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# Digital Transformation In Education: Application Of Artificial Intelligence In TLE- A Study On Select Government Autonomous Degree Colleges In Telangana State

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**ABSTRACT**

The technological advancements and emergencies have been expeditiously changing the quality of human life and their working ambiances and pathways. The COVID-19 pandemic like catastrophic have vehemently recognized the use and acceptance of online and digital modalities in Teaching, Learning and Evaluation in education, more particularly in HEIs. Digitalization phenomenon has penetrated into deep roots and has been catering the needs and requirements of every sector, field and domain as the transformative reform. Education is not an exception to reap its return depending on this globally accepted emergence. In this technological landscape, the role of Artificial Intelligence (AI) is crux and pivotal. Higher education in India as third largest in the world and key socio-economic device ever embrace the technological innovations and competing with first line developed countries of the world.

Artificial Intelligence is a catalyst of Innovation and pedagogical advancements. AI Algorithms and educational robots are integrated into Learning Management System. NEP-2020 aligns it at all levels of education. AI solutions play significant role in analyze class room behaviours and improve teaching qualities. Incorporating smart devices of AI's subsets in science classes can enhance students' satisfaction and instructional effectiveness. Evaluation of students and teachers performance, preparation of final reports and records and submission of plans and proposals by the personnel of high helm of HEIs, made easy and convenient by applying AI tools. Keeping this proactive and positively contributing phenomenon in the view, the researchers has made his attempt to find the real participation of AI tools in TLE of select Government Autonomous Degree Colleges of Telangana State. The other important objectives of the proposed study are to find out the digital transformation level, its impact and satisfaction ranges of the Students and Teachers in select Colleges with implemented digitalization ambiance.

Considering those objectives, the present study has planned to make more intensive investigation on the digitalization prodigy. Researcher's empirical evidences, administering the questionnaire, conducting surveys and initiating personal interactions with the select 100 sample respondents of each, teachers and students chosen conveniently from Two Government Autonomous Degree Colleges each of Hyderabad, Siddipet, Warangal, Khammam and Karimnagar districts (20 Teachers and 20 Students from each district)

were part of its methodology. To make the study more reliable the respondents were further categorized with socio, economic backgrounds in addition to their demographic character. At the end Simple statistical tools like tables, averages, percentages and non parametric techniques were further used to compile, analyze the data and to draw the inferences thereon.

Therefore from the study it could find that the occurrence of digitalization brought significant qualitative change in TLE of all selected Colleges. From this study it is found that 91% of Teachers and 89% of Students were shifted to digital tools for their educational requirements. 55% of Students and 71% of teachers were extremely satisfied and accommodative with the transformation. 92% of students and 56% of faculty belongs to the communities, other than forward community. Almost all COEs have been using any one of the AI tools for their operational, tactical and strategic requirements in their offices. However the researcher has observed the need of more orientations and training programs on AI usage for the teachers and students. Eventually felt that cost, infrastructure, human bondage, reliability and industry collaborations are a few concerns to be addressed, in the days to come.

**(Key Words: Digitalization, AI, HEI, TLE and OSDE)**

**"The only thing we know about the future is that it will be different"-Peter F Drucker**

**Introduction:**

The technological changes and evolving emergencies of science, innovation and education have been expeditiously changing the quality of human life and their working modalities. The COVID-19 pandemics like catastrophic and economic crisis across the globe have seriously recognized the use and acceptance of digital platforms in every sector. However the recent research in the field of higher education witnessed the need and significance of digitalization phenomenon has quite demanded. Higher education is a very important sector for the growth and development of human resources which can take responsibility for social, economic, and scientific development of the country (Carnoy. M 1999). India envisions itself as one of the most advanced and enlightened nations by 2047, with a USD 30 trillion economy supporting a population of about 1.67billion. India will become a developed country if we grow cumulatively by 24% in the manufacturing sector and 70% in the service sector (Ganapati D Yadav 2025). For this government policies to transform various sectors are crucial. The transformed Higher Education in this connection will play spearhead role, as it is the mother and fuel supplier of all sectors. Hence to be the inspiring source and resource to different sectors the digital transformation within the education is inevitable.

**Digital Transformation in Education:**

Deploying and integrating technology, science, innovation and advancements of engineering in to core areas of education, i.e. Teaching, Learning and Evaluation besides Research and Administration of higher educational institutions is known as digital transformation in education. Revamping of conventional and conservative pedagogy by using digitalization tools and devices like online platforms, Virtual Realities, Data Analytics and Artificial Intelligence are paramount. It is plausible and highly accepted that the digitalization of education certainly creates an interactive ambiance, bridge various gaps and mentor students for their better future through HEIs. Digitalization phenomenon has penetrated into deep roots and has been catering the needs and requirements of every sector, field and domain as the transformative reform (Johnpaul M and Ravi Aluvala 2024). However as holistic approach the true digital transformation involves technology, people (teachers, students, and parents), institutions, and supportive policies, aiming to create student-centered learning communities rather than just digitizing old methods.

**Artificial Intelligence in TLE:**

Higher education has positively proportionate relation with any state's GDP, Health indicators, industrial growth and multifaceted development. The paramount objective of education in any country has been the development of the individual in many facets (Dr. Gopala Sudarshanam 2016). Technological innovations like Massive Open Online Courses (MOOCs), ICT based teaching and application of Artificial Intelligence (AI) in TLE is the need of the hour and Technology has become key component. Hence Artificial Intelligence (AI) is technology that allows computers and machines to simulate human intelligence to perform tasks like Learning, Reasoning, And Problem-solving. Unlike standard computer programs that follow a rigid set of **"if this, then that"** instructions, AI is designed to analyze vast amounts of data, find patterns, and improve its performance over time based on experience. 'AI' crux of the 'Technology Landscape', penetrated into many fields, Education is not an exception. 'AI' as flagship program filling the gap between theory and application. This phenomenon enables the learners Diverse Learning Styles. No doubt the advent and intervention of AI has been reaping varied returns in HEIs. With reference to the personalized Teaching Learning and Evaluation its contribution is immense. However it is to be treated as **'An Adjunct'** to the traditional Human to Human Interaction.

**Brief profile of Government Autonomous Degree Colleges in Telangana State:**

Several Government Degree Colleges (GDCs) in Telangana have been granted autonomous status by the University Grants Commission (UGC) and later approved by the parent universities. This allows them to design their own curriculum, conduct exams, and declare results independently, while still being affiliated with state universities. The State of Telangana has 22 Government Autonomous Degree Colleges (DOST 3-5-2024), offering varied programs under CBCS. They are located at prime districts like Hyderabad, Warangal, Khammam, Karimnagar, Nizamabad, Nalgonda and Mahaboob Nagar and affiliated to the respective region's universities. Commissioner of Collegiate Education, Hyderabad is its apex monitoring, guiding and regulating department. Students admission process will be undertaken through DOST (Degree Online Services, Telangana) platform. Almost all the colleges are integrating their TLE with technology embedded methods, pedagogy and administration. Onscreen Digital Evaluation (OSDE) is common mechanism of students end semester examinations performance evaluation by them.

**Statement of the Problem:**

Appreciable amount of research work has done on the broad area of higher education and its allied areas like transformation of Higher education in India, role of various agencies in the development of Higher education and challenges and opportunities of higher education in knowledge based economy. But the present study is aimed at examination of digitalization in education and application of Artificial Intelligence (AI), one of the tools of digital transformation in TLE process in HEIs. AI usage in higher educational institutions like IITs, IIMs and NITs were seen and felt at accelerated level and still augmenting to the peaks. But AI application and usage in conventional Government HEIs is meager and slow in phase. Considering this gap into account the present study has planned with a few structured objectives.

**Literature Review:**

To identify the research gaps and present certain conceptual frameworks, following a few previous studies have been studied and recorded their essence.

**Mr. Athul Kumar Ahirwar and Ms Swetha Pandy (2026):** in their paper titled 'India's Journey towards Developed Nation Status: An Analysis of Viksit Bharat 2047' examined India's preparedness for this transition by analysing its current economic, social, and institutional conditions in relation to widely accepted development indicators. The findings highlight India's progress in areas such as economic growth, digital expansion, infrastructure development, and social welfare initiatives during the Amrit Kaal period. However, the study also identifies persistent challenges, including income inequality, employment constraints, skill mismatches, regional disparities, environmental stress, and governance-related limitations.

**Dr. Kabindra Singh Rathour, Dr. Sandeep Gangwar.et.al. (2025):** The Research Article titled ''Role of Education in Shaping Viksit Bharat' have opined that Education will be a big catalyst for driving India's growth and development in the Amrit Kaal. Knowledge, wisdom, creativity, motivation and encouragement are prerequisites for a successful education system. The Viksit Bharat Vision 2047 will be achieved only when every stake holder of higher education will align themselves in line with vision and Mission of the phenomenon.

**Vishnu Gupta and Princy Singh (2025):** published a book titled, 'Impact Of Digitalization on Viksit Bharat 2047: A Comprehensive Analysis', have conveyed digitalization serving as a cornerstone for this transformation. Their findings emphasize the need for strengthened digital infrastructure, inclusive policies, and sustainable practices to realize Viksit Bharat 2047. By leveraging digitalisation strategically, India can unlock significant opportunities for inclusive and sustainable development.

**Dr. Rekha Venkateshwarlu and Rekha yashaswi (2025):** in their study titled 'The Impact of Digital Transformation on Education and Healthcare Development in Telangana A Pathway to Viksit Bharat 2047' have highlighted the Digital transformation as a catalyst for socio-economic progress and sustainable development. The paper was investigated the critical role of digital transformation in advancing the education and health sectors in Telangana, aligning with India's overarching developmental vision of Viksit Bharat 2047. Further the paper emphasized grassroots digital inclusion, technological integration, and policy initiatives. The study was also presented an analytical overview of transformative programs such as Digital Telangana, T-Fiber broadband connectivity, telemedicine services, and digital learning platforms.

**Dr. Bandi Venu (2025):** in his study 'Towards Viksit Bharat 2047: Education as the Pathway to Equity, Harmony, and Inclusive Development' observed that the foundation of Viksit Bharat by 2047 must be education, which unites people, celebrates diversity, and equips each child with knowledge and self-assurance. India can produce not only talented workers but also kind people if it prioritises resource parity, solid early foundations, digital inclusion, empowered educators, culturally based curricula, and active community support. Education is the real route to fairness, harmony, and Nation development when it is inclusive and progressive. As highlighted in this study, all the points are already outlined in NEP 2020, and if these provisions are implemented effectively, the objectives will be achieved.

**Dr. Chhavi (2025):** In her paper 'Leading Education in The Digital Age: Challenges and Strategies' has studied successful leadership in the digital age by doing a thorough literature analysis to identify the main obstacles and to develop strategic solutions. Through this study the researcher primarily suggests four courses of action: bolstering HR quality, upgrading infrastructure and facilities, making better use of qualitative and quantitative data in decision-making, and showing wisdom when faced with new problems. These tactics highlight strong leadership as an essential answer to the challenges of modern educational leadership in the digital age.

**Need and Significance of the present Study:**

After reviewing the above literature the researcher of the present study felt that the digital transmission in education is playing significant role in every level of education and it is more in the higher education. Digital technologies such as Artificial Intelligence (AI), Internet of Things (IOT) and Digital Public Infrastructure (DPI) have occupied much space in the routine and special areas of education like Research, Innovation, Incubation and pedagogy of every higher educational institution. However the research gap identified through the study of above literature includes that application of digital technologies in conventional educational programs, student centered initiatives and personalized TLE are not inadequate.

Studying digital transmission in education of select HEIs is important for comprehend how best technology leverages access, stakeholders engagement, personalization, transforming traditional TLE into tech-savvy. Flexible experiences, interactive abilities with technologies, students and teachers preparedness for a digital world, embracing abilities of 21st century skills and eventually their abilities to operate online class rooms, AI driven tools and handling virtual classrooms were examined empirically. Further it could also find that Government Autonomous Degree & PG Colleges were at the verge of design their own curriculum, conduct exams, and declare results independently, for which application of digital tools, usage of technologies and impact of digital transmission on their effective functioning were not either studied or addressed in a constructive way. Hence the researcher has felt it is imperative to throw light over them and conduct study, so as to derive purposeful conclusions and recommend the same for the identified segment of the education for their future effectiveness and efficient functioning as well.

**Objectives of the Study:**

Following are the main objectives of the present study entitled, 'Digital Transformation in Education: Application of Artificial Intelligence in TLE- A Study on Select Government Autonomous Degree Colleges in Telangana State'.

- To understand the AI in Higher Education and in select Institutions of the study.
- To Explore AI in Personalized Teaching, Learning and Evaluation.
- To Discuss Challenges and way forward.
- To offer needy suggestions for effective digital transmission and usage of AI in selected HEIs.

**Research Methodology:**

It is irrefutable that the research methodology is the scientific approach and road map adopted for the preparation of any report, dissertation, thesis or a piece of research paper. Present work is not an exception to that. Considering above objectives, the present study has planned to make more intensive investigation on the digitalization prodigy. Researcher's empirical evidences, administering the questionnaire, conducting surveys and initiating personal interactions with the select 100 sample respondents of each, teachers and students chosen randomly from Two Government Autonomous Degree Colleges each of Hyderabad, Siddipet, Warangal, Khammam and Karimnagar districts (20 Teachers and Students from each district) were part of its methodology. To make the study more reliable the respondents were further categorized with socio, economic backgrounds in addition to their demographic character. At the end Simple statistical tools like averages, percentages and non parametric techniques were further used to compile, analyze the data and to draw the inferences thereon. Necessary secondary data on conceptual frame work and a few previous works are collected from Journals, Magazines, Newsletters, News papers, Periodicals, Reference Books, and various other publications.

**Brief Profile of the Select Government Autonomous Degree Colleges:**

For the present study following Government Autonomous Degree Colleges of the Telangana State were selected deliberately. To draw and make balance between Urban and Rural, purposefully the sample is designed conveniently. Government City College Nayapool and Government Womens College Begumpet from Hyderabad, GDC Siddipet (A) and GDC Gajwel (A) from Siddipet District, KGC Hanamkonda and Pingle Womens College Hanamkonda from Warangal district, SR & BGNR Khammam and GDC Palvancha from Khammam district and SRR Arts & Science College and GDC for Women from Karimnagar have taken as sample for the study. Almost all the selected institutions were accredited by NAAC with 'A' and more grade, possessed more than 2000 students and 100 and above staff strength. Half of them were also established about six decades ago itself and catering the needs of geographically closely connected villages and towns. But after DOST was introduced every one of the above college is getting students admissions from four to six neighboring districts as well. Although the colleges selected were

began their journey with traditional and conventional programs at UG and PG level, in the course of transmission they were well evolved to start computer aliened self finance and restricted courses. In which the role of digital technology is vital.

Regarding affiliation they were affiliated with the Osmania University, Kakatiya University and Satavahana University respectively. Commissioner of Collegiate Education (CCE) Hyderabad is the apex administrative body and regulative authority of their academic and administrative functioning. To conduct scholastic events like seminars, workshops, conferences, and orientation and training programs for teachers and students, they were enabled to receive financial assistance from funding agencies like ICSSR-SRC, TGCHE and RUSA and PM-USHA.

**Sample Design:**

For the present study the sample of Colleges, Teachers and Students are selected under convenient sampling method. The same is depicted in the following Table-1.

**Table-1: Sample Design**

| Sl. No | Name of the District | No of Colleges Taken | No of Teachers selected | No of Students selected |
|---|---|---|---|---|
| 1 | Hyderabad | 02 | 20 (20%) | 20 (20%) |
| 2 | Siddipet | 02 | 20 (20%) | 20 (20%) |
| 3 | Warangal | 02 | 20 (20%) | 20 (20%) |
| 4 | Khammam | 02 | 20 (20%) | 20 (20%) |
| 5 | Karimnagar | 02 | 20 (20%) | 20 (20%) |
| Total | | 10 | 100 (100%) | 100 (100%) |

Source: Primary Data and Figures in parentheses indicate percentages in horizontal totals

Note: Colleges selected for the study is 45% of the actual Population, i.e. 10 out of 22

**Respondents Profile:**

Initially researcher has tried to analyze the profile of the chosen respondents, in terms of their age, sex, habitation, socio-economic background and the core discipline they were engaged with. For this the data collected from primary source was compiled in the following table-2, which reveals that 86 percentage of Students and Faculty were in the age bracket of 20 years and 40 years and above respectively. Regarding to sex more than 60% of the students is female and faculty is male. Interestingly from the students pool almost 84% are the habitants of the rural area in contrast to this about 73 percentage of faculty are hailing from urban area. The researcher has also made an attempt to find socio-economic background of the both respondents and found that almost 92% of the students are from SC, ST and BC together, whereas only 56 percentage of the faculty were belonging to this satra. Out of the 100 samples of students and faculty each, 56 and 40 respectively were with Commerce as their core discipline for either to study or to teach. Finally from the table it was also revealed that the majority families' monthly income of the students was ranging between 20, 000 to 30, 000 and against to this 69% of the faculties have been earning their monthly emoluments between Fifty thousands to above.

Therefore, based on the description of the respondents profile, in it may be inferred that majority of the students and faculty were in the mean age of demographic dividend of the nation i.e.20 and 40 respectively. As many scholars have emphasized, much of the students and faculty were the habitants of rural and urban respectively. From this data, it was also seen and found that significant number of students and teachers have been selecting Commerce discipline as their core subject after engineering courses. Bothersome observation at the end was guest faculty was not paid either on far with their counterparts working in the private sector or even respectable emoluments to meet their family requirements. Further guest faculties were also not paid their salaries for almost 4 months, as class room and physical work missing during

vacation. They were strongly felt the more concerned intervention of government regarding salaries payment to those teachers and supply of devices or tools to students to attend their new teaching, learning and evaluation methods, initiated by their respective teachers and Colleges. Above numbers can be found in the below given Table-2 lucidly.

**Table-2: Respondents Profile**

| Students (100) | | | Teachers or Faculty (100) | | |
|---|---|---|---|---|---|
| **Attributes** | **No** | **%** | **Attributes** | **No** | **%** |
| **Age:** | | | **Age:** | | |
| 20 years and Below | 86 | 86% | 40 years and Below | 15 | 15% |
| 21 years and Above | 14 | 14% | 41 years and Above | 85 | 85% |
| **Sex:** | | | **Sex:** | | |
| Male | 28 | 28% | Male | 64 | 64% |
| Female | 62 | 62% | Female | 36 | 36% |
| **Residential Area:** | | | **Residential Area:** | | |
| Rural | 84 | 84% | Rural | 27 | 27% |
| Urban | 16 | 16% | Urban | 73 | 73% |
| **Community Status:** | | | **Community Status:** | | |
| SC | 31 | 31% | SC | 09 | 09% |
| ST | 19 | 19% | ST | 05 | 05% |
| BC | 42 | 42% | BC | 42 | 42% |
| General | 08 | 08% | General | 44 | 44% |
| **Core Program of Study:** | | | **Program of Teaching:** | | |
| Arts | 12 | 12% | Arts including languages | 17 | 17% |
| Commerce | 56 | 56% | Commerce | 40 | 40% |
| Science | 16 | 16% | Science | 27 | 27% |
| Computers | 16 | 16% | Computers | 16 | 16% |
| **Family monthly income:** | | | **Monthly emoluments:** | | |
| 10,000 to 20,000 | 28 | 28% | 30,000 to 50,000 | 31 | 31% |
| 20,000 to 30,000 | 52 | 52% | 50,000 to 1,00,000 | 57 | 57% |
| 30,000 and Above | 20 | 20 % | 1, 00,000 and Above | 12 | 12% |

**Source:** Primary data collected through a structured questionnaire link using 'Google form'

**Technology Adopted in Digital transformation:**

As all we believe, change is dynamic, constant, pervasive and inevitable. In almost all walks of our day to day conversations and professional association, we witness it as the most invaluable. Selected institutions of the study have used variety of digital technologies in their new teaching, learning and evaluation process. They include AI, IoT, DPI and other social media platforms. Therefore the researcher has tried to know the devices and tools used by the both respondents as part of digital technologies. So from the given below Table-3, it is found that to attend the virtual classes through online significant number of students 79% have depended on their Cell Phones, whereas 28% of Cell Phones and 64 percentage of Laptops were used by the faculty. In both cases usage of desk tops was very meager.

Hence from the study it may be read between the lines that despite of much trauma nexuses with qualitative internet connection, bandwidth, uninterrupted power supply and gigantic challenge of students' engagement, higher education institutions and their respective stakeholders have either willingly or unwillingly have accepted journey with available technology to embrace the emerging scenario. Surprisingly, it was also found that, after short trainings and periodical instructions of the Commissioner of Collegiate Education (CCE) Telangana state, huge sunk of faculty and students were using virtual modes for their informal meetings, orientations, faculty development programs, seminars, conferences, workshops, staff meetings, students mentoring & counseling, alumni meetings, club activities, conduct of various competitions to students

**Table-3: Devices used for attending/engagement of digital Pedagogy or digital TLE**

| | Students (100) | | Faculty (100) | | |
|---|---|---|---|---|---|
| **Component or tool used** | **No** | **%** | **Component or tool used** | **No** | **%** |
| Laptop | 12 | 12% | Laptop | 64 | 64% |
| Cell Phone | 79 | 79% | Cell Phone | 28 | 28% |
| Desk top | 07 | 07% | Desk top | 06 | 6% |
| Others | 02 | 02% | Others | 02 | 2% |
| **Total** | **100** | **100%** | **Total** | **100** | **100%** |

**Source:** Primary data collected through a structured questionnaire link using 'Google form'

**Platform used for attending/engagement of digital TLE:**

To find the results pertaining to the second objective of this empirical study, research was also included a few questions pertaining to online platforms, with which students and faculty were using. The tools used by the faculty for engagement of their assignments and students to attend their classes includes Zoom App, Google Class Room/ Google Meet, Skype, YouTube Live and other sources such as Google hangouts, LMS, OSDE and ICT etc. From this study, Table-4 reveals that 91% of Faculty and almost 89% of the Students have been using OSDE and Zoom App for their virtual teaching, learning, and evaluation activities respectively. When it was attempted to find the reason for the same majority of the respondents have opined, Zoom App is user friendly for students and OSDE is the mechanism implemented by the College.

Therefore, regarding to online platform it may be concluded that majority of the students and staff were well versed with Zoom app for their virtual engagement in relation with teaching and learning. Apart to depending on OSDE, faculty were also sharing own made E- content, PPT,s and Recorded & downloaded Videos to students in general and among themselves in particular for their teaching and learning endeavours. For this they were using students Watsup groups, College websites and Mail id,s.

**Table-4: Platform used for attending/engagement of online Pedagogy or digital TLE**

| Variable | Students (100) | | Faculty (100) | |
|---|---|---|---|---|
| **Platform used** | **No** | **%** | **No** | **%** |
| Zoom App /**OSDE** | 89 | 89% | 91 | 91% |
| Google Classroom/Google Meet | 7 | 07% | 06 | 06% |
| YouTube Live | 02 | 02% | 02 | 02% |
| Skype | 00 | 00% | 00 | 00% |
| Others | 02 | 02% | 01 | 01% |
| **Total** | **100** | **100%** | **100** | **100%** |

**Source:** Primary data collected through a structured questionnaire link using 'Google form'

**Satisfaction levels of Students and Teachers with digital transformation:**

The researcher has also made a lucid attempt to find the satisfaction level of structured respondents in particular and student's parents in a cursory way. To find the degree of satisfaction over digital transformation in colleges over online teaching, conduct of examination, evaluation of students' performance application of technology, teacher-student relationship and other secondary aspects like timing of classes, usage of devices after class activities of their wards etc. Further an attempt was also made to know the faculty perception and level of content on new paradigm and its innovative attributes. From Table-5, it is found that there is vague and mixed response from the students regarding their satisfaction with online pedagogy and its components. It seems they were forced to adopt virtual platforms for coverage of uncompleted syllabus, competition of leftover assignments, test and examinations. Out 100 respondents major portion, i.e 55 (55%) of students were in the range of very poor to average and only 45% were between good to excellent bracket. But it is reverse with faculty members. About 71% were feeling very happy and expressed they were doing quite excellent with changed TLE methodology and only 29 percentage of respondents were at 3$^{rd}$, 4$^{th}$ and 5$^{th}$ point in 5 Point scale of satisfaction analysis.

Therefore, based on this available data it may be strongly inferred that students have no alternative to learn their academics except cope up with the present scenario. Similarly faculty too is adoptive with technological advancement for their sustenance and progress in their career.

**Table-5: Satisfaction levels of Students and Teachers with digital transformation.**

| Sl.No | Attribution | Students (100) | | Faculty (100) | |
|---|---|---|---|---|---|
| | | No | % | No | % |
| 1 | Excellent | 16 | 16% | 31 | 31% |
| 2 | Good | 29 | 29% | 40 | 40% |
| 3 | Average | 40 | 40% | 19 | 19% |
| 4 | Poor | 10 | 10% | 06 | 06% |
| 5 | Very Poor | 05 | 05% | 04 | 04% |
| | **Total** | **100** | **100%** | **100** | **100%** |

**Source:** Primary data collected through a structured questionnaire link using 'Google form'

**Artificial Intelligence for Personalized TLE in selected Colleges:**

To know the application of Artificial Intelligence and its allied tools and techniques as one of the digital technologies, the researcher has conducted enquire over phone with the faculty members of the selected colleges and found that AI is effectively and efficiently used by the selected colleges in their personalized teaching, learning and evaluation process. In teaching it is a catalyst of Innovation and pedagogical advancements. 'AI' Algorithms and educational robots are integrated into Learning Management System. Further 'AI' solutions to analyze class room behaviours and improve teaching qualities are imperative. Incorporating smart devices in science classes are enhancing students' satisfaction and instructional effectiveness. Intelligent Tutoring System and Lesson Planning are also adopted. Regarding learning Personalized AI Tutors, Adaptive Learning Platforms, Automated Grading and Personalised Content delivery and Correction are using continuously. Enhancement Student Engagement, 'Identification and Bridging the learning Gaps', 24/7 and Multilingual Learning Support and Speech-to-text tools are other application in this regard by the AI.

Acquisition of New Knowledge, Skills, Behaviors, Values, Attitudes, and Understanding and to get Cognitive components like Attention, Memory, Processing, Organization, and higher-order thinking AI usage is the most appropriate in the emerging scenario, it is observed (P.B Sharma 2023). In connection with students and teachers performance evaluation AI is using for Instant feedback and Monitor Student engagement, Automated Assessment & prediction of Performance and Skill Gap Analysis and Data-Driven Decisions. The other positive assistances with AI in this regards is Time and Cost Saving, Academic Integrity- Plagiarism Check & Ensure Fairness, Chotbots for Students Queries, Students performance Analysis, Natural Language Processing (NLP) and Analysing Complex data by Machine Learning (ML). it was also learnt that for the Purpose of Q.P Setting, Data Collection and Analyzing , Feedback collection, Time Line design, Resources planning and allocation and final to draft Reporting AI technologies are immense in the colleges.

**Findings, Conclusion and Suggestions:**

From the above detailed study it is found that majority of the students and faculty was in the mean age of demographic dividend of the nation i.e.20 and 40 respectively and much of the students and faculty were the habitants of rural and urban respectively. Selected institutions of the study have used variety of digital technologies in their new teaching, learning and evaluation process. They include AI, IoT, DPI and other social media platforms. The tools used by the faculty for engagement of their assignments and students to attend their classes includes Zoom App, Google Class Room/ Google Meet, Skype, YouTube Live and other sources such as Google hangouts, LMS, OSDE and ICT etc. 91% of Faculty and almost 89% of the

Students have been using OSDE and Zoom App for their virtual teaching, learning, and evaluation activities respectively.

When it was attempted to find the reason for the same majority of the respondents have opined, Zoom App is user friendly for students and OSDE is the mechanism implemented by the College. Through this study it is found that there is vague and mixed response from the students regarding their satisfaction with online pedagogy and its components. It seems they were forced to adopt virtual platforms for coverage of uncompleted syllabus, competition of leftover assignments, test and examinations. Out 100 respondents major portion, i.e 55 (55%) of students were in the range of very poor to average and only 45% were between good to excellent bracket. But it is reverse with faculty members. About 71% were feeling very happy and expressed they were doing quite excellent with changed TLE methodology and only 29 percentage of respondents were not so happy. Eventually it is concluded that AI is integrated and effectively and efficiently used by the selected colleges in their personalized teaching, learning and evaluation process.

However the researcher with his empirical evidences and conceptual insights has opined to make a few propositions for more efficient application and usage of digital technologies, so as to reap more returns and promising contributions to institutions stakeholders. They include: arrangement of Faculty training, addressing ethical issues, infrastructure Barriers, Low Digital Literacy and Economic Impact-Job displacements, High Costs. Environmental Concerns, minimising Gaps between Urban & Rural, resolving Legal Issues relating to IPR and Transparency, Reliability, and Accountability in digital transformation, industry collaboration and integration with governance are his other concerns at large (Asheesh Srivastava 2024).

**Way forward:**

To make the digital transformation productive, high conducive and bring much qualitative change in personalized TLE and administrative discharges, the stakeholders of the HEIs must focus on Promotion of AI Literacy among all the people, integrate 'AI' to foster critical thinking, problem-solving, and emphasize as digital literacy essential for future careers. In addition Students should learn to use 'AI tools', prepare themselves for a tech-driven job market. Establishing global ethical governance to address Deep fakes, Misinformation, and Cyber security threats is another immediate need in this juncture (Srivastava S.K 2022). Sector Specific Integration towards Health Care, Agriculture, Education etc., Skilling, Re-Skilling and Up-Skilling of Workforce to prevent job displacement and promising Technical and Environmental Sustainability would certainly produce more returns of digital transformation in higher educational institutions in the days to come (Pramod K Varma 2025). No doubt digitalization is 'Transformative but double edged knife' If it imbibes human element like empathy, concern and Compassion, it reach more heights, I believe strongly.

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