretaries encouraging them to promote online education as a way to compensate for the closure of educational institutions and to assist students in completing their studies. As a result, several educational institutions began online lessons within two to three weeks, and by May 30, practically all educational institutions in thecountry had begun online classes [1].

II. METHOD OF TEACHING AND SETTING UP ONLINE CLASSES AT HOME

School children were asked a multiple-choice question regarding the strategies used to teach them. Figure 1 depicts the responses. The most frequent teaching techniques were recorded (70%) or live online lectures (20%) using television andother programmes such as Google Meet, Zoom, WhatsApp, YouTube, Microsoft Teams, and WebEx. Whatsapp was themost chosen platform (68 %) because it is simple to use and does not require any technical knowledge, making it ideal for school pupils. To augment the lectures, assignments and homework (10%) were employed. A considerable percentageof school pupils attended either recorded or live lessons taught by their teachers [2].

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

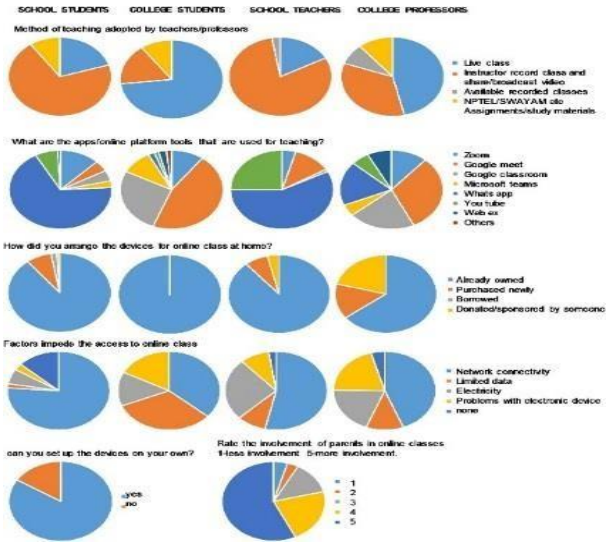

Fig. 1 Method of teaching and setting up online classes at home.

III. LEVEL OF COMFORT IN ONLINE CLASSES

The amount of comfort was determined by the schedule's tightness, refreshment intervals, bodily discomfort, and mentalstress (see Fig. 2). As seen in Fig. 2, only 13% of students had adequate time to recharge between courses. Overall, the majority of students had a more relaxed schedule with less class hours than normal classes, which gave them the benefitof being able to keep up with the courses offered even if the learning environment was not perfect. Furthermore, 18% reported various physical and mental discomforts such as severe headache, strain and irritation in the eyes, loss of attention, and so on. More screen usage might be the source of these physical pressures. Regular classes were more comfortable for the majority (94 percent) than online classes. However, a small percentage of pupils (4%) reported for the opposite occurrence.

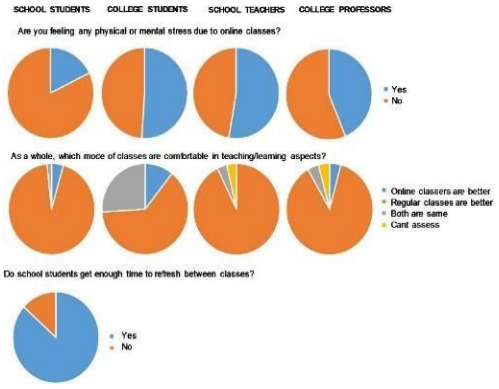

Fig. 2 Level of comfort in online classes.

IV. ATTENTIVENESS AND KNOWLEDGE TRANSFER

One of the most significant issues that online education confronts is the lack of direct connection between students and professors. "Students don't get to meet the lecturer or class members face to face," is one of the primary concerns
mentioned in a case study involving 41 undergraduate students at a four-year midwestern (US) college when questionedabout the negative experiences of online classes (El Mansour and Mupinga, 2007). This is supported by the findings of asurvey question, in which 92.1 percent of students agreed that direct student-teacher connection is necessary for optimal learning when questioned about it (Fig. 3). It has been demonstrated that insufficient individual attention and instructor reaction time may also be contributing reasons to bad experiences faced by students in online classrooms (El Mansour and Mupinga, 2007).

IARJSET

ISSN (Online) 2393-8021
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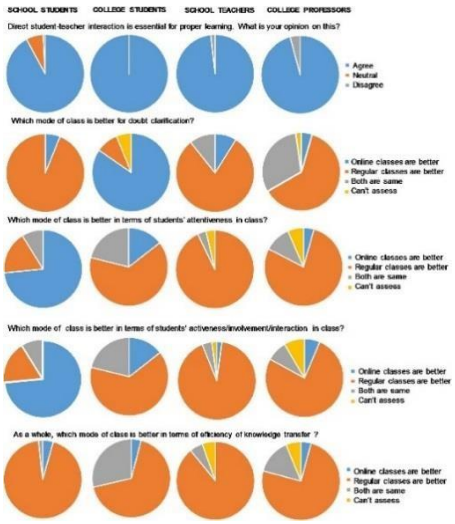

Fig. 3 Attentiveness and knowledge transfer

V. INNOVATIVENESS OF THE WORK

Existing research on the usefulness of online classrooms in distant education courses or other student or teacher training programmes is available. However, nothing is known about such programmes or online learning in India. The conditions of this study are additionally unique in that the transition to online classrooms occurred suddenly with no prior planning. The firsthand feedback we got from students and instructors from schools and institutions around the country will aid in identifying crucial areas for development. This study will ideally serve as a foundation for future studies on a much bigger size on the elements mentioned in this study, allowing us to enter a new frontier in the educational sector.

VI. CONCLUSION

Even without a pre-planned course structure or proper training for teachers or students to adapt to the change, teachers and students quickly resumed their journey by setting up emergency remote learning platforms using various online collaborative tools in hand, despite the fact that the COVID 19 pandemic struck hard in every walk of life. Both the learners' and teachers' groups were overwhelmingly supportive of regular courses. In terms of efficiency, engagement, and overall comprehension, most people thought regular classes were preferable. Although there is some comfort in learning/teaching from home, the process is hard on students and teachers due to different technological challenges and the extra effort required.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

The Influence of social media on Learning Mathematics

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Abstract: Social media has become a vital component of today's generation's everyday life. As a result, it is critical that such a technology be used as an educational tool, particularly in the field of education. Mathematics, as a prerequisite for pursuing a postsecondary education, should be at the forefront of utilizing the many social media platforms that allow for 24/7 anytime anywhere interaction between the teacher, student, and instructional material. As a result, the purpose of this study is to look at how social media may be utilized to teach and learn mathematics.

Keywords: Social media, education, younger generation

I. INTRODUCTION

Young people are seen as tomorrow's leaders. Generation Z is digitally literate and adept at understanding and using ICT-enabled gadgets, with social media serving as their playground. In the long term, social media has both good and bad aspects. Several studies have found that teenagers who have unfettered access to and use of social media are at risk for academic underachievement and substantial health risks, particularly in math. As a result, it is necessary to investigatethe influence of social media as a tool of education for the younger generation on student academic progress, particularlyin mathematics [1].

Social media is an electronic type of communication that allows people to communicate based on their shared interests and qualities. Social media are tools for social engagement that make content easily accessible and expandable. A socialnetwork can alternatively be defined as a map of predefined links between the nodes being investigated, such as friendship.The widespread use of educational mobile technologies in online teaching and learning, particularly at tertiary institutions, has gained traction in recent years, especially in developed countries, and it provides students with more options and opportunities in the context of online instruction. Furthermore, social media is seen to be one of the numerous technologies that arose from education, whether in or out of the classroom. The advancement of technology has also altered internet software, resulting in "social media" talking sites. With social networking sites, messages may be sent and received virtually instantly. However, the internet's lack of control has contributed to its overuse [2].

It is clear that the level of interest in social media for learning will be determined by how teachers promote techniques.Some studies emphasize the importance of developing a set of skills and technological competencies; overcoming a "digital dissonance" by emphasizing technologies that have positive effects on learning and must be adaptable to students' socio-cultural contexts; and, finally, designing support activities through the scaffolding of learning experiences using technology [3].

The advantages of utilizing social media have also been scientifically verified. Listed below are some of the numerousadvantages mentioned by these researchers regarding how social media improves the learning process.

1. Students' communication and teamwork abilities have improved (when they work as groups)
2. Students learnt how to manage their time and acquire the best results possible.
3. Using social media to improve student motivation and urge them to study hard and review early, resulting in greaterexam scores.

Because of its sensitive nature, none can be considered to have been developed to facilitate successful mathematics education. In writing equations and creating shapes and diagrams, special characters are required in certain Mathematic courses. The majority of social networking networks lack these unique characteristics. Mathematics lessons, on the other hand, can be produced using Microsoft Office products (e.g., Microsoft Word, PowerPoint, and so on) and shared via social networking sites. Google Forms, in particular, is one of the most widely used online evaluation platforms. However,it currently lacks the ability to type formulae or create shapes.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

II. INNOVATIVENESS OF THE WORK

Social media can enhance the learning experience by fostering collaboration and discussion, creating meaningful dialogue, exchanging ideas, and increasing student interaction; social media is an effective way to increase student engagement and improve communication skills; social media such as Facebook and Twitter can help students and teachers communicate more effectively. Educators can respond to students' questions.

As a result, a math teacher can benefit from social media's instant messaging feature, as it has been discovered that social media can provide the building blocks for a learning environment powered by multiple forms of support, allowing learners to connect, interact, and share ideas in a fluid manner. Also, according to some study, students who used social media for academic purposes had a higher GPA than those who did not. The teacher can employ the following tactics in his experiment on using Facebook as an instructional environment in mathematics:

(1) Models for using social networking sites in mathematics education; historical mathematicians and mathematical phenomena;

(2) Using the sites' social potential, as well as the cultural aspects of mathematical phenomena and mathematics history, to encourage, facilitate, and move toward mathematical discourse;

(3) The importance of pre-service and in-service teachers being prepared to teach utilizing social networking sites;

(4) The significance of incorporating kids in math learning on social media platforms.

III. CONCLUSION

In practically every way, the world has gone digital. Most nations across the globe have begun to implement a digitised education system, and Nigeria, especially at this time of democratisation of education and accompanying admittance conundrum, cannot afford to fall behind and watch the rest of the world as their education system becomes digital. As a result, WhatsApp and Telegram, as technical breakthroughs, must be completely welcomed in Nigerian schools for effective electronic teaching and learning. In order to keep up with the times, the educational system as a whole must supply what is required; raise sufficient awareness and provide enough training to improve electronic education delivery in this area of the world. Despite the fact that the majority of professors and students have Internet-enabled mobile phones, they are not designed only for academic reasons, according to the report. One of the most advantageous ways to study has been discovered to be via the use of mobile application technologies such as WhatsApp and Telegram.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Achievement levels of high school students inEnglish subject: A comparative study

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Abstract: In worldwide commercial and technology-based enterprises, the English language is increasingly extensivelyutilised and may be regarded one of the most effective communication mediums. India has acknowledged the significance of English and has implemented several educational programmes to boost the English language proficiency of its citizens.India is a multilingual nation with a complicated linguistic community, but one in which policymakers advocate English as the way to modernisation. Apart from their native tongue and regional languages, pupils must acquire English, which is an important worldwide language. Following independence, the Indian government established different commissions and committees to investigate the issue of the whole educational system and provide solutions for its reform. The commissions also address the problem of English language proficiency and give it proper weight at different levels of schooling. The present paper focuses on the Comparative study on achievement levels of high school students in English subject who are studying in government, government-aided and private schools. Study of achievement in English of highschool students in relation to gender, location and type of school. The study has been carried out on a sample of 630 school students of Kurnool district, Andhra Pradesh. The students achieved marks in formative and summative assessments conducted Board Secondary School, Andhra Pradesh. The static analysis is done on the achievements of high school students and it is found that there is a significant difference among VIII, IX and X class students' achievement in English subjects. It is found that the performance of girls are better than boys, the students from urban performed wellin comparison to rural students.

Keywords: High school, Achievement, English, Boys and Girls.

I. INTRODUCTION

In worldwide commercial and technology-based enterprises, the English language is increasingly extensively utilized and may be regarded one of the most effective communication mediums. India has acknowledged the significance of English and has implemented different educational measures to support it. Increase the English language proficiency of its citizens As a nation with several languages, India is a multilingual society, but one in which English is pushed as the language of choice policymakers' modernization Students learn languages different than their native tongue and regional languages. It is necessary to learn English since it is an important worldwide language.

The commissions also address the problem of English language proficiency and give it proper weight at various levels ofschooling. The University Education Commission of 1948 recognized the value of the English language and stated, "English, nevertheless, must continue to be studied." It is a literary language with humanistic and technological underpinnings. If we give up English because of emotional reasons, we will be cut off from the living stream of ever- growing information. "It should be recognized that even with relation to many of the various courses in teaching as matters stand at present, knowledge of English will be quite valuable for grasping the subject matter and for future study,"the Secondary Education Commission noted in 1952.

The Kothari Commission of 1964 emphasized the importance of learning English as a foreign language, stating, "As English will continue to be needed as a library language' in the field of higher education for a long time to come, a strong foundation in the language will have to be laid at the school stage."With this in mind, the panel proposed the following three-language formula: (1) Mother tongue or regional dialect. (2) The union's official language (Hindi) or associate official language (English), as long as it is used. Today, most of the languages in the world are spoken. Currently, the majority of textbooks and instructional materials are written in English.In India, the value of English has long been acknowledged.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

II. METHODOLOGY

The investigator adopted Evaluation or assessment method. A sample of 630 high school students from Kurnool district Andhra Pradesh are selected randomly. The sampling technique employed in the present study in selecting the samples random sampling. The study was conducted in Telugu state i.e., Andhra Pradesh. The state is geographically divided into 3 regions. They are Rayalaseema, Coastal and Northern Andhra. Presently there are 26 districts in Andhra Pradesh. As for education and economy is concerned Andhra region stands in first with an average level of education and economy.

Tools:

1. Formative and summative Question papers, Board of secondary school, Andhra Pradesh.
2. 3 Formative each for 20 marks and 2 summative assessments are conducted for 80 marks.
3. Personal data sheet.

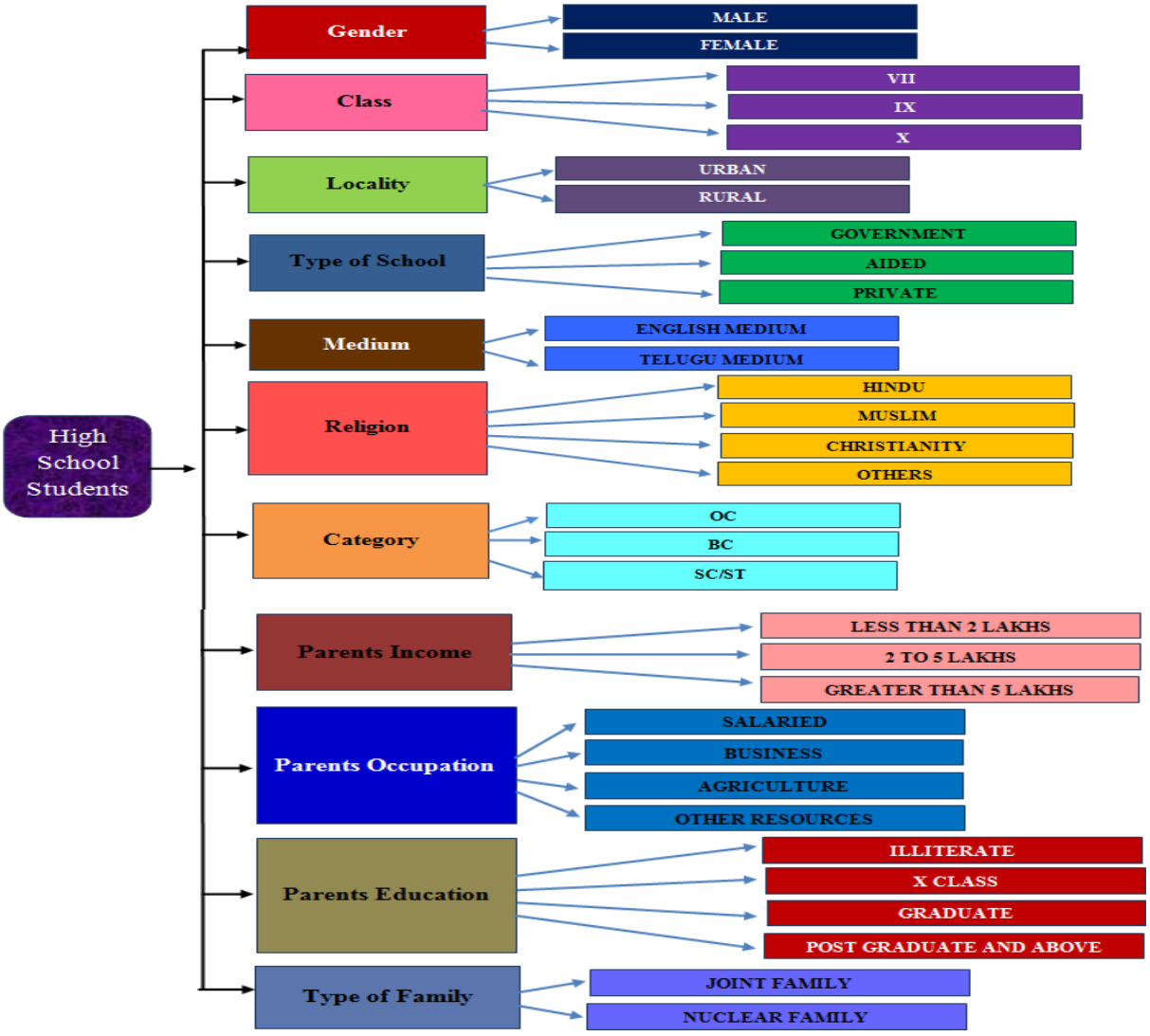

Fig. 1 Structural design of ample

III. OBJECTIVES OF THE STUDY

- To determine the English achievement levels of high school pupils.
- To compare the English achievement levels of high school pupils by gender, class, location and school type.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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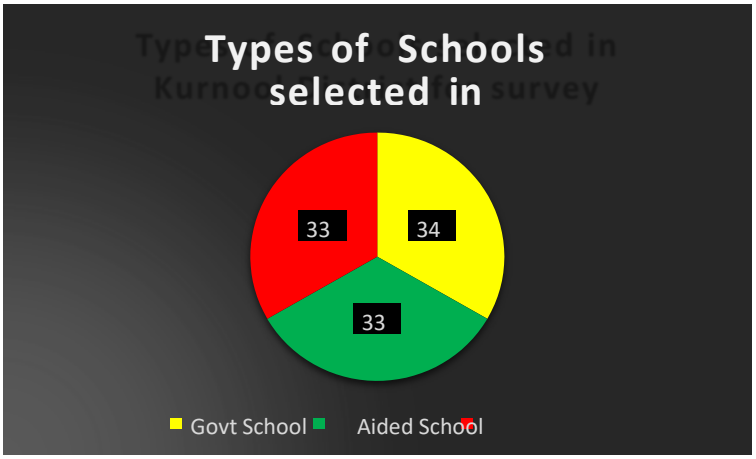

Fig. 2. Total no of schools selected for survey in Kurnool district.

III. STATISTICAL TECHNIQUES USED

The data thus collected and scored was analyzed by using relevant statistical techniques like Mean, Standard Deviation and t – test. . The usual levels of significance, viz., 0.05, and 0.01were used to test the significance of the obtained statistics.

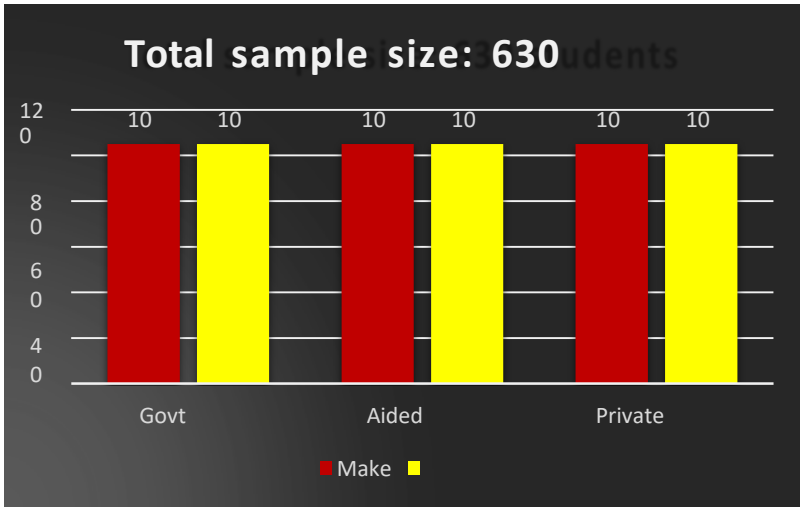

Fig. 3. Gender wise sample selection in different schools of Kurnool district.

IV. RESULTS AND DISCUSSION

Gender

The means scores of utility of social welfare schemes by high school students in Kurnool district are boys (47.87)and girls (47.08)respectively as shown in the below Table. To find out the difference between the mean scores of the two groups, t value (0.87) was found. It was less than the table value at 0.05 level.

S.No	Gender	N	Achievement levels		t-value
			Mean	SD	
1	Male	302	173.77	33.27	0.203@
2	Female	328	174.31	33.43	

IARJSET

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@ notsignificant at the rate of 0.05

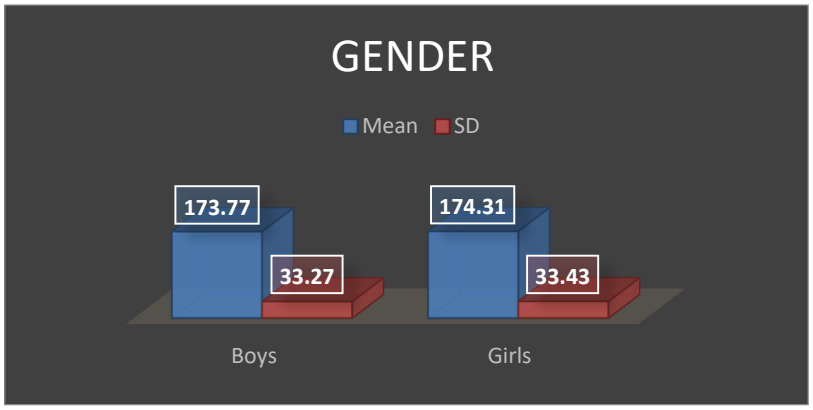

Fig. 4. Means, SD' values in achievement levels of high school students related to genderin Kurnool district.

V. CONCLUSION

In the present study, it is found that there is a significant utilization of social welfare schemes in Kurnool district by the high school students. There is no significant difference between male and female students in any, utility of social welfare schemes by high school students in Kurnool district but there is a significant difference among urban and rural high school student of Kurnool district and also the rural students utilized welfare schemes better than urban students of Kurnool district, there is no influence of type family on the achievement levels of high school students in English subject

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

A survey on National Education Policy 2020 inUrban Perspective

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Abstract: NEP 2020 has been a controversial topic nowadays as replacement of the age old policy on Education is not at all acceptable to many educationists. Alongside the main objectives of NEP 2020 it is not known to the general mass. The paper aims at educating people about the policy as well as to collect opinion regarding the pros and cons of the policy.Two sets of survey were conducted by forwarding set of questions on the target. As the sector under the study included only the urban students and teachers it was reflected that though most of them are aware of the policy. The survey results that overall the policy is well accepted among the the students, teachers and parents expecting a few pints.

Keywords*:* NEP 2020, urban, higher studies, childhood care

I. INTRODUCTION

The National Policy on Education was framed in 1986 and later modified in 1992. Though several changes were made at different time, the NEP 2020 is the first education policy which completely replaced the thirty-four year old National Policy on Education (NPE) of 1986.The fundamental principles of NEP is to accord highest priority to achieving foundational literacy and numeracy by all students by Grade III by 2025[1].

The present policy is a flexible education policy which understands the importance of brain development before the age of 6 and provides utmost importance on early childhood care, activity based learning, multidisciplinary higher education, importance of research work at undergraduate leve[2].

Under the National Education Policy 2020 the school education has been designed in a 5+3+3+4 pattern

1. Foundational stage (3 years of preschool + 2 years in primary school in grades 1 and 2, Age covered: 3-8)
2. Preparatory stage (Grades 3-5; Age covered: 8-11)
3. Middle stage (Grades 6-8; Age covered: 11-14)
4. Secondary stage (Grades 9-12 in two phases, i.e. 9 and 10 in first and 11 and 12 in second; Agecovered:14-18).

School Education

In 5+3+3+4 structure the foundational stage consists of five years of activity-based learning. In all stages experimental learning will be adopted, including hands-on learning, arts and sports integrated education, story-telling based concepts.

Preparatory stage comprises of knowledge building based on the activities of the foundational stage. Based on the research on early Childhood Care and Education (ECCE) a National Curricular and Pedagogical Framework for Early Childhood Care and Education (NCPFECCE) for children up to the age of 8 will be developed by NCERT. The National Curricular Framework for School Education, NCFSE 2020-21 will be undertaken by NCERT based on the guidelines ofNational Education Policy 2020.
The most fascinating feature of this framework is that it will also guide the parents for early childhood care as well as education institutions. Books should be enjoyable and inspirational at all levels and will be available at all local languages.Reduced curriculum contents restricting to core essentials only along with analysis-based learning are key feature of thepolicy. Various choices will be given to students, particularly in secondary school to study subjects including physical education, arts and crafts, and vocational skills.

Higher Education

All higher education institutions will be converted to multidisciplinary institutes by 2040 and each institute will be able to accommodate around 3000 students. This will help to increase the gross enrolment ration in higher education. A university will offer undergraduate and graduate programmes and an autonomous degree-granting College (AC) will focus on undergraduate teaching.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Vol. 9, Special Issue 2, May 2022

All institutions will be able to run Open Distance Learning (ODL) programmes and online programmes along with their on campus programmes. The degree awarded from each of these programmes will be equivalent. Highly developed online courses of different institutes can be integrated into curricula of HEIs with courses and blended mode will be preferred. Swayam and MOOC courses will relieve student from daily routine and same pattern of delivering education. Choice based credit system can be replaced by competency-based system which can be done by Swayam, MOOCs courses subject oriented study will definitely fetch employability[4].Large multidisciplinary universities and colleges will facilitate the move towards high-quality holistic and multidisciplinary education. cross-disciplinary and interdisciplinarythinking[5].

II. OBJECTIVES OF SURVEY

The objectives of this survey on National Education Policy 2020 are:

(1) To make a set of urban population aware of new education Policy (NEP 2020).
(2) To collect opinion about National Education Policy 2020.

III. METHODOLOGY

The survey was conducted among 3 classes of people
a) Parents of school children & school teachers
b)Undergraduate & graduate students
c) college and university Faculties who are parents of as well

The online survey was conducted over Google Form Response of each participant was collected and categorized. An explanation to their choices was also collected.There were no right and wrong responses.
The survey was disconnected in one week time. A total of 174 participants completed the survey.

Survey on Higher Education

The questionnaire for undergraduate students, graduate students, college & university faculties.

1. Do you know about NEP 2020.(Yes/No)
2. Do you support the Replacement of 10+2 structure of school level with 5+3+3+4 structure in NEP 2020.(Yes/No)
3. Multidisciplinary Bachelor's programme will be for 3 or 4 years but 4-year shall be the preferred: (Agree/donot agree/Neutral)
4. Those students who are financially weak can do multiple exits in bachelors as certificate in 1st year, diploma in2nd, degree in 3rd year & research in 4th year. (Helpful/Not helpful/ Neutral)
5. Master's programmes may be for 1-year or 2-year will be helpful. : (Agree/do not agree/ Neutral)
6. Universities and colleges will set up high-quality support centers to support socio-economically backwardstudent. (Helpful/Not helpful/ Neutral)
7. All institutions will have the option to run open distance learning (ODL) and online programmes. (Agree/do notagree/ Neutral)
8. The ODL programmes will be equivalent to the higher Education Institute (HEI) programmes run on thecampuses. (Agree/do not agree/(Helpful/Not helpful/ Neutral))
9. Engineering students can study arts and humanities and arts students can learn science. (Helpful/Not helpful/Neutral)
10. Flexible curricular structure will decrease the no. of college dropouts. (Agree/do not agree/Neutral)

Survey on School Education

The questionnaire for parents of school children & school teachers who are parents of as well

1. Do you know about NEP 2020? (Yes/No)
2. National Education policy can bring changes at grass-root level.(Agree/do not agree)
3. Nowadays most of the parents are working. Under such circumstances, would it be advantageous to send kids at the age of 3 to formal schooling? (Agree/do not agree)
4. Though not mandatory in National Education Policy 2020, Do you agree that the use of mother tongue in early childhood education will grasp student interest more than English as a medium of communication?: (Agree/do not agree).
5. Do you agree with the survey result which says a large group of students have failed to attain foundational literacy and numeracy. (Agree/do not agree)
6. Assessment in the preparatory stage will be formative and a robust system will monitor the continuous assessment. (Helpful/Not helpful)
7. Teacher education and the early grade curriculum need to be modified. (Agree/do not agree)

IARJSET

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8. Research have shown one-on-one peer tutoring as an extremely effective way for learning all over the world.Do you agree with peer tutoring for school children? (Agree/do not agree)
9. Do you support reduction in curriculum content in each subject to make space for critical thinking andanalysis- based learning. (Agree/do not agree)
10. NEP 2020 provides the flexibility to the students of choosing different subjects of their own choice. (Helpful/Not helpful)

IV. RESULTS OF SURVEY

Responses received from college & university faculties, graduate and the undergraduate students

The responses received from the college & university faculties, graduate and the undergraduate students are presented in tabular form where series 1 represents agreement or yes to the question and series 2 represents disagreement to the question.

- Approximately more than 89% of the correspondents were aware about the policy which indicates that urban teachers, students and their parents are already properly sensitized about the new policy.
- Replacement of 10+2 structure with 5+3+3+4 structure were supported by 75% of correspondents
- Though 89% of the respondents agreed with 3-4 years duration of bachelor's degree but 10% mention theduration can reduced.
- Most of the students (96%) supported the multiple exits options in bachelor's degree but the facility to beextended to all students irrespective of their financial status.
- Most students liked the duration of Master's programmes 1-year or 2-year.
- Though the multidisciplinary approach was liked by most students but studying of arts along with science wasnot accepted by 45% students.
- Equivalent weightage to Open distance learning (ODL), online programmes and regular courses are not acceptedby 33% of respondents
- Support to socio-economically backward students and implementation of the policy will definitely reduce the number of college drop outs as reflected in the survey.
- Respondents strongly believe that setting of universities in foreign collaboration will boost up Indian economy as well as education standards in India.

Responses of parents of school children & teachers

- 89% of the mothers are in favour of sending their kids/toddlers to formal schools at the age of 3.
- Most of the parents believe that as the child can interact with other children of their age group, it willhelp to develop social skills. Again discipline, obedience and time management skills would also bedeveloped at the early ages. Other view includes improvement of communication and behavior, learning something constructive while playing.
- Most of the parents supported teaching in mother languages at the early ages like 3 to 6 years.
- At early age a child only understand his/ her mother tongue only. Mother tongue helps a child's mental, social, cultural skill development; critical thinking and imagination.

V. CONCLUSION

The analysis of the survey showed that the replacement of the old education policy by the new NEP 2020 has a goodlevel of acceptance to the all teachers, students and parent

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Development of Technology in Education Sector During COVID -19 Pandemic

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Abstract: Education is the process of gaining knowledge, skill and self-development. It helps us to boost up our confidence and our career also. In pandemic time our education is not only bounded in classroom so it is very essential why every government should invest for implementing new technology and evolute day by day. Like Big data, AI Based technology, these kinds of advance technology are use in this field. There are lot of benefits to use this kind of technologies like boring studies become more interesting. With the introduction of technology in education sector it reduces educational costs therefore lots of student can choose various course easily which will help them and thus advancement of technology produce opportunity for students. In this paper we have observed various effect of new technology in educational sector.

Keywords: Technology; Education; Hierarchy; Gamification; Accomplish

I. INTRODUCTION

"Technology" hardly there is anyone in this world who does not know its meaning, so it seems totally useless to explain its meaning. In spite of all this if we have to explain it in simple one sentence, technology means the use of the scientificknowledge in everyday life, to make it more easy, more efficient and smoother. Human mind from the beginning of the civilization was curios. This curiosity brought them towards the one and only truth of the universe- "science".

Throughout the course of time human mind has understood it more and more and utilized it to give birth to technology. Any knowledge is worthless if it has no practical use but in case of technology the matter is quite different in a hypothetical meaning today the earth can't even complete a single rotation without technology meaning a day is incomplete without technology. Technology is here and there around us from our desk to our pocket, it's available in all size and shape like a tiny micro storage device to the big and humongous industrial gadget. These technologies are not so much older.

Studies of mobilewireless technology have been started recently. Luchini et al. (2003) examined the usability of handheld devices in theircase study of using Pocket PiCoMap. Even the research articles are handy and is available to different author, this only became possible because of technology. May be this is enough to make you all understand the diversity and extent of technology.

Our life has pretty much changed now by this technology. Although the application of technology has startedsince very long ago. In 1990s, much research focused on the use of laptop computers in K-12 education. Peacock and Breese (1990) discussed one of the first implementations of portable technologies using word processors for class writing. The researcher thoroughly discussed that technology which we use is a bridge that is continuously expanding and connecting all the things that once we thought impossible and miraculous.

As we know that scientific knowledge is better known as technology. There is another terminology related with knowledge that is "Education". Now this term is also well known for us but hardly any of us know the proper meaning of it. Many of us think that education means to read gather knowledge but it's not that only, education is not just readingbooks, scoring marks etc, education means the transmission of knowledge equally among everyone. Education is not the knowledge you acquired from fat books it means the experience the knowledge you have acquired from your surroundings it may be books, incidents, someone's other's experience etc.

But this also does not mean book learning is not necessary.So, for establishment in this society, it's in fact the most vital form of education. But along with theoretical approach wecan develop our education sector by AI based model and visualization effect which makes learning more realistic and easier for the learners.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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II. RELATION BETWEEN EDUCATION AND TECHNOLOGY

This "Education" and "Technology" has a weird relation between them without education its barely impossible to understand technology and today without technology it is barely impossible to be educated (acquire knowledge). Today's education is incomplete without the help of techs. Just sit in a classroom and look around we can simply spot two or threetechs that are essential for our studies. Technologies main work is to make a task simple and that's exactly why it is usedin education that's much now a days. As we discussed earlier that education means the distribution of knowledge and tech plays a great role in the distribution of knowledge, like in many of our courses there are some books that are essentialbut sometimes aren't available near us or maybe way much expensive but today we can easily acquire those books in form of PDF from many sites easily. Through many video calling or meeting apps we can easily connects with teachers even if they are far away from us. Technology has provided us such opportunities that once were mere imagination for us. 10 years earlier a student can't even imagine of having a degree from a well-known foreign university, but today notonly we can acquire degrees from universities across the globe in low cost but also we can acquire it from our home.

There are many applications present in the market like UPGRAD, UNACADEMY etc. by which you can be able to learnmultiple courses at a time. Tech has brought a big and revolutionary change in the field of education, which is our education system has a complex structure. Only a student associated with science can learn medical or engineering or medical knowledge but today this discrimination has overcome by the help of many apps which gives us freedom of learning anything without judging our background. Thus education system has advanced a lot as compared with previousdays, where initially education was monotonic and hypothetical but now a days technology made education uniform, to all.

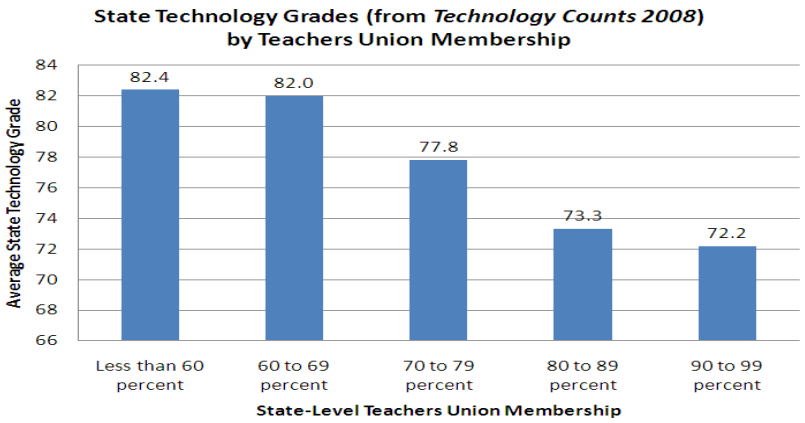

Fig 1. State level teacher vs Average state Technology

Knowledge was there from the beginning of the very first civilization so was the ritual of passing the knowledge. that is from where the concept of education came. In ancient time education was not that uniform only pupils belonging to a higher society can acquire knowledge which was a disturbing fact about education. Studies in ancient times were mainlyreligious studies, home science, warcraft etc. also, in that time education meant sharing of knowledge not many books or manuscripts were there. But the form changed with time, people discovered written form of language they started to read and write. So basically, everything was there so what did tech changed? After the invention of tech human learnt toapply the knowledge, they started practical application of knowledge which was the leap that changed the course of history. Thus, the existence of human is running to become supreme and after they merged technology with knowledge human achieved the success they were looking for. Tech has pushed the limit of education to a extent that we never thought and the best news it it's not finished tech and education is expanding day by day with the help of each other andwould continue to pull of the curtains from the unknown topics until human absorb each and every particle of knowledgepresent in this boundless universe.

III. A HIERARCHY OF TECHNOLOGY ADAPTATION

New things always bring new challenges. Here we are talking about technology adaptation. It is not so easy to cope up with the new COVID situation and handle it to continue the education with the help of technology. But for our own profitwe have to admit and adapt it rapidly. Adaptation happens step by step in teaching and learning process. Changes happenvery sudden and the process of changing is continuous still now. A five-step hierarchical model of modification of technology in the classroom is seen by Rogers (1997). The five steps are-

- Technologies were invented far before the COVID. Many workshops and convention were held to familiarize studentsand teachers with the technology at first. Lifelong learning and training for the workplace cannot be confined to the traditional classroom. Engage in learning always not possible to come to a specific place and learn like those who have to work and study

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Vol. 9, Special Issue 2, May 2022

together most of them require distance learning. To cope with the diversity, complexity, and changing demands for education services, it mustextend beyond the face to-face institutional modality to include distance education, enrichment mass media, and non- formal settings.

New (Information and communication) technologies have brought new potential into the education area, but, at the sametime, they have placed more burden on teachers. They now have to learn how to deal with computers in their classrooms,how to try to win with students in accessing the massive body of information—particularly through the Internet, and howto use the hardware and software to enhance the teaching/learning process. Obviously, teachers cannot be prepared for these unfolding challenges they have to face. One-shot training, no matter how effective and successful, will not sufficefor them. A new paradigm must emerge that replaces training with lifelong professional preparedness and development of teachers are needed.

Importance of technologies in education: There is countless reason why technologies are important in education

- First of all, due to its flexibility, E-learning eliminates fences of space and time so anyone can easily learn something new concept at any free time.
- Technology like audio-visual presentation helps to increase the subjective knowledge.
- It is very easier for both students and teacher to communicate and maintain all the records of students and theirprogress digitized using big data technology.
- Nowadays in the remote area education has been raised because of new technology but earlier it is not possible dueto lack of communication technology.
- It provides student with accelerated learning, innovative methods that help them to deepen their understanding inany matter.
- Improve collaborative Teaching & Using ICT in learning process - Student & Teachers Skills and ICT Literacy byLiu, G. Z. (2008).
- Teaching is one of the most difficult and essential professions in the world. Teachers are serving a critical concept in a easy method that's why the learning is making it more efficient and effective. They hold student's hands throughout the educational journey and they will continue it in future also and these latest educational technologies are helpour teachers also by Bakia, M.

The technology trends in education are most likely not something new but rather essential. In pandemic time these technologies are in crest phase. Here are some most modern educational technology trends that are mostly use those are **Gamification:** Today the use of technology is not only restricted to computer labs but has direct access to smart classrooms. Smart classrooms are also an attractive feature to students as there introduce gamified learning. Using this technology students are learning new things in a fun and interesting way. Acquire technology help students to keep theirinterest in subjects.

Big Data: Nowadays online learning is booming so now we need bigger data base than ever before and big data is that technology where we contain huge amount of data. In educational industry big data contain student and teacher details and analyze those details and track their academic performance. This technology also help teacher providing the studentprogress. Here some of the applications of this technology are Internet of things, information security, gathering rich insights about business, Data warehouse optimizations.

E-learning: E-learning is a platform where education or training delivered electronically. There are various E- learning platforms, E-books, and learning apps available to help students to study over the internet with justa click. By using this technology teacher teach their students live stream or group meetings and it is also recorded form so anybody can access. Education is more accessible than before for students by E-learning.

AI-Enabled Education: This technology pretends human intelligence by using its algorithm or process. Using this phenomena AI has been used in different field to automate heavy task. By Mazurek, G. (2011a) (2011b), there are lots of task done by this technology in educational sector like

Benefits of AI for students

- Personalization, Tutoring, Quick response, Universal 24/7 access to learning.

Benefits of AI for Educator

- Answering questions, Task automation

VR-Based and AR-Based Learning: This field is the most advancement part of technology. The experimental learninginitializes the development of Virtual reality (VR) and Augmented Reality (AR) in education. It helps to learn difficult concepts. For example, when one attending a medical training course VR create a chance for student to understand real-world surgeries in a low-

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risk environment and here an AR based technology example- is Smartphone AR app Photo math allows students to scan a math problem from a physical worksheet, then virtually walks them through calculation steps using animation.

Video Assisted Learning: The pictorial representation of lessons by videos helps students to understand better and increase memory retention power.

Other technologies-

- Blockchain technology
- Cloud computing
- Speech to text
- Social media (Facebook, YouTube, Instagram) and so on.

Approximately for 2 year all schools colleges are shut down because of this COVID-19 pandemic as a result it effects education dramatically. During this pandemic time technology helps us a lot. It plays a very important role in educational sector. This is the very first time in India when education conducts in virtual mood. Every student submits their assignments via pdf or word file not in pen and paper and every teacher teach their content via online platform not on black board.

IV. CONCLUSION

Nothing is constant in this universe everything is relative force, space, time, speed everything just like good and bad nothing is totally bad or good. Even the darkest night brings the brightest dawn behind it. What is the main objective behind saying so? 2 years ago, a global pandemic hit the world, the scene was like a sci-fi movie. mankind had never faced such a calamity before in its entire history. But still everyone fought and recovered from it we evolved with the conditions and find out the way to survive and live our as always normal routine and in this technology helped us. This was the time when we all learned to embrace the technology we have like never before. Modern Tech was available for more than 2 decades but nearly half of the human population had no idea how to utilize them to lead a smooth life but in this time of the pandemic many of us learned to utilize techs. Post pandemic era shows as the result of that learning now nearly 8 among 10 people around us know how to order food or groceries, how to organize meetings on online, how to read books and many more. The biggest evolution the pandemic brought was in the field of education specially in India.

In other developed countries the education system was already digitalize but in India in the pre pandemic era we were still struggling with pen and papers but pandemic changed it all pandemic gave us the opportunity to merge tech and education and it will be safe to say it worked really well. During the pandemic when school and colleges were closed, the education system was standing in dead-end classes were called off everything was shunted down. And that's the time when tech helped us. We started organizing online classes and, in some cases, it was better than offline classes where the teachers had a full control over the internet so topics were easy to teach by showing necessary pictures YouTube videos ppts and so on.

It will not be lie if I say not only many students but also a large group of teachers were technically abled but during this pandemic era more over everyone knew how to make ppts, drafts, how to showcase things in front of a large group of people in the internet etc. after all before this some of us knew internet only as social media. Not only this many universities along with some digital platforms tried to provide skill courses so that anyone can easily be qualified to bag a minimum job so that he or she can't have to face problem. Frankly speaking this were not new inventions these were present between us but our negligence kept those things unnoticed by us. Tech has a immense role in modernizing the education sector in India and it’s not finished yet.

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IARJSET

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Vol. 9, Special Issue 2, May 2022

Use of ICT in Language Teaching

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Abstract: The growth of the internet, e-commerce and information and communication technology have created tremendous opportunities and challenges for both the societies, learning and teaching communities. Information and communication technology (ICT) is also having a profound effect on learning and teaching in classrooms. ICT is one of the most powerful enables which facilitates learning and teaching. The landscape of our schools and colleges today is enormously different from that which we were familiar with during our school and college days. If you visit any school or college you will see students accessing the internet form PCs along the corridors, in the classrooms and in the library. Art lessons are conducted with digital software rather than the brush and the paint.

ICT has opened up a new avenue to the world of education .It provides new tools for teachers and students and opens up the whole world of knowledge. It also allows teaching and learning to take place beyond the traditional boundaries and the resources of the schools and colleges. The educational institutes and the learning centers today have greatly affected according to the new methods and technologies in the classroom situations. The major change is of the use of ICT in the teaching and learning process. There is a need of certain strategy to calculate an actual quality of the learners who are using this technology for their learning process.

Language is the mirror of human life which delineates the life of human. Language speaks man's personality. It is the cosmic medium like imparting the common information society. English and ICT have become essential tools for a number of non-datum and emotions of everyday life. English language has become a global language because of its numerous functions and preferences over several other languages over the globe. English has become the window to the world. English is not only the mother tongue of Britain but also to so many countries like Canada, USA, New Zealand etc. It is also used as second language in many countries like Nigeria, Ghana etc.

The present paper focuses on the review of the use of technology in English language and literature teaching and learning process and e-learning tools. The technology enhanced language learning will obviously help the teachers and the students in teaching and learning process with the desired objectives. It also includes the use of technology such as internet, computer assisted language learning, digital language laboratory. The language teachers can make use of these tools very effectively to facilitate teaching and learning process.

Keywords: ICT; digital software; e-learning; e-commerce; Paradigm, stimulus, explicit.

I. INTRODUCTION

ICT, internet and digital media have been publicly known in a new era in many aspects of our lives and education is no exception to this. Computer, internet, blogs, twitter, web-based learning, e-mail, etc. are being used so extensively in day-today learning especially in teaching English world-wide. With the access of the technologies, both the learning and teaching are facilitated. Learning English through technologies can make students to learn literature too.

E-learning is a broader term than online learning. The uniqueness of e-learning is that, it provides the learner the opportunity to learn anywhere and anytime. The fact is that more than half of the population India today is below than twenty five years of age and the number of internet users is growing very rapidly. We have experienced rapid advances in information and communication technology in the last decade. Such advances have created unprecedented changes in the way we live, learn, educate, work and play.

Because of its interactive and dynamic nature ICT has the stamina to meet the needs of the individual student by providing opportunities to direct their learning and to pursue information. With the usage of ICT students can learn any subject especially English with ease. In the context of the global exchange the role of ICT has become inevitable in the 21st century. The use of ICT has become essential in every day classroom teaching and learning. Its use gives a chance to teachers as well as students to increase the quality of education and meet the requirements set by the coeval knowledge society. ICT has become essential tool for educational change and reform.

Methodology of English has started a new way of using ICT in teaching. ICT provides more opportunities for communication between peer learners. With the use of ICT there is a two-way exchange of knowledge between home and school/ college. The teacher abides key to the successful use of ICT for learning. The integration of ICT in language teaching and learning has become an interesting topic to many researchers and education practitioners.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

II. THE ROLE OF ICT IN TEACHING AND LEARNING PROCESS

The use of ICT in the teaching of English language and literature can make it interesting for teachers and students and revolutionize the way the subject is taught. It can surely make the students alive in the digital classrooms. It can also help the students to grab the opportunity to visualize, discuss, interact and learn. The role of teacher is of immense importance in teaching English language and literature. Above all the use of ICT can definitely help to use different modes of teaching for every genre of literature.
English literature can be making live with the use of audio-visual aids, playing of movies on staged plays etc. Scenes from movies can be shown and interpreted. In every step of our lives the significance of technology is seen and enjoyed in the present era. English is the only language of attraction for many people around the world. Today in the age of globalization, the interest in e-commerce, scientific resources are available in English language only.

Today there is an immense change observed in the process of teaching and learning process world-wide. The new technologies like web based PCs, mobile phones, satellites, computers and internet are helping the teachers and the students to gather and disseminate information which is normally not possible through any other means. The several Universities, colleges, schools, educational institutes and even corporate training centers are increasingly utilizing the disturbed networks and multimedia to supplement or enhance the classroom instructions and to provide open learning. The technology has basically altered how we live and work as well as how we learn. The major initiatives and policy forintroducing ICTs in higher education must be the serious concern today. At present Indira Gandhi National Open University (IGNOU), New Delhi, uses radios, televisions, computers and internet technologies to promote higher education. IIT Kanpur has developed Brihaspati, an open source e-learning platform. IIT Bombay has started the programme of CDEED (Centre for Distance Engineering Education Programme) as emulated classroom interaction through the use of real time interactive satellite technology and One Laptop per Child (OLPC) programme in Maharashtra.The advance techniques of teaching and learning are really a great boon for the teaching and learning community. These new concepts have definitely shaped by the new perspectives nourished by the globalization and privatization in the field of higher education. The students can normally grasp the knowledge and skills of the advanced technologies at ease. In the present context ICTs have created a global village in which we can communicate with each other across the world. In our modern technological society literacy in ICT is unique and fundamental to our life.

Therefore, we must implement and integrate ICT in our language and literature classrooms to equip the students as lifelong learners and global citizens. Language and literature learning does not only occur in the classroom and should not stop after the learners leave the classroom so technological devices should be always used by teachers and students. In order to provide an interaction between language learners, teachers or peer to peers interact connections, tools to ICT,are one of the most popular ways in language and literature teaching. ICT has brought a dramatic shift of education fromteacher-centered to learner-centered.

Computer Assisted Language Learning: CALL is a broad and an ever changing discipline. Beatty defines, CALL as “Any process in which a learner uses a computer and as a result improves his or her language and it covers the wide range of current practice in the field. The internet and different computer applications. Computer Assisted language learning(CALL) software, CD-ROMS ,and Office software applications have become common place in many teaching and learning environments. The computer can act as a stimulus which generates analysis, discussion and writing.

The Internet

The internet offers the best way to learn language other than immersion in an English speaking milieu. The student’s relationship with websites is more noticeable than with print based text. Internet users may return to sites frequently or use internet for interaction to share their information and ideas. Digital technology is rapidly used by pupils and teachersnot only in the classroom but also in the personal life. The internet saves our time and energy. We can learn English lessons through internet without the need of travelling andwithout the need of leaving home or bedroom. With internet students can learn English anywhere at any time and whenever they want. The internet offers instant feedback to the learners which enhance the learning experience of the students. An E-Book is an electronic version of a traditional print book that can be read by using a personal or by using an eBook reader like iPods and kindle. EBooks also used to improve the teaching and learning skills in the classroom. In eBooks teachers and students can add images, info graphics, posters, video, and text, audio and so on. Learners can share eBookswith their friends. EBooks strengthen students’ note making skills, the knowledge of English grammar and application skills.

Baskin and Harris (1995:372) explain, “The first literature heard, not read.”Audio books are not discovery of this centuryor even of the last one considering authentic books as equivalent to its content and not to its format (Baskin and Harris1995:372).Audio books are applicable for English language learners and young people who are craving for learningEnglish with stories. Audio books develop the four language systems; phonological, semantic, syntactic and pragmatic. Audio books are recordings on CD or digital file of a book which are read aloud. “The use of audio books with struggling,reluctant or second language learners is powerful since they act as a scaffold that allows students to read above their actual reading level”(Beers 998:33,Chen Slue-Hsien 2004). Play way

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

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Vol. 9, Special Issue 2, May 2022

is the new arrival regarding audio books .Play waydoes not need a separate players and it is preloaded and ready to use. Webinar is the best example for online learning. Webinar is an interactive seminar conducted via the World Wide Web. Usually a live presentation, lecture or work-shop that , happens in real time as users participate through chatting, video-chatting, file-sharing or asking questions with a microphone. Webinars are more helpful in learning grammar.
Mobile digital devices like laptops, iPods, tablets, smart phones have made English language learning easier .At present there are so many apps available in the App store and Play store (Android) markets. These apps furnish students with quizzes, games, dictionaries, Podcasts and tests. Simultaneously teachers can now constitute the "gasification" element into their teaching which put out interest in the students for a given topic. Mobile apps can perform as a personal 24/7 English language teacher. Some mobile apps which are amending English language learning and teaching are Dictionary.com.

Audio-visual aids

In the 21st century the use of AVA has become inevitable. It has started a new genre in the field of teaching and learning language. Apart from traditional teaching teachers must adopt the topical and innovative teaching techniques.

1 The use of AVA makes the students active.
2 Students can get rid of their boredom and dullness in the class.
3 Provide attentiveness and enthusiasm. .
4. They give clarification about the content in the text book.

Overhead projectors/slides: To make ideas explicit we need some visual aids. Slides and slide projectors are used for unveiling objects in full colour. Overhead projectors are used in language teaching and learning to supplement the black-board.

Tape-recorder/gramophone: This is useful for teaching pronunciation, stress and intonation. Recorded information can be reproduced in the classroom.It gives a chance to the students to develop interest towards pronunciation. It helps the students to test their speaking skills.

The most efficient medium for teaching is television. The television appeals both to the ears and eyes. We can record some language teaching programmers in CD or Cassettes and can telecast them. This shows significant impact on the minds of the students.

Radio and television give us the experience of real world into the classroom. Here teaching is very active process. Television is a companion, entertainer and instructor. Knowledge acquired through films has a lasting effect. We can project some educational films, dramas etc. This can develop the listening and speaking skills of the students.
This is the latest innovation in the language teaching. In this we have sound equipments and projectors, computers etc. which can give the students the practice of listening and speaking.

It has come into light in 2005. It encourages sharing between users. In this we can have variety of applications such as blogs, social networking websites etc. The learners can be encouraged to write their own blogs. Social networking sites like face book, bebop, and flicker have become very popular. These can be useful for language learning.

Mobile phone has also become very essential tool for learning a language. It is a mini computer in every one's pocket. Mobile phones function in many ways like the addition of texting, email, functions etc. as computers do. In mobile phoneassisted language learning we can find portability, social interactivity, community, individuality and immediacy.

Advantages of ICT in English language teaching

The use of ICT has positive effects on foreign language teaching learning.

1. We can get the required information within a fraction of second.
2. Learners become more innovative with the help of e-learning.
3. ICT provides the information to the students which will be useful for them to compete with this competitive world.
4. English lessons that incorporate multimedia applications can exert powerful motivation and provide bored studentswith exciting new ways to learn.
5. ICT can make students and teachers to work with current and authentic sources.
6. ICT ameliorates the learner's interaction, verbalization involvement in group collaborative learning.
7. Students can learn independently.
8. With ICT pictorial description is available.

IARJSET

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ISSN (Print) 2394-1588

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Vol. 9, Special Issue 2, May 2022

III. DISADVANTAGES

1. Students get short span of attention because of the ICT in language learning.
2. Online learning cannot offer human interaction.
3. Intense requirement for self-discipline and self-direction.
4. Communication is taking place between learners.
5. The teacher is only a mediator.

ICT's are intrinsic tools in many educational institutions. The use of ICT increases the scope of teaching. It provides quality learning materials and creating autonomy of learning. Along with academic excellence students must have English communicative skills for their prosperous future. Curriculums must be made easy by including technological aids. Learners can share their work which can promote cultural diversity, have positive motivational effects and raise self- esteem.

IV. CONCLUSIONS

ICT's are intrinsic tools in many educational institutions. The use of ICT increases the scope of teaching. It provides quality learning materials and creating autonomy of learning. Along with academic excellence students must have English communicative skills for their prosperous future. Curriculums must be made easy by including technological aids. Learners can share their work which can promote cultural diversity, have positive motivational effects and raise self- esteem.

The fact is that the totality of the teaching and learning cannot be perceived without the lecture method which consists of moral lessons and the value based teaching. It is not only an impressive method of teaching but also a way to shape the minds of our learners towards the morality, modesty and the character in true sense. Language and literature does not only occur in the classrooms and should not stop after the learners leave the classrooms. So, technological devices should be always used by the teachers and the students.

The tools of ICTs are of the most popular and useful ways in language and literature teaching. To sum up, ICT is form of advanced science and technology which must be optimized function, especially in the implementation of learning. ICT provides opportunities for students in the era of global competition needs to obtain adequate supplies. Through innovative ICT-based learning can provide vast opportunities for the students to hone and promote competence on an international scale.

Therefore, whichever tool you will use as a teacher should be useful and more suitable which will enhance teaching and learning process. Though ICT has many advantages and provides opportunities in the era of the global competition, it has many disadvantages too. It might lose the intimacy between the teacher and the learners. Eventually, the use of ICT in teaching and learning process of English language and literature definitely increase the competence of English.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Pioneering Innovative Pedagogy through Adaptive Teaching and Stealth Assessment

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Abstract: Pedagogy signifies the way of teaching individuals, whether it may be theory or practice of educating. It is a relationship between the culture and techniques of learning. The main aim of pedagogy could be stated as to work on the developmentof skills and attitudes of the learners. Pedagogy is the art of teaching which has been arched in various directions to suit the learners' conventions. In the 21st century where every pedagogical process is being digitized and not methodical, is it really still innovative or rather effective. It would be innovative if the process of teaching could bend every time according to the listeners' distinctions, that is if it could adapt itself to the requirements of the students. So an effective solution to that would be adaptive teaching and stealth assessment system through which the teachers will adapt themselves, be it digital or non-digital, according to the students' needs to provide a suitable environment for learning and implementation of the acquired knowledge. Also a cumulative stealth assessment of the learners' performances would provide a more accurate knowledge of the type of adaptation to be utilized to make learning more engrossing, associatingand compelling.

Keywords: Pedagogy; students; adaptive teaching; stealth assessment; environment; technology; digital; learner.

I. INTRODUCTION

Adaptive learning systems endeavor to transform the learner from passive receptor of information to collaborator in the educational process. Adaptive learning or intelligent tutoring has its origins in the artificial-intelligence movement and began gaining popularity in the 1970s. It is an educational method which uses digitized algorithms as well as artificial intelligence to orchestrate the interaction with the student and deliver customized resources and learning activities to address the unique needs of each learner but the first teaching machine actually dates back to 1924, when Ohio State University professor Sidney Pressey built the Automatic Teacher. The first device in electronic learning, it allowed students to drill and test themselves. This could also be done physically or non-digitally by the instructor.

II. A CHRONOLOGY OF DEVELOPMENTS IN THE FIELD OF ADAPTIVE TEACHING

- **1956**- Gordon Pask and Robin McKinnon-Wood develop SAKI, the primary adaptive training gadget to enter business production. SAKI taught keyboard competencies and it optimized the charge through which a trainee keyboard operator discovered by means of making the issue level of the obligations contingent on the learner's performance. Because the learner's performance progressed the charge of coaching expanded and instructionalhelp turned into behind schedule.
- **1992**- C. Thomas and M. Krogsaeter describe an adaptable extension to Microsoft Excel known as Flexcel. Flexcel records and research the person's command history using Excel and "analyzes the user's interplay fashion and offers variation tips." (p. 123) as an instance, this system notes whilst a person repeatedly fails to make useof an to be had shortcut and reminds the consumer approximately the possibilities of the shortcut.
- **1996**- S. Bhavnani and colleagues describe an Active Assistant for Computer-Aided Design (CAD) programs, for which they constructed a prototype version. The Active Assistant records the history of a CAD user's usageof the program, and monitors for "symptoms of suboptimal and incorrect CAD usage" (p. 253). Upon discovering such cases, it might provide "textual notification that there is a better way to perform a task executed by the user" (p. 251) or it might provide "graphic remediation" utilizing a tutorial window.
- **1996**- Microsoft introduces the office Assistant—regularly called "Clippy"—to offer personalized help within the use of workplace ninety seven merchandise. Relying upon person-set options governing Clippy's conduct,the lively agent can provide a ramification of types of advice to customers, primarily based on inspection of theconsumer history and contrast with surest prototypes. Clippy turns into extraordinarily infamous amongst a fewoffice customers, who whinge that the agent is

IARJSET

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Vol. 9, Special Issue 2, May 2022

intrusive and annoying.

- **1996**- Oppermann & Thomas describe an approach for Supporting Learning as an Iterative Process where users of an application to be learned can acquire usage knowledge iteratively by experience, annotations and individual or cooperative recourses to prior knowledge.
- **1999**- F. Linton describes the OWL (Organization Wide Learning) undertaken on the MITRE business enterprise in Massachusetts, u.S.. In OWL, all the pc customers inside an employer run software program that keeps song of the Microsoft office commands they issue. With the aid of pooling and evaluating the command histories of different customers, OWL can "advice to each person man or woman decided on phrase features that their friends have already located useful." (p. 2). The prototype of OWL became constructed the use of visible fundamental and statistics all workplace instructions given via the consumer, along with with the mouse.
- **2001**- Oppermann & Specht describes a Context-sensitive Nomadic Information System that supports learning by adaptive information about museum exhibits while roaming through a museum.
- **2001**- Microsoft demotes the Office Assistant to a subordinate, non-default status within the Office XPapplications
- **2006**- Fujitsu organisation files a US patent utility (#20070092857) on a "method and equipment for helping education, and pc product." The application claims that Fujitsu invented the concept of "An equipment for helping training for the use of an application application, comprising: an reading unit configured to investigatea report of usage of capabilities inside the utility software primarily based on an operation history of the application application; and a generating unit configured to generate records regarding the education based ona result of analysis via the studying unit."

III. THE ESTABLISHMENT OF STEALTH ASSESSMENT

According to Retro Gamer's John Szczepaniak, the first stealth game was Manbiki Shounen (Shoplifting Boy), published in November 1979. The PET 2001 personal computer game evolved through Hiroshi Suzuki and includes a boy coming into a convenience store and attempting to shoplift by stealing "$" symbols at the same time as averting the road-of-sightdetection of the owner. If stuck, the participant is led away via the police. Suzuki supplied the game to developer Taito, which used it as suggestion for their similar stealth arcade sport, Lupin III (based at the manga and anime of the identical call), launched in April 1980. In November 1980, Suzuki advanced a sequel, Manbiki Shoujo (Shoplifting woman).

Citadel Wolfenstein, at the beginning available in 1981, employed stealth elements as a focal point of the gameplay. Gamers had been charged with traversing the tiers of fortress Wolfenstein, stealing secret plans and escaping. Gamers could accumulate uniforms to conceal themselves and walk with the aid of guards undetected. Past fortress Wolfenstein,released in 1984, covered a few additions to its predecessor, along with a dagger for near-variety kills and a greater emphasis on disguising in enemy uniform. Id software program's updated 1992 remake Wolfenstein 3D become originally going to feature some of the authentic's stealth gameplay, which includes body hiding, however this was reduce to make the sport faster paced. Because of those changes, Wolfenstein would rather pave the manner for later 3-d motion games,specifically first-individual shooters.

In 1981, Sega released an arcade recreation called half in which the participant's project is to take a briefcase of mysteryfiles to a ready helicopter at the same time as keeping off enemy flashlights and use containers as hiding spots. 0.5 holds the Guinness international report for being the first stealth recreation. In 1985, Durell software launched Saboteur, a sport wherein the player controls a ninja who has to infiltrate a facility and find a disk whilst heading off or defeating protection cameras, guards, and puppies. Retro Gamer has known as this "the original stealth game" Mindscape's Infiltrator, launched in 1986, mixed a flight simulator with a stealth-based "floor project". In this ground challenge, the protagonist attempts to sneak into enemy territory the usage of fake IDs to keep away from detection and knock-out gas to incapacitate enemies. The purpose of this venture is to image mystery documents even as avoiding alarms.

Hideo Kojima's metal equipment, launched in 1987 for the MSX2 and the Nintendo enjoyment gadget in 1988, applied stealth factors within a movement-adventure framework, and changed into the primary mainstream stealth game to be released on consoles. Because the MSX2 changed into no longer to be had in North the us, handiest the NES version changed into launched there. Steel equipment positioned a extra emphasis on stealth than other video games of its time, with the participant man or woman stable Snake starting without any guns (requiring him to avoid war of words until guns are observed) and having restrained ammunition for each weapon. Enemies are capable of see Snake from a distance (using a line-of-sight mechanic) and listen gunshots from non-silenced weapons; safety cameras and sensors are placed at numerous places, and a security alarm sounds each time Snake is spotted and reasons all enemies on display screen tochase him. Snake could also cover himself in enemy uniform or a cardboard field, and use his fists to fight enemies. In 1988, Infogrames posted Hostages, every now and then called Rescue: The Embassy project. Certainly one of the sport's3 fundamental segments required gamers to prevent searchlights by using rolling and ducking into doors. Gamestop haslocated that the sport "set critical grounds and ideas for destiny stealth/tactical shooters," noting the game's use of deadlines, cover mechanics, and checks of reflexes.

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

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Vol. 9, Special Issue 2, May 2022

The sequel metal gear 2: stable Snake became launched in 1990 for the MSX2. It in addition advanced the stealth gameplay of its predecessor and brought most of the gameplay factors present in metallic tools stable, inclusive of the 3-dimensional detail of peak, allowing gamers to crouch and crawl into hiding spots and air ducts and under desks. The player could also distract guards via knocking on surfaces and use a radar to plot ahead. The enemies had stepped forward AI, including a forty five-diploma discipline of vision, turning their heads left and right to peer diagonally, the detection of diverse extraordinary noises, being able to flow from screen to display screen (they have been limited to a single display screen in earlier video games), and a three-phase protection alarm (wherein reinforcements are referred to as in to chase the intruder, then stay in search of sometime after dropping sight of the intruder, and then depart the location). The sport additionally had a complex storyline and progressed pix.

Merits of stealth assessment

Stealth assessment is a method of performance based assessment that, which is not a direct examination system(neither written nor vocal), could be implied by engaging learners in engrossing activities like educational games or videos and asking assessing questions using it, this could provide a detailed information on the progress, understanding and critical thinking of the students. If we were to go by historical sources, then exam assessment system was introduced by an American businessman and philanthropist known as Henry Fischel somewhere in the late 19th century. However, some sources signify the invention of standardized assessments to another man by the same name. Later it was modified and branched into various methods such as stealth assessment. Using adaptive teaching and stealth assessment at the same time for teaching the students could prove to be a revolutionary development in pedagogy history.

IV. ADAPTIVE LEARNING SYSTEMS

Adaptive learning systems have traditionally been divided into separate components or 'models'. Most they have the models with these names or they are tweaked a little bit as follows-

i) Expert model – The model with the information which is to be tutored;
ii) Student or pupil model – The model which tracks and learns about the student;
iii) Instructional model – The model which actually conveys the information;
iv) Instructional environment – The user interface for interacting with the system

Why should we implement adaptive learning along with stealth assessment?

There are various ways to implement this pedagogical method as is significant from its given name. The word adapt means to make it suitable through alteration which means the system will adapt to the situation concerning the particularindividual to make them understand a certain topic more profoundly. Overlapping adaptive teaching process along withthe stealth assessment method could prove to be an intensively progressive method for the development of pedagogical methods throughout the world as the adaptive teaching will keep the students learning along with increasing their capacity to understand, to think, to reason and to concentrate while the stealth assessment process will accumulate data on regular basis without informing the learner to keep an update so that the method of teaching could be changed to better adapt thelearner.

Examples to increase transparency of the methods of teaching

So to make the method more transparent let's consider an example: the most relatable example would be the pandemic situation, during which our whole education system was digitized, I would like to know how many students gained actualknowledge during this period. I assume it was below 10%. The problem was not with the digitization, apart from the technical issues that were intentionally or non-intentionally created, rather the problem was the environment in which wewere learning.

Another example would be if we were to teach a deaf and dumb person the teacher would require the knowledge of signlanguage or the use of kanji Chinese pictograms which are vivid examples of adaptive teaching along with the cumulative analysis of the students performances on each particular day will voice out the better method of teaching. Also assessingthe student only once will leave the assessment incomplete so the evaluation tests needs to be done on a regular basis fora clearer result. The environment of the student decides how much knowledge could he soak up, this could be comparedwith situation such as if a person who prefers rainy or cloudy days over sunny days was made to walk 1km on a sunny day would feel more worn out than if he were to walk on a windy or cloudy day, maybe he could even walk an extra mileon a windy day as he prefers such weather.

V. CONCLUSION

Adaptive teaching helps in finding a more suitable method for imparting knowledge while stealth assessment using dames or other methods could realize the strengths and weaknesses of the individual without informing them which keepsthe evaluation more true and error-free as the students will not feel any anxiety that they feel during normal examinations.

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IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

International Conference on English Language and Literature in the Pedagogical Perspective: Embracing the Landscape Shift through Innovative Practices - ICELLP 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, May 2022

Educational games as an effective learningmethod

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Abstract: Education is an inevitable part of everyone's life. Now a days instead of traditional ways of learning, there are lots of innovative methods that has been incorporated in teaching methodologies by teachers across the world. However, 'The zeal to learn' is the main tool of every learner to achieve their goals in life. So, in this new era of digital learning, everyoneis behind that interest to learn quickly and effectively. Enticing the ideas of quick and effective learning introduction of educational games as a different approach in the teaching methodology has been introduced. Even the introduction of new technologies in the world, compelling learners to find out some different methods of learning. This research paper reveals about learning by the help of educational games, it's influence and uses on the learning process. This paper also gives an overview about some serious games and considers which skills and abilities can be achieved with it.

Focus of this study: This study investigated the following research questions:

1. Do instructional games augment learning?

2. How game mechanics impacts learners learning pattern and mindset?

3. How 'gamification' or game-based learning can be considered as a better option than traditional classroom- based education?

Keywords: educational games; games for learning; game-based learning;

I. INTRODUCTION

Today's learners are digital natives. The external influence of gaming. Each game has different effects on human brain. But some common and key effects of games can be used in pedagogical prospect. Serious games are stimulations of real events or processes designed to solve a problem these games are effective teachingand training tools for students of all ages because they are highly motivating and convey concepts and facts from many subjects very efficiently. Serious games offer a rich field for risk free active engagement with serious intellectual and social problems. Other educational games such as Word Scramble, Scrabble, Sudoku etc. can improve different knowledge levels and skills of learners.

More over this kind of educational game-based learning is a sign of creativity toadopt the new strategy to enrich students' learning experience. In particular, learners can use these educational games forexperimental learning to develop their decision making and problem-solving skills in a dynamic learning environment. Additionally educational game-based learning gives instant feedback or results to the learners instead of receiving delayed feedback from traditional assessment method such as test and examination. Also, some level of pedagogical games can help to reduce constraints such as time and place, as wearable devices can allow students to study and learn anytime and anywhere. These easy-to-use tools can make difficult topics easier to understand and memorise. As games are challenge oriented, so students are going to develop challenge taking and self-learning capabilities.

This kind of educational method help auto-evaluation of the student in every step. By analysing different learning curves of various students, optimal learning techniques can be determined for different students and rest of the learning path can be decidedon the instance accordingly. Interactive and conversational games will help learner to improve communication skills. Word games like Scrabble can assist to improve stock of words while mind games and puzzles develops creative thinking. Mathematical games such as Sudoku helps a person build strong mathematical and logical concepts as the game is entirelybased on logic theory and the placement of numbers in a particular format or combination. Even if the students' attentionand concentration can increase with age, it is important that the students' motivation to learn remains at high level. The following data of a survey (Fig. 1), which was conducted on August 2020 by Irene Picton, Christina Clark and Tim Judge, showsthat, typical method of education results lack of attention in student, where they prefer playing video games over readingbooks.

IARJSET

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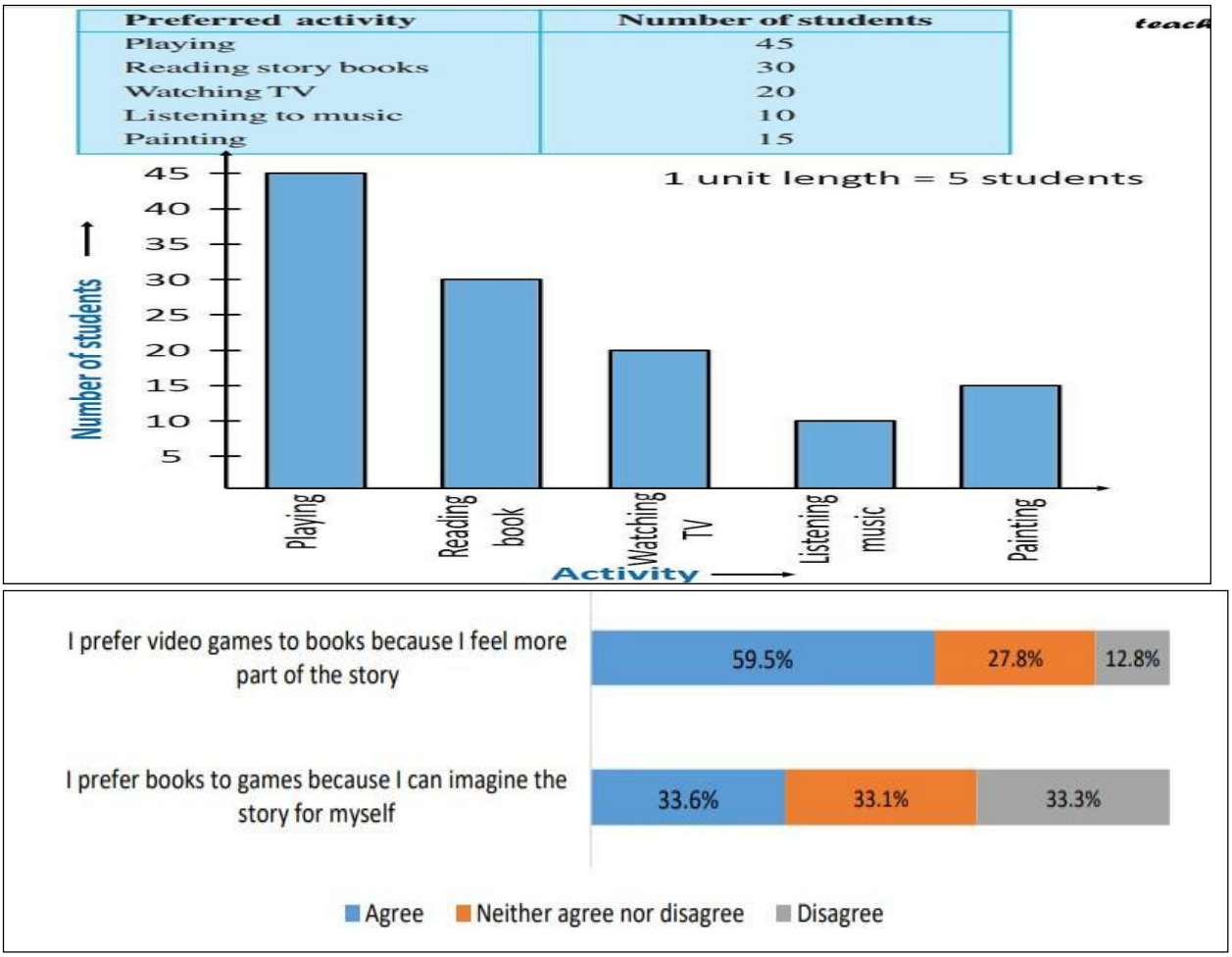

Fig. 1 No of students vs activity preference

Another survey shows that, students prefer playing rather reading books. Indepth and practical impact of game of based education in different serctors are mentioned below.

Linguistics: Games like 'Word Scramble' which can help to improve 'Word' recalling capabilities by 67inimizing67 learner to construck a words with a given starting alphabet. A game called **'Scrabble'** where player have to guess words by seeing these kind of games helps build strong dictionary and helps to explore unknown words. There are several graphic games for juniors, where they learn new words, grammer, preposition etc. by relating with picture. Vocabulary and pronunciation challenges improves speaking skills effortlessly.

Mathematics: Mathematics is a great field to implement game based learning. There are several online and offline games which teaches student to do calculation in faster and efficient way. Geometrical games helps students to 67inimizin different geometric shapes and it makes 3D geometry and easy topic.

Statistics: Bar Graph and Pi-Charts can be 67inimizing just by few moseclicks and keystrokes, using modern online statistical games.

Geography: Mandatorily game need not to be a digital one. Board games like 'Indian Safari Junior' can help students to explore about geographical mapping of different locations.

History: Specific computer games helps to 67inimizin un-witnessed past or history, by interacting with the virtual world learner can explore different historic places without spending and stepping out. Visual storytelling historic games helps learner to memories events efficiently.

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Science: In this vast field, games are being integrated everywhere for ease of understanding of different concepts. Different virtual-lab and simulation games can be used to teach complex experiments by 68inimizing risk factor like physical harm. Different space exploration games help learners to explore numerous cosmos articles and topics related to astrophysics.

Logical: Puzzels and the best example of logical games. Logical games elevate critical thinking and reasoning skills. Game such as Chess, intensify strategic and expeditious thinking.

General Knowledge: Trivia games plays an important role in education for all age learners. This quiz based games increase general knowledge and tricky questions improves IQ.

Fitness: Fitness is the part of physical education.
That is why, outdoor games cannot be neglected as educational game as it helps to

This paper contacting deliberation about **"Death On The Nile"**, a game based on a novel of Agatha Christie, and it's impactful relation with education. It is a crime investigation game, to solve a confined mystery, the player have to examine different evidence to uncover hidden clues, which will boost concentration power and active thinking. In one level, player have to question suspects to uncover more clue, by doing good communication skills and vocabulary will be made. Throughout the storyline payer will explore new words which can be a great essence for communication skill.While moving in the flow, player will flourish great imagination skill which will not only help to over levels in the gamebut also will make a great impact on real life challenges. This game can be played in groups, which will improve team working capabilities. "Death on the Nile" a seek and find game with good story-line help to keep memory sharp. Overallit is a great game for 'Explorative Learning'.

In this period of financial, economic, and social crisis, citizens must be ready to face the challenges of the future and individual values of each citizen must be linked to those of society as a whole. Educational games are the perfect tool toachieve and convey the goals and values attractively and efficiently.

II. GAME MECHANICS AND IMPACTS ON EDUCATION

Game mechanics are the rules that govern and guide the player's actions, as well as the game's response to them. A game's mechanics thus effectively specifies how the game will work for the people who play it. There are several common and key features of games which can be used effective teaching and learning.
Mechanisms:

A. Rewards

Points: Based on learner's (players) performance for a particular level, points are delivered instantly. This helps for instant assessment of the learner.
Badges: After overcoming a certain level of hurdle, learner receives a badge. It makes learner more confident about themselves and keep them motivated for facing upcoming challenges.

B. Loyalty

Exclusive Rewards: By completing certain assignments, learner obtain exclusive rewards, such ascertificates, special levels for enhancing their knowledge.

C. Status

Leaderboards: Comparing ranks of same categoric learners', one can self-assess themselves which makes them competitive thinker and it also helps teachers for having better understanding about amplitude of different learners.

Points: Points obtained by the learner for a particular level, helps teachers to know efficiency anddeficiency of the learner for a particular level.
Badges: Comparison of obtained badges among same category of learners can be used to analyse learner'sunderstanding about the certain level.

D. Purpose

Every level is made of a certain purpose, either for teaching or assessment.

E. Connections

Loyalties of a student helps to build connection with other same category students, which is helpful for building team and strategic works.

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Fig. 2 Games and impact on education

III. TYPES OF GAMES IN EDUCATION

Based on the mode of a game, it can be categorised into two sectors: Virtual Games and real Games
According to the nature of the games, it can also be categorised into multiple sectors. In the following section, impacts of different sectors of games in pedagogy has been discussed.
Simulation Games: Simulation games are the serious games. Learner can learn complex and risky topics, without having risk of physical harm.

Example 1: Virtual laboratory games helps learners to perform and build understanding for different risky experiments without exposing physical body to the danger.
Example 2: Circuit Simulator can be used for experiments with high voltage circuits, where minor experimental fault can lead to severe harm.

Combat Games: Tackling multiple targets at a time can help to develop good 'Hand-Eye' coordination and onsciousness of surroundings, increases focus, which helps in real life.

Exploration Games: Exploration and detective games, sharpens mind, develops imagination power, improves critical thinking capabilities and make learners more focused.

Board Games: In general board games are real multiplayer games. Multiplayer games improve interaction and communication skills. Different board games having different impacts on pedagogy

Example 1: Chess, a board game which develop perspective, improve memory, boost planning skills, increases self-awareness.
Example 2: Scrabble, a game where player have to form different meaningful words. It teaches vocabulary, strategy, encourages social cooperation and bonding while playing with opponent.

Auditory games: Verbal or auditory games build good instant thinking skill, which is often helpful real life critical scenarios.

Example 1: Antakshari, it is a spoken parlor game, where player have to think about a song starting with the ending alphabet of song sung by the last player. This multi-player game increases memory recalling capabilities, boost communication skills and develops thinking skills.

Puzzles: Puzzle are made for making memory and observation sharp.

Example 1: Jigsaw puzzle, a great mental exercise tool which improve visual-spatial reasoning, improve short-term memory, IQ and problem-solving abilities.
Example 2: Rubik's cube, to solve it player need to learn different algorithms which improves memory, makes conscious about their steps while doing different moves to solve the cube, keeps mind active and helps to stay focused while being patient. Solving cube regularly helps to develop better reflex and muscle memory.

IV. GAMES IN DIFFERENT DOMAINS OF EDUCATION

Literature: Literature Games and Vocabulary Games are fun ways to expand knowledge of the English language, There are several virtual and classroom games which are used to improve reading and listening skill. Special audio-visual games help child to learn in interactive, fun and fast way.

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Maths: While game is combined with maths, complex equations are visually simplified. Different softwareteaches learners maths in an easy and efficient way. Games such as 'Sudoku' boost logical thinking and pattern building capabilities. Good practice of some games can make help learner to do calculations quickerand smoother.

Science: Virtual lab and simulation software are the fun, safe and interesting way to gain in-depth knowledge about topic and perform experiments. Curious minds can tweak any experimental thing to learnabout a new outcome, while being in a safe zone.

History: In general, most learner consider 'History' as a boring subject. But visual storytelling and fun game such as 'The Oregon Trail', 'Civilization VI', 'Victoria II' etc. makes history interesting for learners.

Geography: Without traveling physically some virtual games can take one anywhere. It helps to learn about different places and the cultures of the residents. Classroom games such as 'Map finding' motivates user to explore different places in a map, which escalate memory power and can make one fast thinker.

Reasoning: Logical reasoning skills are essential for our daily life so it is important to put them in practicein order to keep your mind healthy and active. Good practice of virtual reasoning games keeps mind sharp,some game teaches different and interesting shortcuts for solving reasoning problems. Several mobile application based games offers different logical and reasoning challenges with instant solutions.

General Knowledge: Online trivia or quiz games boost IQ, improve knowledge better, keep learner updated.

V. BRIEF PEDAGOGICAL IMPACT ANALYSIS

Based on British writer Agatha Christie's detective fiction novel 'Death on the Nile', a game has been developed, whichhaving a considerable amount of impact on player in prospect of pedagogy.

A crime investigation game, to solve a confined myestrey, death of a rich heiress, the player have to examine different evidence to uncover hidden clues as detective Hercule Poirot. There are 12 challenging investigation levels and 24 rooms with hidden clues. These challenging levels sharpens critical thinking and teaches about different real lifechallenges and make learner bold to face them. While finding hidden clues, focus and concentration power increases and with good imagination skills clues can be discovered while improving observation power. Interaction with 20 unique characters, each with their own motives, makes player learn about human psychology and help to decode thoughts of people. The blend of mystery and suspense makes brain patient. The game can be played in groups while parallelly upgrading team work capacities and mutual understanding.

VI. PSYCHOLOGICAL IMPACT

Virtual pedagogical games keep learners entertained by blending fantasy with education, whereas *Real pedagogical games* develop communication skills and creativity. Playing games, effect different hormones secretion in body, which improves mental and emotional stability. Winning a game makes player happy, which motivates to do self-learning to face unknown upcoming challenges.

VII. CONCLUSION

Fusion of games and technology, can be used for smart, efficient and adaptive learning. Integration of Artificial intelligence with educational games, can be used for obtaining learning curve based on learners' performance. As everybody having different learning patterns, obtained learning curve will help for effective curriculum planning for a particular student for best possible learning experience.

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