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# Role of Technology based Higher Education in Nation's Success

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***Abstract:*** *In India higher education is the growing sector having potential to become as a developed nation in the future. The quality of higher education plays a key role in the entire educational system. Since the nation's success is mainly determined by the quality of higher education it is important to develop the number of strategies in teaching learning process. In this regard, it is essential that new and innovative teaching methods are to be developed. This article mainly focuses on the current scenario of higher education and innovative techniques to be used so as to strengthen the content knowledge for the student. Various teaching systems are focused with a view to increase the overall quality of education systems. Study is done on the Enrollment of students in different courses and their percentages and Gross Enrollment Ratio in higher education in various states in India. Innovative Teaching Methods and use of Artificial Intelligence in Education sector is also discussed.*

***Keywords:*** *Educational research methods,POT, e resources, Google classroom, Innovative teaching learning method, LMS, GER, ITS, Artificial Intelligence.*

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## I. Introduction

India has emerged as a global leader and a strong nation at the turn ofthe 21st century as far as Vision and Goal is considered. The quality of higher education can be enhanced by social change, transformation and innovative teaching practices[1]. A term 'student engagement' is defined which involves activities and practices, such as contact with faculty, collaboration, integrating education and experience, or high expectations.These activities lead to the creation of engagement leading to the learning[2]. Student engagement also involves the time and energy devoted by students to educationally purposeful activities. This leads to participation of students in activities that leads to the student as well as the institution's success[3].

In this era of information and communication technology,students have to be prepared by educationalists in order to compete situations occurring in the 21st century. To make the students competent to face the challenges in the 21st century Youth development and teacher preparation programme must be aligned.It has been shown by the Brain Research that certain methods and approaches truly enhance the teaching learning process. It is found that both students and teachers are getting benefitted onthe application of innovative learning and attention management techniques in classes. Nowadays student should be engaged and excited through shaking up of our teaching methods in innovative ways. The most necessary and imperative reforms required in higher education is to remodel it by introducing a new and innovative ideas in the quality of higher education. Innovative teaching methodology will lead to a learning society in which the creative and intellectual abilities of students will allow them to meet the goals of transformation and development.

The capacity of students can be developed by introducing new ideas and evidence in the teaching learning procedure. Information and Communication Technology (ICT) led to the transformation of knowledge in different dimensions. With the advancement in computer technology, drastic changes are observed in the collection, compilation and organization of information[4].Information and Communication Technology (ICT) led to the improvement in the quality of life and it is widely used on a large scale by professionals for carrying out their daily activities. Alot of investment is done on training workers on ICT applications. Training programmesare found to reduce computer anxiety and improve workers ICT utilization and productivity. This study was carried out in Ogun State Nigeria,assessment included the levels of participation of teachers in ICT training programmes, computer anxiety and ICT utilization. The relationships among these variables were also investigated[5].

Another approach known as service learning was used by institutions as a collaborative learning for practices related to service. The group projects were allocated to students as part of collaborative learning. These group projects were expected to develop a sense of community among students[6].Peer Observation of Teaching (POT) is the method followed in the institution for evaluating the quality of teaching. It also leads to the development of teachers based on the feedback and contributes in good teaching and learning process. There

are mainly three considerations: the management of the process, the links between POT and staff development and the impact due to application of peer observation in learning and teaching[7].Most of the students using cellphones are teenagers and therefore some educational apps can be developed which lead to the enhancement of the learning process [8]. ICT has created large Impact on Educational Reforms and Employment.The Internet based Smartphones are taking quality learning to students across Geography in India. Education is imparted to them through flexible format [9].

A review on the use of social media in improving the quality of higher education was studied. It was found that the students who were given online education performed better than classroom students. Also it was found that instructors do not encourage students to make use of social media for educational purposes. Various experiences on using social media platforms as a learning tool are discussed [10]. Other techniques include the introduction of educational software games so as to increase the interest of the student in the subject. Educational effectiveness using educational software games was studied with the help of the Intelligent Tutoring System(ITS). This operates as a virtual reality educational game. The virtual reality game known as VR-ENGAGE was developed. This game aims at increasing student engagement in the subject. This is due to the use of motivating the virtual reality environment. This effect of introducing a virtual reality game on students learning in comparison to educational softwareis studied [11].

An essential condition for forming the bond between theory and practice in higher education is the interaction and knowledge sharing between thehigher education institution and industry. A model was developed for common knowledge exchange and knowledge development. This involves the simultaneous use of both practical and theoretical knowledge to increase educational standards. Also more efforts need to be concentrated in the problem areas which increase curiosity both among teachers and students. The interests of students and teachers varied during the whole process based on the time taken by other organization to answer the questions and some teachers believed that it is difficult to transform theory into practical knowledge [12].

Teachers should give more stress on the inclusion of ICT in educational practices. For this, teachers should be made aware on the use of technologies and their long term benefits both for teachers and students. It is found that teacher's knowledge has a strong impact on teacher's decision.Though changing the pedagogical beliefs of teachers to adopt this innovative and influential way of good teaching and gaining knowledge, they also need the confidence to bring it into practice. We should provide opportunities for teachers to both experiment and to succeed.It is also observed that the most effective way to support change in teachers by bringing change in their methodology is by providingopportunities for them to see the positive impact of these changes on their students [13]. Awareness in the use of technology needs to be implemented from school level so as to get benefits in the future.The main factors include the professional development in the area and use of technology and research on efforts to increase its use on a large scale. There are four useful points which needs to be considered for teachertechnology training: first, it we consider learninga new teaching model, it found that it is easier to learn a new teaching model than to learnabout technology for personal or pedagogical use. Second, there should be access to the new technology both athome and at school. Third, there should not be fear of the unknown and if it is there it mustbe solved soon. Fourth, with the use of new technology teachers may bring changes in the ways and techniques in which they teachthe students [14].A study was conductedconsisting of faculty members of the US colleges of education. It was found that significant relation exists between technology literacy andpedagogical practice integration. A trainer can be assigned to a small group of faculty forums. This helps in maximizing Faculty technology training for the integration of pedagogy [15].

Use of ICT was significant in increasing student examination score. The score was found to raise by 0.07 to 0.75 standard deviations. Effects of Computer Based Instruction, Computer Assisted Instruction, Computer Enriched Instruction, Computer Managed Instruction and Computer based Education on learning process are studied [16].

In the past lot of efforts havebeen taken on development of teachers but they are unsuccessful. This is due toadoption of top-down approach. This approachdoes not take into account teachers'existing knowledge, beliefs and attitudes into consideration. Therefore, a thorough researchof use of ICT in education by teachers can provide inputs for improving them. Strategies such as learning in network, peer coaching and collaborative action research must be encouraged for overall development [17].It is observed that though teachers show great interest inlearning about ICT, theydo not encourage use of ICT tools on large scale.Their use of ICT is concentratedmainly forpersonal purposes. Most of the teachers have been found to make use of computers for very basic tasks such as word processing (preparation of timetable for lectures, lesson plans,assignments, quiz, preparation of marksheets etc.) or getting the information from the internet. Also most of the teachers get help from technicians and librarian therefore it has become necessary that these persons develop their own ICT skill set and knowledge so as to increase overall performance [18].

Quality teaching has become an important issue in higher education as continuous changes are observed such as increased international competition, increasing social and geographical diversity of the student body, increasing demands of value for money, the introduction of information technologies, etc.It is therefore

challenge to choose reliable parameters so as to assess the quality and productivity of teaching. On the basis of above literature, it is observed that more focus should be on development of new techniques in teaching and learning so as to increase the percentage of enrolment of students in higher education and to create interest in them so as to increase overall quality.

## II. Results And Discussion

### 2.1 Gross Enrollment Ratio

As per the survey made, by the year 2030 India will be amongst the youngest nation of the world. For the enhancement of quality teaching to support the youngest community of this nation it is necessary to take steps to carry out a vision 2030 document which introduce technology in the teaching learning process. Gross Enrollment Ratio is studied on the basis of AISHE Report 2015-16 across some popular states in India.

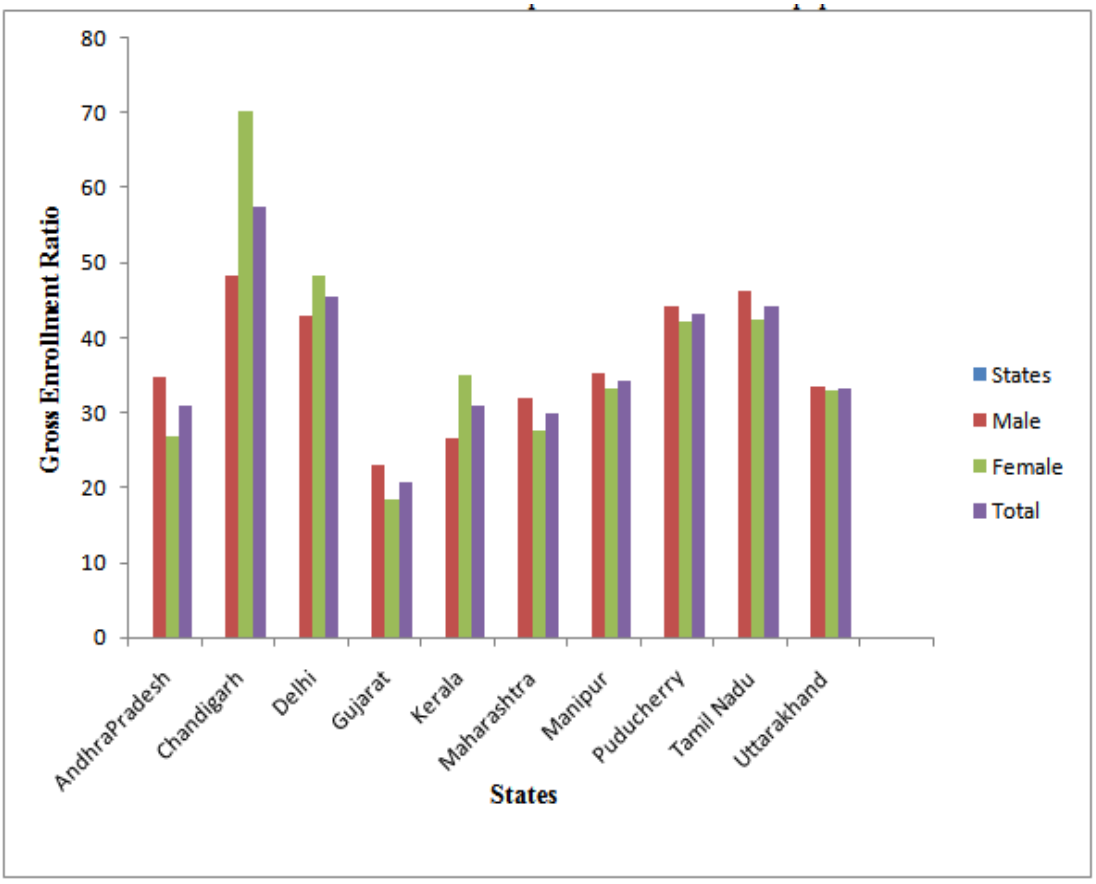


**Fig. 1** Gross Enrollment ratio in higher education (18-23 years) in various states of India[19]

Figure 1 shows the Gross Enrollment ratio of some popular states in India. It is observed that the highest GER for males and females occur in the state Chandigarh. The lowest GER occurs in the state Gujarat. Males as well as females are interested to go for higher education. This GER indicates that most of the young students are pursuing their admission in higher education.

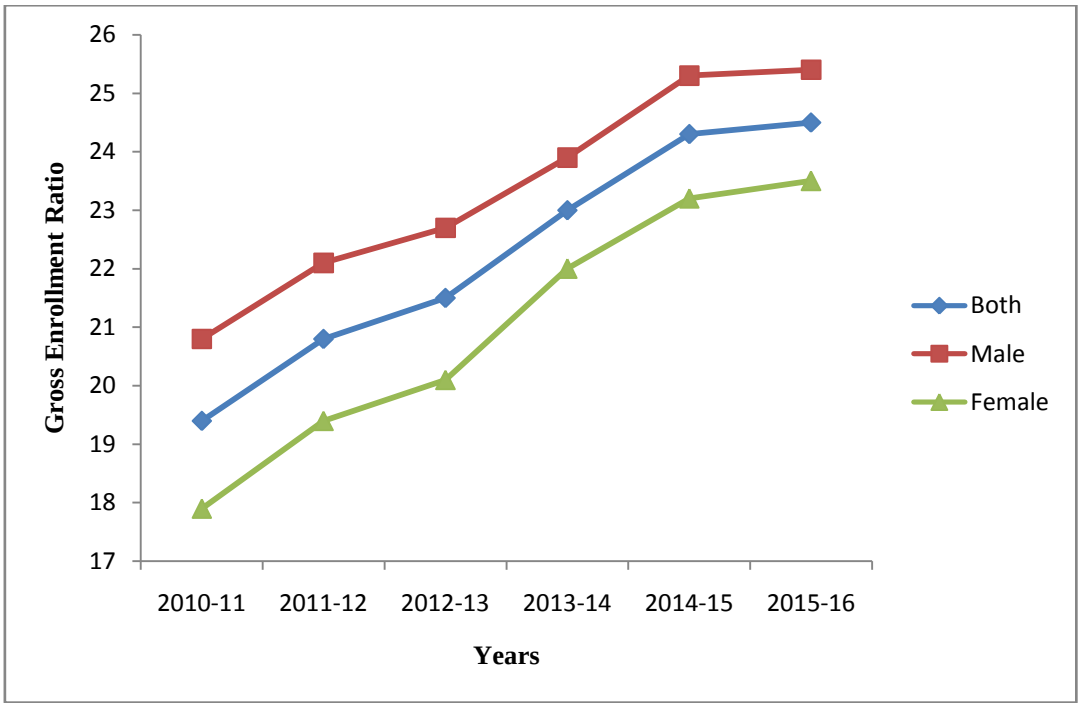


**Fig. 2** Trend of Gross Enrollment Ratio of India in various years[19]

From figure 2 it is clear that Gross Enrollment Ratio in higher education in the age group of 18-23 years has been increased subsequently in India in the last five years. It is therefore necessary to introduce innovative techniques of learning in the classroom, particularly Digital Techniques. Visualization is associated particularly withthe smart teaching strategy for reading and attainment. Teaching through visualization skill helps the student understand recording and think critical about the subject they study. Computers, tablets, digital cameras, video conference technology and GPS devices enhance student learning experience.

Alarge impact on education is observed with the use of Google apps like Google Docs, Google spreadsheets and Google calendars. Google classroom is one of the important feature of Google, a technology in the classroom app which provides a single dashboard to unify instructors. With the help of Google classroom, paperless communication between teachers and students can be facilitated. It gives good opportunity for students and teachers to share information with one another instantaneously instead of having to submit work. Students can initiate their work with the help of just one click and can view their assignment by opening Google Docs. Teachers have a real time view in student progress and thus can offer valuable feedback to the students. Google classrooms offer one step platforms for facilitating digital production, workflow and communication between students and teachers. Google classroom could be a free application designed to assist students and teachers communicate, collaborate, organize and manage assignments go paperless and much more.

Many classrooms are using Learning Management systems which help in an alteration of the higher education process. Various learning management systems are classmate, Blackboard, Moodle, Edmodo and Google classroom. The skill and experiences provided by implementing an LMS in the classroom prepares our young minds for their future education and their entry into a world that is increasingly organized and advancing via technology. The LMS system permits for teachers and students to place all of their work in one central system. Students can share their work with each other allowing them to collaborate on their assignment from both college and home. It has been found that regardless of physical location of students, teachers can easily review and distribute assignment to students. Once most are working with efficiency with the LMS system the method of collaborating and interfacing the complete classroom is realizable.

**2.2 Student Enrollment at various levels of Courses in Institutions**

The total number of students enrolled in different institutions across various levels (Ph.D., M.Phil, Post Graduate, Under Graduate, PG Diploma, Diploma, Certificate and Integrated) is shown in below Table 1:

**Table 1:** Degree wise distribution of student enrollment at various levels of Courses in Institutions[19]

| Name of Degree | Number of Students Enrolled | Percentage of Students Enrolled(%) |
|---|---|---|
| Under Graduate | 2,74,20,450 | 79.3 |
| Post Graduate | 3,92,0000 | 11.3 |
| Integrated Ph.D. | 5753 | 0.42 |
| Ph.D. | 1,26,451 | 0.66 |
| Diploma | 2,55,0000 | 7.4 |
| PG Diploma | 230000 | 0.7 |
| Certificate | 140000 | 0.4 |

Table 1 shows student enrollment at various levels of courses in Institutions in India. It can be seen that a large number of students are enrolled in UG courses which constitutes 79.3% of the total number of students. Next higher percentage of students enrolled in Post graduate courses. But we can see that the total number of students opting for PG courses is decreasing. So more emphasis needs to be given to increase the quality of PG education and to increase their value. So some steps need to be taken in this regard. One solution in this regard is to introduce new techniques of learning and introducing new technologies which makes learning interesting. Also more focus should be on research so large amount of funds must be released and institutes must be encouraged to undertake sponsored research projects in their field of interest. This leads to the development of institutions and students can gain practical knowledge by working on the project.Alsoa good number of research papers can be published which increases value of the institution and overall progress of the student. Research lab should be established with the help of industries at the institute so that student can do research on live industrial problem. This increases student thinking process. Some innovative solutions can come out using this process which will be beneficial for industry and also it will be great learning for students. Above techniques can increase students interest in higher education and the percentage of enrollment of students will be increased.

Another important factor is the creation of jobs for PG students after completion of their courses.Institutes should focus on job creation and should include courses in PG which match Industry Standards. Students should be encouraged to carry out internships in Industries so as to expose them to industrial tools and machines.

One of the approaches to improve teacher's knowledge and skills is the lesson study. In lesson study teachers from small groups and discuss the problems faced and the techniques to solve those problems. This leads to their overall improvement of knowledge and faster solutions of problems faced in teaching a topic. In groups teachers discuss one goal and implement it in classrooms and experiments with different methods and techniques which can lead them to that goal. After discussing these methods, teachers develop a 'study plan'. Once the study plan is developed, the plan which is prepared in the group is presented by one teacher to students and the role of other teachers is to observe the plan carefully note the students understanding of the concepts and to take the notes. After the teaching the group assembles again to discuss the observations. This collaborative approach not only increases students learning capability but also leads to overall development of teachers.

Teachers need to get the confidence to use ICT tools for upgrading their knowledge. For this to achieve more teachers should be exposed to the use of ICT tools. Even if some teachers gain confidence on using of ICT tools for their personal and students development, other teachers can get motivation from them to use ICT tools and this can lead to overall development of institution. Though the process is slow but it will have long lasting benefits in the future.

**2.3 Innovative Ideas In Teaching Learning Process**

In the universe progressively complicated issues need inventive solutions. One author quoted the text "The best teachers are those who show you where to look but don't tell you what to see." To reach academic pursuits of higher education it is important to introduce the following innovative ideas in teaching learning process.

- Creative teaching which brings aspects of creativity into teaching.
- Audio and video tools which incorporate audio visual materials to supplement the textbook during the teaching learning process which will help student imagination thrive and glow.
- Real life illustrations:The teaching material will be easy to understand and learn if it is expressed in the real life way.
- Brain storming:Helps the student to make passive thoughts.
- Classes outside the classroom: Some lessons are become interesting when they are particularly discussed in outside premises of classroom. It includes organizing the field trip.
- Roll Play: Useful in teaching learning methods to develop interpersonal skills of students.
- Storyboard teaching:If a lesson is taught in the form of story it will never be forgotten.
- Stimulating classroom environment: Creative and stimulating environment of the classroom will help the student to learn innovative ideas.

- Puzzles and games: Learning through puzzles and game is an exciting and interesting task to the students.

**2.4 Use Of Artificial Intelligence In Improving Higher Education**

Within a short period of time Technology based education has gained a lot of importance and became the essential factorfor the new generation. InToday's world the richest countries and human societies are found to be those who have access to the greatest knowledge, awareness and information.The sole purpose of introducing technology in higher education is to broaden one's intellectual horizons. The Student nowadays goes to institution to become equipped with skills and he makes use of those skills to land him/her a well-paying job. But this was not the case in the earlier generation wherehis/her predecessors were giving a lot of importanceto intellectual gratification. Today, it has become easy to learn the courses by directly logging into your online course from the comfort of your living room regardless of the location. This eases the teaching learning process. It is also found that students nowadays prefer learning through audio visual modes for better understanding of the concepts. Besides advancements in technology, the transformation in educational structures and various modes of knowledge dissemination has a lot to owe to the policy changes which have made higher education more influential. Nowadays every studentexpects quality education. This leads tohigh expectation of student towards the university to provide them with all the skills so as to gain the employment in good industries that will enhance their prospects of getting a higher return on investment. Artificial Intelligence plays an important role in this regard. Artificial Intelligence is growing at a faster rate. The main factor for market growth is the adoption of ITS (intelligent tutoring systems) in the learning process. ITS is basically a computer system that helps to provide instant and customized feedback to learners. This can be done without the requirementof intervention from a human teacher.

The use of supercomputers in universities which provides feedback at any moment of time is replacing administrative staff. Machine learning is an emerging field which makes use of Artificial Intelligence. Many tasks which are currently done by teachers will be replaced by AI software in the near future. This AI software is based on complex algorithms developed by programmers. But there are some limitations on the use of AI. It is witnessed that the development of new car which relied on AI led to the death of driver in May 2016 when the car was set on autopilot mode which went under the tractor trailer which was not detected by the software.Nowadays research is themain source of funds and prestige in international rankings for institutions, therefore the use of MOOC act as an alternative solution to cut costs due to employment of academic teaching staff for many university administrators [20]. The development of AI can supplement the human thinking process thus overall developing the quality of education.It is found that Google is making effective use of AIfor various apps and maps, and also the latest launched cars use AI which give indications from engine section to breaks and alsonavigation. Self-driving car technology is being developed by companies such as Tesla, Volvoand Mercedes which depends on AI.

AI is defined as the ability of computersystems to behave in ways as that of a human. AI systemsare designed so that they can interact with the world. Interaction is with the help ofcapabilities, such as speechrecognition, and intelligent behaviours. Intelligent behaviourinvolves assessmentof a situation and takingsensible actions towards a goal. With the development of AI systemsstudents' skills,such as collaboration and persistence, aswell as students' characteristics, such asconfidence and motivation can be assessed effectively. Forexample, iPhone's Siriis developed using the complex set of algorithms and is an excellent example of AI solutions that became part of aday to day life[21].

Large numbers of students are now turning to higher education therefore it will be essential to make use of AI solutions in the future. The academic positions in institutes may be replaced by intelligent machines based on AI in the near future. But this will increase the cost of the system.

## III. Conclusion

The system of higher education leads to the growth of a nation. It is observed that various strategies are used in the different institution for the student's engagement. In this era of the young community, it is very necessary to introduce technological educational reforms in higher education and thereby introduce new ideas in teaching and learning method. Any innovative teaching and learning technique is not a quick fix or universal remedy. ICT is very important in increasing the quality and development of the nation. Effective utilization of computers and apps will increase the overall productivity. It cannot replace a conventional teaching methodology in education, however, rather supports it. Innovative methods should be utilized by Teachers so that students can increase theirself-esteem. This give rise to free flowing student learning process. However, giving these devices to students usually require techno-savvy teachers. Intelligent Tutoring System is another technique which can be used on a large scale for increasing the quality of technical education. It does not require intervention by the human teacher. Though Artificial Intelligence can help the institutions to grow, but there should be balance so that it should not lead to unemployment due to the reduction of teaching staff in Institution. More Research Projects should be taken by Institutions and students should be involved in those projects so that

students can get practical knowledge of the concepts they are applying during their theory lectures. This will increase the student's enrollment percentage in higher education and also lead to increase in Gross Enrollment Ratio.

## References


[1]. P.V.Ubale, P.E.Ajmire, K.K. Pathan, V.R.Gawhale, S.T.Warade, Higher Education is bedrock of competitiveness in 21st century, Scholars Impact multidisciplinary multilingual journal, pp. 115-118, 2018.
[2]. G. Kuh, Assessing What Really Matters to Student Learning Inside The National Survey of Student Engagement, Change: The Magazine of Higher Learning,Vol. 33, No. 3, 10-17, 2001.
[3]. G. Kuh, How are we doing at engaging students?, About Campus, Vol. 8, No.1, 9-16, 2003.
[4]. H.Yakubu, O.O.Omotoke, Use of electronic resources in teaching and learning at Federal University Dust in-Ma, Nigeria, Mediterranean journal of social sciences, Vol. 6, No. 1 , pp. 584-592, 2015.
[5]. R. Olatoye, Levels of participation in ICT training programmes, computer anxiety and ICT utilization among selected professionals, International Journal of Education and Development using Information and Communication Technology, Vol. 7, No. 2, pp. 15-26, 2011.
[6]. A. Kezar, J.Kinzie, Examining the ways institutions create student engagement: The role of mission, Journal of College Student Development, Vol. 47, No. 2, pp. 149-173, 2006.
[7]. L.H. Fletcher, P. Orsmond, Evaluating our peers: is peer observation a meaningful process?, Studies in Higher Education, Vol. 29, No. 4, pp. 489-503, 2004.
[8]. Dr. P.V. Ubale, A Study on the Impact of the Cell Phone Usage on School Going Children, Global Research Analysis, Vol. 2, No. 2, pp. 55-56, 2013.
[9]. Dr. P.V. Ubale, A Study of the Impact of Information Communication Technology on Society, International Journal Of Management Studies, Statistics And Applied Economics, Vol. 2, No. II, pp. 341-347, 2012.
[10]. P.A. Tess, The role of social media in higher education classes (real and virtual) – Aliterature review, Computers in Human Behaviour, Vol. 29, pp. A60-A68, 2013.
[11]. M Virvou, G Katsionis, K Manos, Combining Software Games with Education: Evaluation of its Educational Effectiveness, Journal of Educational Technology and Society, Vol. 8, No. 2, pp. 54-65, 2005.
[12]. K Arnesson, G Albinsson, Integration of theory and practice in higher education, International Journal of Educational Research, Vol. 53, pp. 370-380, 2012.
[13]. P.A. Ertmer, A.T. Leftwich, TeacherTechnology Change, Journal of Research on Technology in Education, Vol. 42, No. 3, pp. 255-284, 2010.
[14]. L. Schrum, Technology professional development for teachers. EducationalTechnology Research and Development, Vol. 47, No. 4, pp. 83-90, 1999.
[15]. D.A. Georgina, M.R. Olson, Integration of technology in higher education: A review of faculty self-perceptions, Internet and Higher Education, Vol. 11, pp. 1-8, 2008.
[16]. M. Kadiyala, B.L. Crynes, A Review of Literature on Effectiveness ofUse of Information Technology in Education, Journal of Engineering Education, Vol. 89, No. 2, pp. 177-189, 2000.
[17]. J.H. Van Driel,D. Beijaard,, N.Verloop, Professional development and reform in science education: the role of teachers' practical knowledge, Journal of Research in ScienceTeaching, Vol. 38, No. 2, pp. 137-158, 2001.
[18]. D. Williams, L. Coles, K. Wilson, A. Richardson, J. Tuson, Teachers and ICT:current use and future needs, British Journal of Educational Technology, Vol. 31, No. 4, pp. 307-320, 2000.
[19]. AISHE Report, MHRD, Department of Higher Education, Government of India.
[20]. S. Popenici, S. Kerr, Exploring the impact of artificial intelligence on teaching and learning in higher education, Research and Practice in Technology Enhanced Learning, 12:22, pp. 1-13, 2017.
[21]. R. Luckin, Towards artificial intelligence-based assessment systems. Nature Human Behaviour, Vol. 1, No. 3, pp.1-3, 2017.


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