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EDITORIAL

Educational Technology brings pedagogical approaches, resources and appropriate technology together to enhance teaching learning process. The speed of evolution of information and communication Technology which is the fastest that the world has ever witnessed, has revolutionized Educational Technology. But Educational Technology cannot be confined to ICT alone. Traditional, indigenous and modern technologies can also contribute considerably.

Mere use of the high end hardware is not enough to achieve the intended result. Latest technology developments are to be used for changing the method information is provided to the students. Interactive video content, animated story boards, real time assessments, online teacher training and assessments, supporting students and teachers in creating good contents which can be pooled and shared, use of Artificial Intelligence and analytical tools in assessing the aptitude of students etc are few of the areas where technology interventions will help in improving education.

The State Institute of Educational Technology, Kerala (SIET) has successfully ensured implementation of its objectives of developing tools with the help of technology and using them in education. SIET, Kerala has been in the forefront of implementing innovative ideas relating to technology education.

This success could not have been achieved had due importance not been given by the organization to researches in the field. SIET, Kerala is planning to develop a centre for promoting as well as documenting researches in the field of educational technology both inside India and globally. The first SIET National workshop on Educational Technology was organized at Thiruvananthapuram in 2019.

It is with immense pride that I would like to announce the valuable knowledge which SIET has been receiving and imparting will now be regularly made available to researchers and practitioners in the field in the form of a research journal.

Named "EduTech", this journal will not only be updating the reader on the current trends and developments globally in educational technology but also provide them with an insight into possible practical uses of these developments in their teaching.

B. Aburaj
Editor

Mobile Phones in the Indian English Classrooms - The Way Forward

DR. K J VARGHEESE *

Abstract

Telephones have perhaps been the fastest growing technology in recent years. The advent of mobile technology poses certain challenges to the pedagogy. The challenge for educators and trainers is twofold. One is how to develop learning materials for delivery on mobile devices and the second is how to use mobile technology in the classroom. The present paper is concerned mainly with the second one. It is to be mentioned that there has been a significant body of work that focuses use of mobile technology for distant learning or learner autonomy. The possibility of using mobile phones in classroom teaching of English language and literature still remains to be exploited. Mobile learning includes I-pod, skype, kindle, PDA and Mobile phones. However, the present paper is an attempt to show as to how Mobile Phones with a little knowledge of computer can be used to give a better learning experience to the students.

Key Words: *M- Learning, SMS, Multimedia, Mobile Apps*

Introduction

When the mobile technology entered human world, there wasn't even the slightest clue as to how these palm-long slim gadgets could slip into our classrooms. Today's students have enormous access to digital technology and display characteristics such as digital fluency and familiarity with new technology never before imagined, they are digital natives (Prenksy, 2001). As educators we are left to grapple with what form and shape learning will look like in tertiary settings in the next few decades. The use of M-Learning tools themselves does not guarantee their potential being realized. The key to success is the ability of educators to design and develop pedagogically sound opportunities and environments that enhances learning.

*Associate professor of English, Christ College,
Irinjalakuda, Kerala. vargheesekj@yahoo.com Mob.no.9349701551

Mobile Technology Boom

Mobile telephones have perhaps been the fastest growing technology in recent years. In a world population of 6 billion, there are1.5 billion mobile phones (Keegan, 2004, p.3) used. Mobile device adoption continues to rise. In China there are 358 million mobile phones and this figure grows by 160,000 per day (Keegan, 2004, p.3). The global sales of smart-phones or internet-enabled pc-capability telephones, in 2003, overtook sales of PDAs and by the coming years it is estimated that the global sales of smart-phones will reach 170million (Attewell, 2005, p.2). There have been constant attempts to merge handheld computer technologies into palm-top technologies, creating a basic generic mobile learning platform to which extra functionality could be added.

Teaching is a profession that requires its practitioners to constantly change and adapt. New approaches to learning, new theories, new policies and new technologies are constantly presented to teachers as elements that need to be acquired and incorporated in the classroom. The fast pace of technological change has meant that teachers have been presented with many new developments and tools from this field in a relatively short period of time. Some educators resist such changes, some embrace them enthusiastically (Duncan-Howell, 2007). Selwyn as quoted in Duncan-Howell, states "it would be unwise for educationalists to dismiss the rise of mobile telephony as a passing 'fad' or affectation of youth culture and fashion. Instead, the mobile phone epitomizes a significant technological shift as ICTs rapidly converge into highly mobile and individualized artifacts" (p.132).

Mobile learning is becoming a favorite and easy medium of learning for the young generations in the developed and the developing nations alike. While the teaching fraternity in most developed nations has welcomed and geared their teaching accordingly, most of us in the developing nations are still averse to the idea of using technology as basic as audio-visual aids, least to mention the mobile technology. Different teachers have different conceptions of teaching and they try to bring them to education. Some focus on the delivery of content while some focus on supporting student learning i.e. by discussion & collaboration. John Traxler & Kukulska - Hulme (2005) believe the reason to be the radically different physical infrastructure and cultural environment-including landline telephony, internet-connectivity, electricity, the rarity of PCs and teacher training methods. This is true in many parts of countries

like India. Even if this is the case, it is felt as new technologies emerge, teachers should be empowered enough to reach out and use them without hesitation or fear via education, access to more training, more information and more opportunities to see and use new technologies for themselves (Jocelyn Wishart ,2009).

The advent of mobile technology poses certain challenges to the pedagogy. The challenge for educators and trainers is twofold. One is how to develop learning materials for delivery on mobile devices and the second is how to use mobile technology in the classroom. The present paper is concerned mainly with the second one. It is to be mentioned that there has been a significant body of work that focuses use of mobile technology for distant learning or learner autonomy.

The possibility of using mobile phones classroom teaching of English language and literature still remains to be exploited. Mobile learning includes I-pod, skype, kindle, PDA and Mobile phones. However, the present paper is an attempt to show as to how Mobile Phones with a little knowledge of computer can be used to give a better learning experience to the students.

Customizing the Use of Mobile Phones in the Indian Classrooms

Most Indian classrooms have been unlike their western counterparts for decades. Chalk and talk method still seems to be the most convenient method of teaching English. Use of audio-visual aids like lingua phone instruments & LCD projector is still considered either an experiment or a luxury. Though this picture is changing, it is restricted mainly to the urban private and professional schools and colleges. In majority of rural and provincial towns, the classrooms are yet to get a facelift. Problem like load shedding in power supply is a major hurdle in using aids if there are any. Hence, the use of mobile phones may vary depending on physical facilities. There can be as many uses of mobile phones as their models. The facilities in the mobile phones vary from company to company and model to model. So, a discussion of the use of mobile phones at three levels according to the basic, medium and advanced versions of mobile phones is quite interesting.

The first level is particularly useful for those teachers and students who have and can handle basic model of mobile phone. These phones have facilities such as making and receiving calls, Short Message Service, Reminder and storing contacts. In this model, SMS can be used as one of the teaching tools. There are many websites that offer free SMS facilities through which at a time an SMS text is sent to as many

as 25 people, for instance www.way2sms.com, www.gupshup.com. These texts may include vocabulary items, useful expressions, interesting facts about English language and literature. Besides, it also may be used to inform students about the lecture schedules, assignments and activities. For a creative teacher SMS language/text offers a very interesting material. A teacher can build activities based on the SMS texts that are being circulated among her/his students. The activities may be designed to motivate students in

1. Using proper spellings, punctuation marks, grammar
2. Transforming the transliterated text into English
3. Finding substitute words for the smilies, typical SMS short forms
4. Commenting on the SMS greeting, thought, riddle or text

A pilot project in Learning English via SMS is being successfully carried out in Athabasca University, Canada. A charity arm of BBC has started a novel English teaching service via mobile phones in Bangladesh which is already being hailed as a hit. Hence, the same success story in MALL can be repeated in India too.

The second level is suitable for the use of multimedia enabled version of mobile phone which offers facilities such as in-built camera, speakers, radio, media player, recorder, additional memory card , blue tooth, Multimedia Message Service, Internet connectivity. This model offers plenty of scope for the teacher to be innovative.

In teaching English as a Second language in countries like India, exposure to the authentic material can play a vital role. The multimedia model enables the teacher of English to record authentic material like News bites from All India Radio News Service or BBC News service, or discussions and incorporate it in teaching listening skills. These audio clips can be transferred to mobile phones with similar features via blue tooth. Secondly, English songs can be stored in media folder and played in the classroom by using media player facility. Especially, in the literature classroom, where the number of students is limited, song versions of English poems can be played to give students the experience the rhythm of English poetry. Many mobile phones in this category have a good sound system with an additional facility of woofers. Since, these mobile phones have detachable memory cards with the storing capacity ranging from 4 GB to 32 GB, there is plenty scope to store images, audio and video files without affecting the phone memory.

A teacher with basic knowledge of computer operations can use the camera and recording facility in mobile phone to arrange his/her teaching and give feedback to the students effectively. The teacher can record the speeches, loud reading and presentations of the students and transfer them to the Desk top or laptop PC. These recordings can then be used as corpus or material in remedial teaching. Secondly, the teacher with the help of the Power-Point Presentation, juxtapose student's version of speech, reading or presentation with that of desired version and help students see difference for themselves. This is effective particularly with the adult learners as they are able learn effectively by consciousness raising techniques.

Moreover, with the help of software like I am Too: 3 GP Video Converter any media file can be converted to GP file so as to enable it to be displayed on the mobile phones. This can open new opportunities of teaching and learning in the classroom. The learning of English can certainly become more interesting when movie clips or digital lectures are made available on the mobile phones. This may work as positive reinforcement in learning English language and literature.

The third level is connected to the use of the most advanced versions of mobile phones that is business phones or a palm top. Besides the features mentioned in basic and multimedia versions, third level has software like PDF Acrobat reader, Power Point Presentation, Word & Excel. It functions as a 'nano-computer'. Nowadays it's a gadget of media convergence. A lot of mobile apps are available for enhancing LSRW skills. It can even work as a mini language lab. A teacher who has familiarity with these programmes can use this version in preparing his teaching lessons. Instead of carrying note cards, he/she can use PPTs on his/her palm-top while teaching in the classroom.

Conclusion

Thus the use of mobile phones in the English language classrooms should not be ignored as a passing 'fad' nor should be feared. If we really give a serious thought to it, it can become an effective tool of delivering better learning in and beyond classroom. Learning of the use of mobile for a creative teaching is certainly less demanding and much simpler than that of computer. As practicing teachers we acknowledge the fact that there is no 'perfect' method of teaching, however, to strive for perfection through new experiments is always desired of a good teacher. The use of every new technology does not come without inherent limitations. However, if we are aware of

the limitations, we can always avoid falling pray to the overuse of this technology. What matters after all is creating conducive learning environment for the students and the successful implementation of latest technologies lie not in hardware or software but in 'human ware', the educator's ability to plan, design, implement and evaluate effective pedagogical uses of new technologies.

Works Cited

Attewell J. From Research and Development to Mobile Learning: Tools for Education and Training Providers and their Learners. Paper presented at the 4th World Conference on mLearning, 2005.

Duncan-Howell J. & Lee, K.T. M-learning: Finding a place for mobile technologies within tertiary educational settings. In ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007. http://www.ascilite.org.au/conferences/singapore07/procs/duncan-howell.pdf.

John Traxler & Kukulska - Hulme. Mobile Learning in Developing Countries. In a report commissioned by the Commonwealth of Learning, Ed. by G.Chin. Vacouver, BC: Commonwealth of Learning, 2005.

Jocelyn Wishart Use of Mobile Technology for Teacher Training in Mobile Learning: Transforming the Delivery & Training, Ed. by Mohamed Ally, AU Press, Edmonton, 2009.

Koole Marguerite L.A. Model for Framing Mobile Learning. In Language Learning & Technologyhttp://llt.msu.edu/vol2num1/article1/July 1998, Volume 2, Number 1 pp. 21-39, 1998.

Keegan, D. The incorporation of mobile learning into mainstream education and training. Paper presented at The 18th Asian Association of Open Universities Annual Conference, 2004.

Prensky, M. Digital Natives, Digital Immigrants. On the Horizon, 9(5), 1-6, 2001.

Virtual Graffiti Is Vibrant In Digitalising Our Classrooms

DR. NEENA THOMAS*

Abstract

Digital Classrooms provides opportunities for teachers and students to Plan, Implement and evaluate the teaching –learning processes most effectively and efficiently. Among recent innovative tactics in ICT, Virtual Graffiti is most referable one. Virtual graffiti in classroom implies virtual objects, digital messages, images, multimedia or other annotations or graphics applied to displays in smart classrooms. It helps students develop significant critical learning skills: increased engagement, reinforced understanding, and the ability to visualize difficult concepts. It also encourages students to take charge of their own learning and work at their own pace. The Graffiti can be effective after a powerful, emotional conversation, video, guest speaker, or reading. While the Big Paper strategy is good for emotional and intellectual processing, Graffiti screens are better for debriefing something that has really shaken up the students. It can be a helpful technique when you want to avoid analytical or intellectual discussions and allow students to process emotion. This unique strategy always promotes the unity among the diversified learners of our classroom community. So Virtual Graffiti can be new era of ICT integration to our classroom rejuvenation.

Key Words - *Virtual graffiti, Digital Classroom*

Introduction

Digital Classrooms provides opportunities for teachers and students to operate, store, manipulate, and retrieve information, encourage independent and active learning, and self-responsibility for learning such as online-sources, motivate teachers and students to continue using learning outside school hours, plan and prepare lessons and design materials such as course content delivery and facilitate sharing of resources,

*Assistant Professor, Mar Theophilus Training College, Nalanchira
e-mail:neenaelizabeththomas@gmail.com

expertise and advice. ICT can be explained as any device and application used to access, manage, integrate, evaluate, create and communicate information and knowledge. It also includes all the services and applications used for communication and information processing functions associated with these interventions. ICT influences students in three ways: (i) to use ICT in their daily life lead to Transformation. (ii) To the development of ICT skills for professional or vocational purposes leads to Integration. (iii) For the enhancement of the teaching and learning process leads to Intensification.

ICT is essential for the development of higher institutions both in administrative space as well as in the teaching space. Most of the institutions replaced the traditional teaching aids by ICT tools to improve the teaching-learning process. For that the government has policy on ICT literacy for teachers and administration and the institutions have ICT Policy, ICT Strategic Plan but lack ICT Security Policy, Bandwidth Management Policy, and ICT standards for all hardware and software to improve the existing ones for quality ICT services in institutions.The innovations that ICT has brought in teaching-learning process in higher institutions are significantly effective and among the identified innovations, Virtual Graffiti is most expressive one.

Virtual Graffiti

Virtual graffiti in classroom implies virtual objects, digital messages, images, multimedia or other annotations or graphics applied to displays in smart classrooms. Beyond games, online textbooks, animation or videos, virtual graffiti is in preparing our students to become technologically advanced to qualify for the skilled jobs of today and for future jobs that have not yet been created. The phrase "virtual graffiti" has existed for a long time and has been applied to numerous different applications over the years. Originally, it referred to posting messages on electronic bulletin board systems and marking up whiteboard applications. From there, it developed in academia into contextual messaging applications. We cannot use the term 'Digital Graffiti' since it's a patented mobile application and in virtual graffiti, interactive computer-generated experience also having a great role in gaining feedback.

Virtual Graffiti help students to develop significant critical learning skills: increased engagement, reinforced understanding, and the ability to visualize difficult concepts.

It also encourages students to take charge of their own learning and work at their own pace.

In one predominantly African-American classroom, the graffiti was used as a culminating activity. Around the book, "The Watsons Go to Birmingham-1963" by Christopher Paul Curtis explains this idea. Virtual Graffiti directly helps the schools work collaboratively to understand each other's needs. Teachers devote extensive time and commitment to blend the use into lesson plans in a variety of subjects.

Kathy Short's research emphasizes the use of visual literacy for meaning making-in particular the use of graffiti screens, which capture students' thoughts and feelings as they delve into a text. Students record and share in graffiti-like fashion-with quotes, sketches, or simple words-their thoughts about how they are connecting to the text. There is no particular organization to the students' images and words. They are simply written randomly on the graffiti screen, which is often no more than a large board.

A Virtual Graffiti is much more formal and systematic in terms of how students record their responses. On a graffiti screen, students jot down ideas and sketch thoughts in small groups as they respond to a text; a graffiti requires the whole class to answer comprehension questions using notes or tags-a slight variation of a shared writing technique. Graffiti require a great deal of interaction, deep communication and comprehension, and a reinforcement of the shared purpose in the task.

There is a sense of aesthetics involved in using graffiti, since the teacher must incorporate visual features and carefully examine the use of color, shape, depth, and alignment in its design. When designing, the teacher keeps in mind that it is a decorative piece of art that will cover the classroom interaction, a representative image of the text itself, an interpretive canvas for students' comments, an organizational tool for posing comprehension questions, and a transformative medium that invites students to construct meaning.

Change the mode of instructional style using commentin system

The Virtual Graffiti can be realized based on the following steps.

- Display the Focus /Issue in the display board.
- Decorate the board with some important features based on the focus theme and draw motifs in a creative manner.
- Ensure there is an aesthetic appeal to your presentation so it shows creativity and imagination.

- Place just the right number of reading comprehension questions at various points on the presentation.
- Have every student respond to the individual questions posted on the presentation using a Livefyre /disqus. Students should answer one question at a time.
- Make sure the students do not write their own names on the comments.
- Encourage the students to use the entire space of the dialogue box if needed.
- Read aloud a few of the responses after each question is completed.
- Display the hard copy of the graffiti in the public hallway for everyone to see and read.

Virtual graffiti includes expression; others see it as a work of art. In the middle level classroom, graffiti can make reading comprehension a personally contextualized, meaningful activity for all students-and especially marginalized students who are reluctant to speak up in class.

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Making meaning to graffiti

When incorporating a virtual graffiti into the literacy classroom, the teacher prepares a page with the core content and entices the page with the title of the text, author's name, and aesthetically pleasing images and motifs from the text. Students can help design the graffiti presentation.

Then, the teacher posts 3–5 comprehension questions on the page, spacing them out appropriately. The questions should allow for divergent responses from the students rather than "yes/no" answers. The questions should be open-ended and encourage students to argue "why or why not" using specific details, arguments, and evidence.

After reading the selected text as a class—whether that is a nonfiction article, a piece of fiction, a painting, a piece of music, a poem—the teacher provides time for students to posts notes , then reads aloud a comprehension question from the graffiti presentation. Students post their response. Large remarks are preferable, and students

should be encouraged to express their ideas in an apposite manner. Students have at least 5–10 minutes to respond to each question.

Whenever the textual message link with pod casts through videos to augmented reality it will provide a new sense of involvement since these experiences are seen to evolve over time based on the needs and capabilities of the users. Groups of friends can contribute, copy, and share files only while they are viewing the response.

Evolving applications of virtual graffiti

Researchers at the University of Salford experimented with a CAVE system in which a user could mark up a scene using 6-degree of freedom sensors. Obviously this is not something that is suitable for immediate use or mass market applications, but it serves as starting point from which other work could be derived.

Kit Hughes, during a research fellowship at the University of Georgia in 2003, developed a system in which users with Wi-Fi-enabled mobile devices could mark up buildings in downtown Athens, Georgia with their own virtual graffiti via a process known as tagging. In this system, the buildings are selected on a map and the graffiti is stored in a database where it can be accessed from other mobile devices and the project's website.

A location-based messaging system for leaving virtual post-it notes on physical objects was developed at the National University of Singapore. The system uses mobile devices as AR interfaces to view virtual messages associated with fiducial markers on physical objects.

In a project from Lancaster University, Contextual messaging refers to leaving some type context-specific annotation, e.g. a virtual post-it note on a computer monitor, a time-sensitive message attached to a conference room telling the occupants you won't be attending a meeting or location-based graffiti on a physical object.

Mobile phones are used as digital spray cans. RFID tags are used to identify objects that can be marked up. The RFID tags can hold the identities of the last five people to leave graffiti. The graffiti itself is stored on a server indexed by RFID tag. When another user comes within range of an RFID-tagged object, the graffiti associated with that object is downloaded into their mobile device.

Conclusion

This overall effort focuses on creating new mobile experiences based on merging virtual reality, tele presence, and location-based services. These experiences are seen to evolve over time based on the needs and capabilities of the learners. In nearby future the virtual graffiti enable a learner to identify the scope of completing the curriculum within the prescribed time format. It sends messages from nearby institutions regarding the openings of new courses.

Contextual messaging which is a time-sensitive message attached to a class room telling the teacher the presence of students in a session supported on the location-based graffiti on a physical object. It may inform the location of exam hall and receive a notification that the exam has been rearranged to a new venue.

From the highest intent to the lowest intent, this unique strategy always promotes the unity among the diversified learners of our classroom community. So Virtual Graffiti can be new era of ICT integration to our classroom rejuvenation.

References

- Jonassen, D.H., & Reeves, T.C. (1996). "Learning with Technology: Using Computers as Cognitive Tools". In D.H Jonassen (Ed.), .Handbook of research for Educational Communication and Technology (pp. 693-719). New York.Simon and Schuster.
- Plomp, Tj., ten Brummelhis, A.C.A., &Rapmund, R.(1996). "Teaching and Learning for the Future". Report of the Committee on Multimedia in Teacher Training (COMMITT). Den Haag: SDU.
- Drent, M., & Meelissen, M.(2007). "Which Factors Obstruct or Stimulate Teacher Educators to Use ICT Innovatively?". Journal of Computers & Education.
- Yelland, N.(2001). "Teaching and learning with information and communication technology (ICT) for numeracy in the early childhood and primary year of schooling". Australia: Department of Education, training and Youth Affairs.
- Grimus, M. (2000)"ICT and multimedia in the primary school". Paper presented at the 16th conference on educational uses of information and communication technologies, Beijing, China.
- https://en.wikipedia.org/wiki/Virtual_graffiti dated on 15th March 2019.

Scenarial Changes In Virtual Learning Environment: The End or The Beginning?

PRAJITHA A C*

Abstract

We are living in an era of digital and technological explosion. New technologies and approaches are merging the physical, digital and biological worlds in many ways that will fundamentally transform the human kind. This paper focuses on the various faces of Virtual Learning Environments which is an informational space, specially designed. It also shares some idea about the evolutions in education and changes in VLE as per the education 1.0 to education 3.0 . This highlights the idea about changing technologies and pedagogies , which correlates with the future educational model 'education 4.0' which will make a drastic change in our dynamic society, learning and education .

Keywords: *VLE ; Technology, Web tools, Pedagogical approach*

Introduction

As we all know that the word 'environment' correlates with the idea of integration, i.e, integrating a variety of tools which supports information, communication, collaboration, learning and management. Virtual Learning Environment (VLE) , also known as Managed Learning Environment and presently known as Training cloud environment is a social space in which the educational interactions occur. This environment is social space through word text to 3D virtual and immersive worlds where the web tools are used for effective communication, interaction and learning

During the 1st Industrial Revolution (IR), water and steam were used to mechanize production. During the 2nd IR, electric power was used to create mass production. During the 3rd IR, electronics and information technology were used to automate production. The 4th IR is beyond an enhancement of the 3rd IR, in which the advancement of new technologies blurs the lines between the physical, digital and biological worlds. The new technologies evolve at exponential pace and there is no his-

*Ex-M.Ed student (2016-2018 Batch)
School of Pedagogical Sciences, Dharmasala, Kannur University
Contact No. - 9495664139 Email id : acprajitha.anand@gmail.com

torical precedent that marked the beginning of the evolution, hence being called disruptive technologies. These advancements are led by the emergence of artificial intelligence, robotics, the internet of things, autonomous vehicles, bio and nanotechnology, 3-D printing, material science, quantum computing and energy storage (Diwan, 2017).

As a result of the industrial revolutions, we are into a society of new technological changes. So, there existed and being exists a wide difference in the formation and utilization of VLE's in teaching learning process. The evolution in education made a dramatic changes in different approaches in teaching- learning and even in the VLE's. The history of educational technology shows that every new technology raises new waves to some expectations or more expectations which leads to learning.

The PC era (1980-1990) consisted of desktops, file system, file services and FTP. But with the emergence of a variety of web tools, pedagogical approaches towards the learners and for the learners turned and seemed new innovations.

1. Pedagogy approach (education 1.0)

I'll deliver content at my pace and in my way and you will learn if you can.

With the emergence of web 1.0 (1990-2000) , the information can be collected from the web and was only limited to reading. Education 1.0 is , like the first generation of web which is largely a one way communication process. In this VLE, the educator was the instructor and the main source of knowledge. The learners receives information by listening to the teacher and responds by taking notes, studying text and doing worksheets. There was no individual consideration for the learners,i.e, single task for all the learners without considering their individual differences.

The shift from web 1.0 to web 2.0 reveals an implication to move from education 1.0 to education 2.0. With the arrival of Web 2.0 (2000-2010), created a stage for social web and through that the interaction was possible between the users and the sites. It shifted the paradigm of only reading to read and write and also allowed for e-learning, blogging, multi media portals etc

2. Andragogical approach (education 2.0)

I'll adjust how and what I teach so that it gives you the best chance for success.

This next wave of VLE, breaks the barrier between the teacher and the learner. The educator acted as a facilitator and orchestrator. There was more interaction between the teachers and the students. The focus on this VLE was on 3 C's - Communicating, Contributing and Collaborating. Social networking and interactive web tools like wikis, blogs etc had came into the new scenario to mould up the art of co-creating.

Web 2.0 also implied to enhance the collaborative intelligence towards the future of

web 3.0, which is a semantic web used to describe a network of linked data that can be processed by the machines. In the version of the Web 3.0(2010-2020), where the scenario has changed to read , write and execute, the computer can interpret information like humans according to the tailored needs of the individual learners.

3. Heutagogical approach (education 3.0)

I'll provide you with the resources and content you need so you can learn what you need, in a way that works for you, whenever and wherever you are. I will then make myself available to help you apply that learning in a useful manner

In this approach, the environment provided the educator as a resource guider . The learners are to as connectors, creators and constructivists. Availability of social networks have been provided for connecting people to people and diversity of network has been emerged. The learner became the assessors of their own learning experience. Free learning, mobile contents , Open educational resources, Massive Open Online courses (MOOC) etc has been provided in the learners VLE to make the learning more interactive, learner centred and self paced. Moodle is a course management system (CMS); a free package designed using known pedagogical principles to help the educators to create effective online learning communities.

The vision of web 4.0 (2020-2030) foresee that the ubiquitous technologies will create a convergence of real and virtual environments, where the user will seamlessly interact with humans and machines either through virtual means or in the real world. The trend for the future refers to the creation of 3-D environments.

4. Teaching/learning approaches (education 4.0) - The future educational model

Education 4.0 is a response to the needs of IR4.0 where human and technology are aligned to enable new possibilities. This VLE opts for Heutagogy, Paragogy and Cybergogy. As the changing world demands to learn new things in a different manner, and making sense of the new world and new opportunities, this approach which lays a platform for mobile learning considers the learner as innovators and education producers. This new learning environment calls for a flipped interactive classroom using technologically enhanced and equipped learners. The e-port folios will be acting as a tool for the assessment for this 4.0 education. This will be a changing game of education since the environment provides a platform for mobile augmented reality to blend real world to the virtual reality. We live in a incredible time , where the networks multiply and the virtual world becomes real. This emerging face of education demands for immersive learning through virtual and blended learning tools. This gives an exposure to globalised learning environment such as massive on-line courses. It also plans to provide for giving the students training in developing digital learning

materials using 2D and 3D animation, Screen casting etc. The prediction of education 4.0 are contextualised learning, video learning, Data driven, social learning, virtual and and augmented reality so as to reinvent our learners imagination.

A variety of educational apps which among them, the teachers cloud can be used in VLE for the collaborative learning, consistency in learning, real time assessments, any time accessibility etc. The teacher can create the content and directly share with the students. The students can possess their own personalised cloud which is created by the teacher to ensure personalised learning as the learning style differs from individual to individual. The teacher can add more in the classroom and can shape the cloud by adding specific resource suitable for the child and for uninterrupted learning. Today, VLE is not restricted to well structured information spaces. It has become a keen source for transferring, sharing and getting information either through synchronous and asynchronous mode. The potentialities of Web 2.0 has enabled the construction of new interaction and learning spaces. The students play the role of active learners , actors and they co-construct the virtual space. The main terminologies used for this VLE are Internet learning, Distributed learning, Network learning, Tele learning, On-line learning, E- learning, Computer assisted learning, Distance learning, Web based learning, Federated learning etc. The VLE of the education 1.0 is not like the VLE which is web based. In others, the learning activities range from MCQ'S to real life simulations and problem solving. The students are like information producers , members and contributors of the social and information space. VLE is an online software tool. It provides and enhances the students with learning materials and learning experiences by including computers and internet in learning process which are specific to their courses and is interactive. It is an open space where the students and teachers can try new approaches. In this learning environment, interactive learning modules and high quality designs are used to nurture the creativity of the students.

This technological era demands the new generation to be up to date with the latest technology so that the information can be accessible at their fingertips. But every coin has two sides, even technology too.

Challenges faced by Digital Native Students

The internet and mobile technology are increasingly significant to the educational and social lives of our children. But over use of these technologies resulting some disorders among our children. The average child's bedroom is no longer a place for peaceful sleep, but an entertainment hub: the epicentre of their social lives. Here they can access the outside world 24⁄7 via their mobile phones, TV or computer screen. It has a profound effect on child's life such as;

Internet Addiction Disorder

Internet Addiction Disorder refers to the excessive internet use that interferes with daily life. Internet Addiction Disorder was first reported by Ivan Goldberg, psychiatrist in New York in 1996. According to Mitchell (2000), internet addiction is the impulsive overuse of internet, deprivation which followed by irritable or dysthymic behaviour. Excessive screen addiction leads to aggressiveness, anxiety, outburst or anger, depressive behaviour and social withdrawing.

Individuals with internet addiction were associated with more severe symptoms of ADHD. TV Programs, Videos, cartoons, videogames etc can capture a child's attention for hours, it may erode his ability of attentiveness when he is back to real world. A recent study assessed viewing habits of 1323 children in 3rd, 4th and 5th grade over 13 months and found that children who spent more than two hours a day in front of a screen were 1.6 to 2.1 times more likely to have attention problem.

Four basic types of Internet Addictions are reported:

- **Net Compulsions**

  The addiction to online gaming, which results mental disorder, loss of money and also disrupt their inter personal relationship.

- **Cyber-Affair/ Relational addiction**

  This refers to the addiction of video chats. For this category, online friends become more important to their life than real life friends. In many cases it leads to the break-up of family relationships.

- **Information Overload**

  It refers to the excessive surfing on the internet and data base searches. People spend a lot of time in search, data collection and organization of information gathered from the internet.

- **Cyber Sex Addiction**

  This addiction refers to the viewing, downloading and trading of pornographic materials through the internet or involved in adult chat room with role fantasy games. People who have low Self-esteem are likely to be the victims of this addiction.

Nature Deficit Disorder (NDD)

Nature Deficit Disorder is a phrase coined by Richard Louv (2005) in his book "The Last Child in the Woods: Saving our children from Nature Deficit Disorder". NDD refers to the unhealthy withdrawal of children from natural world and spending more and

more time inside resulting in a wide range of behavioural problems. The most common factor leading to NDD is the over usage of screen time. NDD refers to the human cost of alienation from nature. Today's children are out of touch with their natural surroundings and immersed themselves in the world of electronic gadgets, which leads to behavioural disorders ,attention difficulties , diminished use of senses , higher rates of physical and emotional illness and make them alienated from nature. This emerging trend is alarming. We should accept the cold reality that NDD is a real issue and our children should be saved from it.

Conclusion

Through the years Virtual learning environments have evolved giving several generations of platforms . Last tendencies in virtual learning environment are collaborative platforms. They provide many benefits to the students. Virtual learning environments are the future in the academic field, not only at high education, but also at secondary education, where they are being introduced. They are used by all universities around the world and every day new applications are added to the virtual learning platforms. The objective is to improve the efficiency and the interaction between the students. Integrating more current technologies will make the instructors more creative in designing their lessons, thus making the learning more interesting. In this technological era, we need to reorient our pedagogical practices by incorporating learning preferences of digital natives. A variety of web tools has been used in the educational scenario to make the learning more interesting and to cater the diverse needs of the students. But, whether we are having an understanding that the technology is useful but it also had its adverse effects in their virtual learning environment even though it takes the world into a new horizon? So either it is an end or the beginning. Therefore teachers should consider it as their duty to train and teach their children to use those technologies judiciously and a life balanced with technophilic and biophilic culture. The only way to maximise the positive impact and minimise the negative is to have an accurate understanding of the role of technology that plays in our lives.

References

1. Anealka Aziz Hussin.(2018). Education 4.0 Made Simple: Ideas For Teaching. International Journal of Education & Literacy Studies ,6(3),92-98

2. Bamberg, S. (2003). How does environmental concern influence specific environmentally related behaviour? A new answer to old question. Journel of Environmental Psychology, 23(1), 21-32

3. Barney Dalgarno and Mark J. W. Lee.(2010). What are the learning affordances of 3-D virtual environments? British Journal of Educational Technology, 41(1), 10-32.Retrieved March1from http://edtc6325teamone2ndlife.pbworks.com/f/6325%2BLearning%2Baffordances%2Bof%2B3-D.pdf

4. Dillenbourg,P , Schneider,D.K & Synteta,P.(2002).Virtual learning environments. Retrieved from https://www.researchgate.net/publication/32231093_virtual_learning_environment

5. Martin Weller.(2007). Virtual Learning Environments: using, choosing and developing your VLE. New York, Retrieved March2 from https://scholar.google.co.in/scholar?q=virtual+learning+environment HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart" HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart" & HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart"hl=en HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart"& HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart"as_sdt=0 HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart"& HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart"as_vis=1 HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart"& HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart"oi=scholart" HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart" & HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart" HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment

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HYPERLINK "https://scholar.google.co.in/scholar?q=virtual+learning+environment&hl=en&as_sdt=0&as_vis=1&oi=scholart"oi=scholart

6. Michelle Luhtala(Oct 22, 2009). Web 1.0 vs Web 2.0 vs Web 3.0 vs Web 4.0 vs Web 5.0 - A bird's eye on the evolution and definition.(video file).Retrieved March 2from https://flatworldbusiness.wordpress.com/flat-education/previously/web-1-0-vs-web-2-0-vs-web-3-0-a-bird-eye-on-the-definition/

7. Notes on Higher Education 1.0 to 3.0 and Beyond.Retrieved March 1 from https://www.gillysalmon.com/uploads/5/0/1/3/50133443/education_1-0_to_3-_0.pdf

8. Nupur Choudhury.(2014). World Wide Web and Its Journey from Web 1.0 to Web 4.0. International Journal of Computer Science and Information Technologies, Vol. 5 (6),8096-8100. Retrieved from http://ijcsit.com/docs/Volume%205/vol5issue06/ijcsit20140506265.pdf

9. Paulo Alves, Luísa Miranda & Carlos Morais (2017). The Influence of Virtual Learning Environments in Students Performance. Universal Journal of Educational Research 5(3): 517-527

10. Peter Fisk(Jan 24,2017). Education 4.0 … the future of learning will be dramatically different, in school and throughout life.(video file).Retrieved March 1 from https://www.thegeniusworks.com/2017/01/future-education-young-everyone-taught-together/

11. Sareh Aghaei , Mohammad Ali Nematbakhsh& Hadi Khosravi Farsani.(2012). evolution of the world wide web: from web 1.0 to web 4.0. International Journal of Web & Semantic Technology (IJWesT).3(1),1-10. Retrieved March 1 from https://pdfs.semanticscholar.org/8cb3/93c3229e8f288febfa4dac12a0f6298efb93.pdf

12. SW Chou, CH Liu (2005). Learning effectiveness in a Web-based virtual learning environment: a learner control perspective.Journal of computer assisted learning 21.65-76 Retrieved March 2 from https://www.researchgate.net/profile/ShihWei_Chou/publication/220663188_Learning_effectiveness_in_a_Webbased_virtual_learning_environment_A_learner_control_perspective/links/59daa7d20f7e9b12b36d8cb7/Learning-effectiveness-in-a-Web-based-virtual-learningenvironment-A-learner-control-perspective.pdf

Technology Integrated Taxonomy (Peck & Wilson) In Science Education: A Conceptual Overview

RONALD ROSE S L*

Abstract

Educational technology plays an important role in meeting the various needs of children in the 21st century. Information and communication technologies (ICT) have affected our lives for over half a century. The use of educational technologies in teaching and learning presents pedagogical innovations and challenges to teachers and teacher educators. Combining multimedia technologies with the Web has created new possibilities for the development of instructional materials to deliver course content. Using educational technology as a constructivist tool could aid students to represent their ideas, articulate what they know, and explore, manipulate, and process information, while actively collaborating with each other (Jonassen, Peck, & Wilson, 1999). Using technology tools does not ensure a quality education; how educators use technology is more important than whether they use it. The question is when and how to use educational technology. The purpose of this article is to describe the theoretical overview of technology integrated taxonomy and its influence in science education.

Key words: *Technology, Taxonomy, Science Education*

Introduction

A complementary relationship exists between technology and learning. Implementations of technology differ in the nature of the cognition that they stimulate and support. In examining and reflecting on applications of ICT (informatoin and communication technology) to learning, the above taxonomy was developed to represent qualitatively different levels of ICT integration in education. The lowest level of this taxonomy involves using computers to simply store or display material for students to use; it

*Research Scholar
Mar Theophilus Training College Nalanchira, Thiruvananthapuram

places them in a passive role. The highest taxonomic level represents active students synthesizing material and utilizing ICT to construct projects such as hypermedia presentations.

The taxonomy is designed to represent qualitatively different cognitive processes that are fostered by the integration of a range of ICTs into the learning process. As is the case with Bloom's taxonomy, there are lower and higher level objectives. One aspect of ICT is that these tools can be used by an individual on their own computer so the process of constructing is internal and personal. However, an increasing number of Web-based applications are emerging that provide a means of collaboratvely constructing an understanding. The key to understanding this taxonomy is not to focus on the tools that are being used, but instead to focus on the cognitive process that the tool is supporting. It is this process that is the mechanism of learning.

The major objective is,
To give a conceptual overview of technology integrated taxonomy put forwarded by Peck and Wilson

Dimensions of Peck & Wilson's Technology integrated Taxonomy

Educational Taxonomy

lt is intended to provide for classification of the goals of our educational system. lt is expected to be of general help to all teachers, administrators, professional specialists, and research workers who deal with curricular and evaluation problems. lt is especially intended to help them discuss these problems with greater precision. For example, some teachers believe their students should "really understand," others desire their students to 'internalize knowledge', still others want their students to 'grasp the core or essence ' or 'comprehend'. Do they all mean the same thing? Specifically, what does a student do who "really understands" which he does not do when he does not understand? Through reference to the taxonomy as a set of standard classifications, teachers should be able to define such nebulous terms as those given above. Use of the taxonomy can also help one gain a perspective on the emphasis given to certain behaviors by a particular set of educational plans. Thus, a teacher, in classifying the goals of a teaching unit, may find that they all fall within the taxonomy category of recalling or remembering knowledge. Looking at the taxonomy categories may suggest to him that, for example, he could include some goals dealing with the application of this knowledge and with the analysis of the situations in which the knowledge is used.

1. Allow the storage or display Information.

The lower level cognitive process in this taxonomy is the storage of information or the passive viewing of displayed information. This utilization of ICT can take the form of viewing presented information as projected in a class, or on one's own monitor. It also includes the saving of information on one's hard drive for later use. It does not necessarily involve any deep cognitive processing and can be manifest as simply downloading relevant documents or PDF files onto one's computer. Another example might be the student who sits in class and is shown a power point presentation. In both cases the learner is in a passive role and the active linking or assimilation of this information to existing schema is minimal. Its corollary in Bloom's taxonomy is the remembering of information without necessarily understanding.

2. Foster exploration of materials and ideas

The second level of the taxonomy represents the active exploration of materials and ideas. At this level the learner is engaged in the conscious pursuit of information that will lead to a better understanding of an existent issue, question or concept. A classic example of this would be the use of a browser such as Netscape to explore websites relevant to the understanding of a concept that was introduced in class . At this level the cognitive process is deeper and more relevant as the student is in charge of directing this search. Hyperlinks in a great range of applications are a perfect tool for fostering further understanding through the access to new information. Teachers who construct guided inquiries through the use of basic Web Quests or virtual field trips might be considered to have cognitive objectives at this level. Collaborative exploration can be supported in environments like Tapped In where individuals can communicate with each other to share ideas and information. The Zoomarang site is set up to allow individuals or groups to post questionnaires and explore a particular topic by collecting data.

3. Enable the application of understanding to new situations

At the third level, ICTs can provide a powerful tool for applying a concept or understanding to a new situation. As they begin to construct an understanding of a concept, students can be provided with ICT tools that will let them apply this developing understanding to a novel situation. Applying the concept in this manner allows them to reflect on its veracity and utility. The construction of electronic portfolios can assist students in applying their understanding and representing this construction in an electronic form. The Mighty M & M site is set up to allow elementary students to

apply their understanding of the calculation of percentages and fractions to data collected by people all over the world who have counted the color distributions of bags of M&Ms.

4. Organize materials or ideas to foster analysis

The use of ICTs to allow individuals to analyze materials or ideas by manipulating them and organizing them is represented at the fourth taxonomic level. Here the focus is on the process of analysis that is facilitated by such tools as Inspiration or Visio, where the learner can engage in concept mapping or the manipulation of ideas as a means of understanding their relationship. There are other tools that also support this process of analysis. Word processing tools provide a powerful means for individuals to organize and analyze ideas as well. There are a number of whiteboards that can also serve this same process of group construction of understanding.

5. Support evaluation and problem-solving

The fifth level of the taxonomy represents the use of ICTs to support the process of evaluation. This can be done in a number of ways. One way to engage students a this level is by compiling information and resources into a digital repository that will allow them to address issues of history or current events and to evaluate these resources. It can be facilitated by developing simulations that will immerse students in an environment that will help them evaluate relevant dimensions and solve the problems that are posed. There are also collaborative Web-based environments that support or foster evaluation and problem-solving. Applications like NetMeeting are unique in providing a collaborative environment that can foster communication and problem-solving. Palaver Tree is a site that is powerful in fostering the evaluation of ideas and information promoted by collaborative problem-solving.

6. Facilitate constructing or designing projects

At the highest taxonomic level is the deep processing that is promoted by the design or construction of integrating projects. Most of the processes represented at the lower taxonomic levels are brought together in the design of projects. In the development of powerful projects, students must explore ideas and resources, and analyze and evaluate information in a final synthesis. Hypermedia programs like HyperStudio are a wonderful example of ICTs that can fully utilize the multimedia environment to support this process. Web Design environments such as GoLive are equally powerful in their ability to link a wide range of resources and allow individuals to explore and represent their ideas in a widely accessible format.

Indian Adaptation of Blooms' Taxonomy

NCERT has worked and adapted the blooms' taxonomy with some modification to suit with Indian situation. It clearly mentioned the cognitive, affective and psychomotor domain with their instructional objectives as well as specification.

NCERT taxonomy of educational objectives

Cognitive Domain	Psychomotor Domain	Affective Domain
Knowledge	Skill	Appreciation
Comprehension		Interest
Application		Attitude

In cognitive domain NCERT listed the Knowledge, Comprehension and application. But it merged the analysis, synthesis and evaluation in to application objectives. Development of psychomotor domain intended by the development of skills related to the concerned subject. It may be drawing, locating, observing, experimentation, drama, and so on. Affective domain indicate the student appreciation of personalities, events, culture, tradition and good deeds of individuals etc. it also indicates the development of interest among the student to learn more related to subject by further reading, conducting interviews, preparation of album, bulletin boards, projects etc. NCERT also gave an important place to developing positive attitude among students towards constructive persons, events, and programmes which may bring world peace, Social welfare, economic as well as national development and vice versa.

Conclusion

While integrating technology into education it should enhance meaningful learning. Normally learning is defined as the permanent change in behavior. The role of technology in learning is indirect. So educational administrators should take various steps to fuse technology and education in a meaningful way which results in the permanent change of behavior of students.

Therefore the role of technology is to direct & foster thinking. The more actively engaged the learner is in the process of thinking and manipulating information, the deeper the processing and the more meaningful the learning.

Reference

Jonassen, D. H., Peck, K. L., & Wilson, B. G. (1999). Learning with technology: A constructivist perspective. Upper Saddle River, NJ: Prentice Hall

Lightle, K. (2011). More than just the technology. Science Scope, 34(9), 6-9.

Meyer, K. A. (2010). A comparison of Web 2.0 tools in a doctoral course. The Internet and Higher Education, 13(4), 226-232. doi:10.1016/j.iheduc.2010.02.002

Jonassen, D.H., Peck, K.L. and Wilson B.G. 1999. Learning with Technology: A constructivist perspective, Prentice Hall, New York.

McLellan, H. 1995. Situated learning perspectives, Educational Technology Publications, Englewood Cliffs, NJ.

MOOC-Influencing Facotrs Of Success And Failure

***SOUMYA E **SREEVIDYA R**

Abstract

In this paper, we argue that, success and failures in online learning is mostly depending on personal factors rather than factors influenced by the surroundings or the external environment. Students' individual behavior plays an important role in learning. However, this may not be the case in classroom-based learning or time-tested traditional practices of learning, where multiple students learn together, as well as teachers influence the underperforming students to perform better. In this paper, we explore comparisons between learner behavior in hierarchical individual mode or traditional classroom learning and in online courses such as Massive Open Online Courses (MOOC). MOOC learning belongs to the distributed individual mode of learning. The study is based on analyzing the learner's interests and understanding within such modes. The information is gathered based on results available since the introduction of MOOC from the reputed universities in the world and on the general opinions derived from perspectives of MOOC learners.

Key Words : *MOOC, online, behavior, learning.*

Introduction

Information technology has been playing a major role in modern teaching and learning. Before the wide spread use of information technology, the traditional chalk-and-talk method was used as a primary way of teaching, where teachers used a chalk to write on a blackboard and then deliver a lecture [1]. In many universities these methods are now replaced by Power-Point (PPT) presentation. It is easy for learners to absorb ideas in a PPT presentation, and teacher can show a number of audio or video

*ME Student, IASE Thrissur
E mail: soumya.ramesh2011@gmail.com Ph:9061450744
**ME Student, IASE Thrissur
Email: sree12arun@gmail.com Ph: 9995636870

information by embedding them within a slide.

In this century, technological innovations have been influenced heavily on educational practices. Learners and teachers both practice novel and innovative ideas for improving the quality of teaching, learning, disseminating ideas, and knowledge sharing. However, in the age of technological innovation, it is challenging for them to retain some of the time-tested and reliable practices which had been followed for thousands of years. Innovation is the key to the success of any educational organization.

Objectives

1. To explore the factors influencing success and failures in online log under Mooc Platform.

Vext Pare in recent years, Massive Open Online Courses (MOOCs) has been attracted millions of learners around the world, through various MOOC providers such as edX, Coursera, and Udacity. MOOC facilitates millions of learners to enroll courses form reputed universities around the world such as Harvard University, Stanford University, Massachusetts Institute of Technology (MIT), University California at Berkeley (UCB) etc..

Methodology

This follows a qualitative research design and uses a systematic review. Systematic reviews aim to identify, appraise and summarize studies of a particular topic (Webb & Roe, 2007) and are used to arrive at a more holistic, comprehensive and trustworthy outlook of the research topic (Gough, Oliver & Thomas, 2012). Systematic reviews provide guidance to researchers planning future studies, and provide convenient summaries of the literature on a particular issue (Petticrew & Roberts, 2008).

In current MOOC systematic review of research, the data collection and organization process employs document analysis while data analysis process employs content analysis approach. Document analysis, is a social research method. It is an important research tool in its own right and is an invaluable part of most schemes of triangulation employed for data collection. In document analysis, different techniques can be used depending on the type of the document and purpose of the research (Heffernan, n.d.). Document analysis involves skimming (superficial examination), reading (thorough examination), and interpretation. This iterative process combines elements of content analysis and thematic analysis (Bowen, 2009).

Analysis And Interpretation MOOC And Online Learning

In 2012, both MIT and Harvard University decided to offer wide-range of university-level courses. Students can get a certificate once they finish a course successfully through edX. MOOC platforms such as edX, Coursera, and Udacity derive a number of interesting facts about the future of education. As per New York Times, "The shimmery hope is that free courses can bring the best education in the world to the most remote corners of the planet, help people in their careers, and expand intellectual and personal networks."

Most of the courses are absolutely free of cost, and taught by professors from leading universities in the world such as Harvard University, MIT, Stanford University, etc. There are also options to get verified certificates after paying a minimum fee. With this, it is evident that there is no problem in obtaining most of the course materials for free of charge. Moreover, all kinds of materials are available today, for example, materials in the form as text files (mostly PDF, Word and PowerPoint), audio, and video lectures, either through MOOC platforms or university websites. One could obtain any level of course materials, in any formats, and also in multiple language subtitles.. As the MOOCs are getting wide attention in these days, we would like to analyze the common behaviors of learners which contribute to the success and failure in MOOC.

Low Success Rate in MOOC

The success rate of most popular MOOC courses in the recent years show that many online learners lose interest only after a few weeks of course progress. According to the UK?s government report on MOOC, "The MOOC format itself suffers from weaknesses around access, content, quality of learning, accreditation, pedagogy, poor engagement of weaker learners, exclusion of learners without specific networking skills". According to 2013 data compiled by an Open University doctoral student, Katy Jordan, as part of her own MOOC studies, the average completion rate for massive open online courses is less than 7%. According to her findings, which are based on local news articles, university documents, presentations and other information sources (including Times Higher Education), the average MOOC completion rate across the 29 courses was just 6.8 per cent. There are many cases where students joined MOOC only to audit the courses or to have some exposure from the best universities in the world. So, benefits of MOOC courses are still many. The main reason for this kind of low completion rate, (here completion rate actually means, the students who obtained the certificates) is: different universities set different criteria for completion rate, and many students feel that online courses are just for the sake of providing knowledge, and completing the course is not necessary at all. So, failure to finish a MOOC course is not complete failure at all. This may apply to success in MOOC as well. For ex-

ample, some courses in MOOC are totally auto-graded, or graded by the computer, so if one is lucky, he/she may simply get a certificate without even listening to lectures or understanding the problems. In other words, students might not take online courses seriously as they do in the traditional classroom settings.

Reasons for Failures in MOOC

In this section, we would like to list the reasons of failures in a MOOC from the learner?s perspective. We have listed a couple of reasons for this trend as compared to traditional time-tested practices.

◆ Learners as Information Viewers, or Collectors Rather than Active Users

Researchers identified five styles of engagement in MOOC: Viewers, Solvers, All-rounders, Collectors, and Bystanders. Irrespective of all these high-quality course materials available freely to students through MOOC, a number of negative trends are growing among learners

1) Learners are increasingly focusing on collecting and storing materials as much they can without using it.

2) Learners are not guided properly to identify how many materials are needed, useful, and required at their level to complete the course successfully

3) Learners are increasingly interested in audio, video, and Power-Point (PPT) materials than simply textbook (or text) materials.

4) The face-to-face meeting with fellow-learners and problem solving chances along other peers are diminishing, as most of them depend on discussion forums for asking and answering question

The above reasons make the online learners passive. According to Terry Anderson [12], "Just as there are many kinds and subject focus of MOOCs, there are many different types of students attracted and they have wide variety of expectations and commitments. Early research is showing that many students enroll in MOOCs as auditors with no intention of completing assignments or quizzes. They may just be curious, be testing the waters, experiencing how other teachers handle the teaching or just curious about MOOCs. These students are usually passive participants, or lurkers, who may drop out (or even drop in to active participation) later in the course."

◆ **Minimum Learning by Doing**

Most of the learning models available today are based upon developed countries? educational traditions. Therefore, it is necessary to analyze some differences in educational traditions that affect the ways in which teaching and learning are viewed. Learning by "doing" is a theme that many educators have stressed since John Dewey?s convincing argument that children must be engaged in an active quest for learning

new ideas. Students should be presented with real-life problems and then helped to discover information required to solve them [15]. Learner-centered learning changes the focus from teaching to learning, and support learners to develop self-directed learning. Learning by doing takes a deep role, especially in most of the courses related to science and technology. Today, most of the courses in edX are related to computer programming, science and technology. However, hands-on-experience is needed to master skills in these courses, as per famous MIT professor Seymour Papert, "Knowledge is only part of understanding. Genuine understanding comes from hands-on experience" , so it is not enough to simply provide knowledge without practical, and method-supporting hands-on experience tools.

- **Lack of Personal Support and Human Intervention**

In this section, we would like to stress the importance of human intervention in general kinds of learning rather than complete machine-supported or auto-graded system of learning. Students are motivated to learn when the teacher or facilitator is present within their proximity of reach with a closed and systematic support system.

- Harvard Computer science lecturer David J. Malan tracked the number of students who were engaged with his virtual course (offered through edX), CS50x: Introduction to Computer Science I, from start to finish. Out of the 150,349 students who registered for CS50x, 10,905 submitted the first problem set. Of that group, 3381 individuals said they hoped to get a certificate out of the course, and only 1388 actually received one.
- According to data collected by MITx with funds from the National Science Foundation, that same trajectory occurred in Anath Agarwal?s course 6.002x: Circuits and Electronics, for which 154,763 people registered, 26,349 turned in the first problem set, 9,318 students passed the midterm, and 7,157 ended up certified.
- High Difficulty Level and Lack of Self

Currently, the courses offered by the MOOC platform are mostly from reputed universities in the world such as Harvard,MIT, and UCB etc. Most of the courses are taught in the respective university campuses as well. As most online learners enthusiastically join these courses to obtain certifications form these universities, they fail to analyze the level of difficulty of these courses

Most online learner also faces the problem of complete localization of the materials presented For example, most of the instructors set their courses to meet the demands of the students in their campuses rather than geographically spread online learners. This forces the online learners to master working or study culture of the offering University.

◆ **Uncontrolled and Undisciplined Environment**

In a physical classroom, students are expected to attend the class regularly, and teachers also expected to increase their quality of teaching, and bring innovation into their teaching styles. Moreover, in many countries, minimum student attendance is a basic criterial to decide the level of student participation in a course, and serves as basic criterial to analyses the students? academic progress.. In the context of MOOCs, students have substantially more freedom to determine what, when, where, and how they will learn. The barrier to entry is low, and there is no penalty for dropout [21]. Even though it is easy to find such participation results based on the number of times student logged-in the course website, or based on the hours spend watching a particular lecture video, there is no guarantee that this kind of online actions are really done by the exact learner.

Reasons for Success in MOOC

◆ **Enthusiastic and Self-Motivated Learners**

Considering the educational qualifications of edX MOOC learners, most of them are in their high-school level or obtained minimum high-school qualification, or with above bachelor degree qualification. In the case of first MOOC course offered by MIT, 6.002x: Circuits and Electronics, the highest percentage of participants (36.63%) were reported having a bachelor?s degree . This shows that it is hard to define common educational background for MOOC learners. However, the main motivating factor among all learners is enthusiasm and self-motivation. From the most existing surveys, there are some students in the world, who have completed more than 40 MOOC courses successfully and obtained the certificates.

Some learners are motivated to show their talent in self-directed learning, and others genuinely interested in acquiring more knowledge. Similar results were found in the first MOOC course offered by MIT, where the primary motivation of most learners was driven by a desire to gain knowledge and skills, followed by a desire for personal challenge. The survival analysis results conducted by Wen et al validate that the more motivation the learner expresses, the lower the risk of dropout. Similarly, the more personal interpretation a participant shows in posts, the lower the rate of student dropout from the course forums.

◆ **Job and Career Requirements**

The second motivating factor for learning in a MOOC environment is regarding job and career requirements. This can be derived from the age range and educational

qualification of MOOC learners. In some courses, candidates with Ph.D. also joined MOOC courses. Comparing the results from Udacity, the retention rates in Udacity courses have been abysmal and those that did make it through were those who have already obtained bachelor degrees . There are also cases, where some high school students who took edX courses from MIT were later admitted to MIT .

- **Authenticated Certificates**

Another motivation to participation in MOOC is their authenticated certifications. This is especially true in case of edX. edX provides certificates, which are issued online, and also can be authenticated by the link provided within certificate. So, there is zero possibility for faking the certificates.

- **University and Teacher Reputations**

Compared to many MOOC providers, in the recent years, edX platform is getting high -attention . Currently, edX has partnered with over 40 top universities in the world. Most students joined these MOOC courses because of the reputation of these universities in their respective countries as it is prestige for a learner to get certifications from such universities. In addition, teacher reputation also matters. In [31], the author listed top five MOOC brilliant professors extremely good at teaching and attracting several thousands to over 100,000 students to their virtual classrooms.

- **Flexibility to Make Mistakes, and Instant Feedback**

In MOOC, there is flexibility to make mistakes, and learn by making mistakes. For example, in some courses, a learner can attempt as many answers as possible. As per founder president of edX, Ananth Agarwal, there are six advantages of MOOC learning [32]. Firstly, a learner doesn?t have to sit all the time to listen to lecture a in a classroom. He believes that, learning from video with short duration is contributed to active learning. Secondly, there is instant feedback about the assignments and answers submitted by the learners. This is proved in computer literatures as best way to learn and make progress. Thirdly, students are allowed to make many mistakes and this contributes to infinite learning or mastery-based learning. Fourthly, the students are allowed to pause, rewind, speed up/down the video, so that they can listen more and more, which is totally impossible in real-classrooms. Fifth, there is more engagement from learners or gamification. Finally, students learn from their peers, and with thousands of discussions and online forums.

Conclusion

Massive Open Online Courses is a recent trend in education, and there are numerous studies and research. Although MOOC is a very positive trend in education, the attractiveness of its role in student leaning is decreasing. Success is not as expected. This paper reviews some of the reasons for success as well as failures of learners in MOOC. Most of the factors of success or failure are purely individual as most of learners are genuinely interested in finishing course, and most of such learners are fascinated by the reputation of universities, quality of courses, and deriving fun in solving challenging assignments. Other related problems such as poor Internet connectivity, lack of knowledge about MOOC, language barrier and level of learning potential is not considered in this

The role of MOOC cannot be neglected in the future, especially their potential to reach millions of learners around the world. However, as most of the universities are still prototyping and analyzing the loopholes exists in MOOC-based education, it is important to analyze the effectiveness from learners? than providers? perspective. MOOC must focus on attracting more students by providing better tools for learning rather than simply as repositories of high-quality multimedia materials online, then only the effort of MOOC providers will be fruitful. f learning potential is not considered in this paper.

Reference

- Engineering. (2014). MIT Manipal-Attendance Rules and Regulations. [Online]. Available: http://www.manipal.edu/institutions/engineeringandit/mit/student%27scorner/rulesandregulations/pages/studentattendanceregulations
- M. Wen, D. Yang, and C. P. Rose, "Linguistic reflections of student engagement in massive open online courses," presented at ICWSM?14, 2014.
- G. Ferenstein. (August 2013). Udacity and san jose state see improvement. Their Online Education Experiment. [Online]. Available:http://techcrunch.com/2013/08/28/californias-online-college-pilot-proves-successful- after-poor-results-HYPERLINK "http://techcrunch.com/2013/08/28/californias- online-college-pilot-proves-successful-after-poor-results-in-1st-semester/"in HYPERLINK "http: techcrunch.com/ 2013/08/28/californias-online-college-pilot- proves-successful-after-poor-results-in-1st-semester/"-1st-semester/
- W. Live. (August 2013). The Benefits of Online Learning. [Online]. Available:

http://www.dailymotion.com/video/x15pjix_the-benefits- HYPERLINK "http://www.dailymotion.com/video/x15pjix_the-benefits-of-online-learning_news"of HYPERLINK "http://www.dailymotion.com/video/x15pjix_the-benefits-of-online-learning_news"-online- HYPERLINK "http://www.dailymotion.com/video/x15pjix_the-benefits-of-online-learning_news"le HYPERLINK "http://www.dailymotion.com/video/x15pjix_the-benefits-of-online-learning_news"arning_news

- The edX Student. (2014). [Online]. Available: http://www.thecrimson.com/article/2013/5/30/the-edX-student-international/?page=1

Extent Of Use Of Techno - Pedagogy In Teacher Education: Perspectives Of Teacher Educators

***SREEJI SADAN, ** RAJESWARI V S & *** DR. ASHA J V**

Abstract

The main purpose of the study was to find out and compare the perspectives of teacher educators of aided and self financing institutions on the extent of use of techno - pedagogy in teacher education. The sample of the study consists of 270 teacher educators of aided and self financing teacher education institutions. The study revealed that there is significant difference between the perspectives of teacher educators of aided and self-financing institutions on the extent of use of techno - pedagogy in teacher education. The teacher educators of self-financing institutions are less aware about the need of techno - pedagogy in teacher education when compared to the aided teachers. The study suggests that it is necessary to develop techno pedagogical skill in teacher educators.

Key Words: *Techno pedagogy, Teacher Education, Teacher educat*ors

Introduction

During last few decades, the educational scenario is undergoing a paradigm shift in teaching techniques with the introduction of information and communication technology (ICT) devices. It opines that such a transformation is not only increasing the potentiality of the teachers but also widening the information base of students so as to make them competitive in the international arena. Today the techno - pedagogical competency is very much needed for teachers in teaching and learning process, as it facilitates effective teaching and learning. The techno - pedagogical competency is nothing but the ability of the teachers to make use of technology effectively in teaching. Techno-pedagogical competency concept is conducting the planning, applying and assessing processes depending upon technological and pedagogical contents in order to increase

*Research Scholar, SPS, Mahatma Gandhi University, Kottayam,
**Research Scholar, Dept. of Education, University of Kerala &
*** Professor, SPS, Mahatma Gandhi University, Kottayam.
E-mail: sreejibt@gmail.com, rajeswariprasad27@gmail.com, ashajv3@gmail.com

the effectiveness of teaching process (Niess, 2005).Teacher education curriculum is responsible for imparting such abilities to teachers. Teachers with appropriate techno - pedagogical skills can make teaching a pleasurable experience without feeling much of pressure. Information technology has opened wide opportunities for educators to integrate technology supported materials in the teaching – learning process and to improve the achievement of students (Jonassen, 1995). Educational technology is not, and never will be, transformative on its own – it requires teachers who can integrate technology into the curriculum and use it to improve student learning. In other words, computers cannot replace teachers –teachers are the key to whether technology is used appropriately and effectively (Carlson & Gadio, 2002).Therefore, techno - pedagogical method is an essential component of teacher education.

Need And Significance Of The Study

Teacher education is getting prominence because of the need for qualified teachers with the necessary skills and knowledge needed to carry out teaching jobs as well as for professional growth. Teachers go through many training that focus on computer literacy but which do not enable them to integrate ICT in their day to day activities and use it as a tool to improve teaching and learning as observed by Ng, Miao, Lee (2009).Theoretically teacher educators adopt modern technologies for improving teaching learning process in the class room but practically they are not. The UGC panels on teacher education and NCTE have also suggested suitable reforms from time to time. But in teacher education system, there is a total mismatch between practices being taught by teacher educator and practices being followed by them. So it is necessary to find out the extent of use of techno - pedagogy in teacher education.

Objectives of the study

- To find out the perspectives of teacher educators of aided and self financing institutions on the extent of use of techno -pedagogy in teacher education.
- To compare the perspectives of teacher educators of aided and self financing institutions on the extent of use of techno -pedagogy in teacher education.

Hypothesis formulated

- There exists a difference between the perspectives of teacher educators of aided and self financing institutions on the extent of use of techno -pedagogy in teacher education.

Methodology used

Normative survey method was used for the present study.

Sample

Total sample consist of 270 teacher educators of aided and self financing institutions, out of which127 teacher educators are from aided teacher education institutions and 143 teacher educators are from self financing teacher education institutions. Stratified random sampling technique was used for the collection of data. The teacher educators of aided and self financing institutions form various strata.

Tool used

Tool used for the present investigation was a pre-tested structured questionnaire. A total number of 24 questions were included in the questionnaire. It has three sections. They were (1) use of technological assistance by teacher educators in class room teaching learning process (2) infrastructure facilities available in the institutions and (3) techno- pedagogical competency of teacher educators.

Statistical technique used

Statistical technique adopted for the study consists of computation of percentage and t-test (large independent sample).

Analysis and Interpretation of Data

A total number of twenty four questions were included in the questionnaire to study the perspectives of teacher educators on the extent of use of techno - pedagogy in teacher education. Prior permission was taken from the teacher educators. The test was administered personally and the data was collected and analysed statistically.

Table 1: Perspectives of teacher educators on extent of use of techno - pedagogy in teacher education

	Aided	Self-financing
Use of technological assistance in class room teaching learning process	74.53%	65.87%
Infrastructure facilities	77.17%	69.93
Techno- pedagogical competency	67.83%	37.76%

It is evident from the Table: 1 that 74.53% teacher educators of aided institutes and 65.87% teacher educators of self-financing institutions using technological assistance in their class room teaching learning process. Necessary training must be given to the teacher educators of aided as well as self-financing institutions to make use of technological assistance in classroom transactions. Only 71.17% of aided institutions and 69.93% of self-financing institutions have adequate infrastructural facilities. Teacher education institutions must provide adequate infrastructural facilities to make teachers

as well as students techno- competent. Only 67.83% of aided teacher educators and 37.76% of self-finance teacher educators have techno-pedagogical competency. Adequate training to be given to the teacher educators of aided as well as self-financing institutions to make them techno- pedagogically competent.

Table 2: Comparison of the perspectives of teacher educators on the extent of use of techno - pedagogy in teacher education

Type of Management (Teacher Educators)	N	Mean	S. D.	t value
Aided	127	17.65	2.51	
Self financing	143	14.14	2.66	5.32

It is interpreted from the Table 2 that, the computed 't' value i.e. 5.32 is greater than the table value 1.97 and is significant at 0.05 level. The study revealed that there is significant difference between the perspectives of teacher educators of aided and self-financing institutions on the extent of use of techno - pedagogy in teacher education. The teacher educators of self-financing institutions are less aware about the need of techno - pedagogy in teacher education when compared to the aided teachers. So that it is necessary that self-financing institutions must increase their facilities and make use of techno - pedagogy in teaching- learning process. Use of techno - pedagogy will increase the skill and ability of our student teachers as well as teacher educators to take their place in the world of rapid technological change in education.

Conclusion

A teacher is the topmost academic and professional person in the educational pyramid who shapes the learners. Modern society demands high quality teaching and learning from teachers. A sound programme of teacher's education and effective teachers training institutions are essential for the qualitative improvement of overall education system of a nation. Techno - pedagogical skills are very useful in making teaching learning process a joyful experience as it would make notable changes in the interaction pattern of teachers. Core aim of techno - pedagogy in teacher education is that to improve and transform educational practices by infusing technology into curriculum and educational institutions.

References

Anastasi, A. (1968). *Psychological testing* (3rd ed.)**.**
New York: Mac Millian Publishing Company.
Best, J. W., & Khan, J.V (2014). *Research in education* (10thed)**.**
New Delhi:Prentice Hall of Indian Pvt. Ltd.
Carlson, S., & Gadio, C. T. (2002). Teacher Professional Development in the use of Technology. In W. D. Haddad & A. Draxler (Eds.), *Technologies for Education. Potentials, Parameters, and Prospects* (pp. 118–132). Washington, D.C.: UNESCO.
Garrett, H. E. (2013). *Statistics in psychology and education* (6th ed).
Delhi: Surjeet Publications.
Jonassen, D. (1995). Supporting communities of learners with technology: A vision for integrating technology with learning in schools. Educational Technology, 35(4), 60-63
Jonassen, D. (1995). Supporting communities of learns with technology: A vision for learning technology with learning in schools. *Educational Technology, 35* (4), 60-63.
Lokesh Koul (2011). *Methodology of educational research*. New Delhi: Vikas Publishing House Pvt. Ltd.
Ng.w.k., Miao. F., & Lee. M (2009).*Capacity-building for ICT integration in education*.
Niess, M. L. (2005). Preparing teachers to teach science and mathematics with technology: Developing a technology pedagogical content knowledge. *Teaching and Teacher Education, 21* (5), 509–523.
Sidhu, K.S. (1996). *Methodology of Research in Education*. New Delhi: Sterling publishers.
http://www.iosrjournals.org
https://www.researchgate.net
http://shodhganga.inflibnet.ac.in
http://www.slbsrsv.ac.

Enhancing The Achievement of Students In Biology Using Web Based Learning Materials At Higher Secondary Level

DR. MUMTHAS S*

Abstract

Being digital is the buzz word of our time and it is projected as a panacea for all problems as well as a window to the possibilities in the field of education. The daily life of people in all the walks of life has been significantly altered by modern gadgets and soft wares which offer better quality and efficiency. Technology specifically, Information and Communication Technology involves in school education in two ways- as a subject to be learnt and as a tool in teaching learning process. Web based learning is a powerful instructional strategy that enhances students' ability to remember and retain information. This is because it presents multiple representations of a single concept. Static pictures and hand layouts are insufficient in retaining the concepts for a longer period of time. Web based instruction explores the concepts of a course by using new features and innovative examples in the audio-visual texts and animation techniques. This paper entitled as "Enhancing the achievement in Biology of students using Web Based Learning Materials in Biology at Higher Secondary Level". Experimental method was adopted in this study. Samples were divided into control and experimental groups. Control group was taught by Activity Oriented Method and experimental group with Web Based Learning Method. Pre-test and post-test was administered to both the groups. The findings of the study reveals that the achievement in Biology of students exposed to Web Based Learning Method is better than those of students exposed to Activity Oriented Method .This may be due to the effectiveness of the Web Based Learning Materials.

Introduction

In the modern education technology, the web based teaching and learning has been found to be more effective and time saving. The web resources play the most crucial role in making the web based teaching and learning and it is more functional and effective. Therefore the Web Based Learning method is more important.

*Assistant Professor, Peet Memorial Training College, Mavelikkara

Shifting the emphasis from teaching to learning can create a more interactive and engaging learning environment for teachers and learners. This new environment also involves a change in roles of both teachers and learners. The role of the teachers will change from knowledge transmitter to that of facilitator, knowledge navigator and sometime as co-learner. The new role of teachers demands a new way of thinking and understanding of the new vision of learning process.

As a result of rapid growth of Internet, Web based learning soon revolutionized the field of education. Some reasons behind this are that WBL (a) promotes growth of distance education economically as compared to computer based training, (b) live broadcasts, video tapes and so on enables learners who prefer or are required to learn outside traditional classrooms to attend classes at their homes or offices, and (c) provides delivery medium, content provider, and subject matter in one package, unlike other mediums, such as computer based training, that require a separate delivery mechanism. In the words of Barron (1998), "Web based instruction is defined as the delivery of instruction via the World Wide Web. Such instruction may be delivered as a stand-alone course that does not include any face-to-face interaction between teacher and student or may be a supplement to traditional classroom instruction". Web based learning is a powerful instructional strategy that enhances students' ability to remember and retain information. This is because it presents multiple representations of a single concept. Static pictures and hand layouts are insufficient in retaining the concepts for a longer period of time. Web based learning can improve the quality of teaching learning and management in schools and there by helps to raise standards.

Need and Significance of the Study

In this modern era of science and technology the knowledge of science is very important for the human beings. Science education has become an integral part of school education. Science involves explaining abstract concepts and calls for visualization of microscopic objects/ organisms or gigantic, astronomical bodies/ processes like atoms, nuclear fission, creation of the universe, cell structure, etc. In this modern world dominated by science and technology, the science teaching must be effective and innovative, and beneficial to pupils. So the quality of science teaching is to be developed considerably so as to achieve its purposes and objectives, viz, to understand basic principles, to develop problem solving, analytical skills, and ability to apply them to the problems of material environments and social living besides promoting the spirit of enquiry and experimentations. The science comprises of different branches in school system such as: Physics, Chemistry and Biology.

The subject of biological science is most valued for its practical application in the day-to-day life of the human beings. The teaching of biological science should equip and shape an individual with certain values, attitudes and skills in science. A Biology teacher has to realize the aims of biological science teaching and inculcate these values of science in the students.

The style of teaching and learning nowadays go far beyond the traditional pedagogic comforts within the four walls of the classroom. It is necessary to present a variety of strategies to maximize learning for heterogenous groups. Biology classrooms of today are little different from those of yesterdays, courtesy the involvement of many creative minds in the development of innovative curricular materials. With the recent developments in technology and computer science, our age old teaching methodology has been outdated and out modeled. Under these circumstances, the role of the teacher as curriculum manager demands highest level of expertise and specialization to integrate technology and pedagogy especially in the science classrooms.

The present generation needs practical type of education. As a result more and more information and new knowledge are being added day by day. Biology has become an indispensable subject for those who wish to continue their studies in any branch of medicine, agriculture, biotechnology etc. Like any other branch in science, Biology is also cumulative in nature. So a thorough base and curricular knowledge should be provided to students at this level for clearing the entrance examinations and other competitive examinations. One of the aims of teaching Biology to higher secondary students is to prepare them for professional careers and to inform the future citizens of the nature and role of Biology in everyday life. The higher secondary level is a turning point in the student's academic life and a stepping stone to his/her higher studies. Today's world is a competitive word and so it is very necessary to provide effective learning situation for surviving in such a world. Now there is knowledge explosion and the students should be made aware of new inventions and discoveries and also should be provided opportunities to go deep in to their areas of interest.
The present study is a result of the investigator's genuine interest to find out the most effective and appropriate method for teaching Biology at the Higher Secondary Level.

Objectives of the study

- To test the effectiveness of the Web Based Learning Materials (WBLMs) by comparing the Achievement in Biology of the Web Based Learning Group (WBLG) and Activity Oriented Method Group (AOMG) for total sample in terms of :

- Pre-test Achievement
- Immediate Post-test Achievement

Methods and Materials

Experimental method was adopted in this study. Pre-test was administered in order to find out the entry behaviour of the students towards Web Based Learning in Biology. Sample consists of 80 Biology students of which 40 of control group and another 40 for experimental group. The investigator taught the topic "Breathing and Exchange of Gases" using many related websites in Biology, to acquire information. Opportunity was given to the students to explore the websites at their own pace. Post test was conducted in order to find out the effectiveness of Web Based Learning Materials. An achievement test was prepared by the investigator with 22 questions. Score of the achievement test was used in the statistical analysis.

Hypothesis 1

Control group and Experimental group higher secondary level students do not differ significantly in the pre-test.

Comparison of Pre- test Scores in Achievement in Biology of Students in the Web Based Learning Group (WBLG) and Activity Oriented Method Group (AOMG)

The difference between the mean scores of the Web Based Learning Group and Activity Oriented Method Group were tested for significance by finding the critical ratio. The data and results of the test of significance are given in the table given b elow:

Data and results of Test of Significance of Pre- test scores in Achievement in Biology in the WBLG and AOMG

Groups	No.of Students	Mean	Standard deviation	Critical Ratio	Level of Significance
Web Based Learning Groups	40	14.22	3.475	0.578	Not significant at
Activity Oriented Method Group	40	14.67	3.489		0.05 level

The critical ratio obtained is 0.578 which is not even significant at 0.05 level.

This shows that there is no significant difference between the means of the Pre- test achievement scores of students in the Web Based Learning Group (WBLG) and Activity Oriented Method Group (AOMG). Therefore, the two groups do not differ significantly in their performance. So it is inferred that before the experiment the two groups were of more or less of the same ability.

Hypothesis 2

Control group and Experimental group higher secondary level students do not differ significantly in the post-test.

Comparison of Immediate Post- test scores in Achievement in Biology of students in the Web Based Learning Group (WBLG) and Activity Oriented Method Group (AOMG)

The difference between the mean scores of the Web Based Learning Group (WBLG) and Activity Oriented Method Group (AOMG) were tested for significance by finding the critical ratio. The data and results of the test of significance are given in the table given below:

Data and Results of Test of Significance of Immediate Post- test scores in Achievement in Biology in the WBLG and AOMG

Groups	No.of Students	Mean	Standard deviation	Critical Ratio	Level of Significance
Web Based Learning Groups	40	34.950	3.7000	6.98	Not significant at 0.05 level
Activity Oriented Method Group	40	28.775	4.1970		

The critical ratio obtained is 6.98, which is significant at 0.01 level. This shows that there is significant difference between the Web Based Learning Group (WBLG) and Activity Oriented Method Group (AOMG) in the post-test achievement. Since the mean of WBLG (34.95) is greater than that of the AOMG (28.775), it is inferred that Web Based Learning Group is better than that of the Activity Oriented Method Group.

Major Findings

The major findings of the study are given below:

- **Comparison of Pre- test Scores in Achievement in Biology of Students in the Web Based Learning Group (WBLG) and Activity Oriented Method Group (AOMG)**

  The critical ratio obtained is 0.578 which is not even significant at 0.05 level. This shows that there is no significant difference between the means of the Pre- test achievement scores of students in the Web Based Learning Group (WBLG) and Activity Oriented Method Group (AOMG). Therefore the two groups do not differ significantly in their performance. So it is inferred that before the experiment the two groups were of more or less of the same ability.

- **Comparison of Immediate Post- test scores in Achievement in Biology of students in the Web Based Learning Group and Activity Oriented Method Group**

The critical ratio obtained is 6.98, which is significant at 0.01 level. Since the mean of Web Based Learning group (34.95) is greater than that of the Activity Oriented Method Group (28.77), it is inferred that Web Based Learning Group is better than that of the Activity Oriented Method Group.

Conclusion

It can be concluded that transaction using Web Based Learning Materials are more effective than that of Activity Oriented Learning classroom. Web Based Learning is 'anywhere and anytime learning'. In this type of learning the students can learn at their own pace without any difficulty. It can gain the attention of students for much longer time.The findings of the study revealed that the Web Based Learning Materials in Biology developed by the investigator is effective in enhancing the achievement of Higher Secondary School Students when compared to the Activity Oriented Method.

Educational Implication of the Present Study

Suggestions for further Research

- The study is limited to only a few topics in Biology. It can be conducted in other topics also.
- Develop suitable Web Based Learning Materials in different subjects for inclusive classroom
- The study can be extended to a large sample
- Development of Web Based Learning Materials for Intellectually disabled students
- Another study may be conducted to find out the psychological effect of web based learning on the learners

References

Barron,A.(1998).Designing Web-based training. *British Journal of Educational Technology, 29*(4), 355-371.

Best, J.W. And Khan, J.V.(1999). Research in Education (7th ed.) New Delhi: Prentice Hall of India Pvt.Ltd.

Bloom, B.S. (1956). *Taxonomy of Educational objectives: Book 1, Handbook 1,Cognitive Domain.* Addison-Wesley Publishing Company. ISBN 978-0582280106

Bruner, J. (1996). The culture of education. Cambridge, MA: Harvard University Press

A Study On Learning Process With The Assistance of Smartboard Among 9th Standard Students In Madurai District

***C.MUTHUKRISHNAN**

Abstract

The aim of the present study is to find out the learning process with the assistance of Smart board among ninth standard students and for which, the survey method is used as the method of study. 120 ninth standard students from Madurai District were considered as a sample of the study and they were administered the tool that correlate their learning process with the aid of Smartboard. The results have shown that the learning process with the assistance

Keywords: *Smart board, learning process, Assistance*

Introduction

"Technology can no longer be viewed as a learning enhancer; it must be viewed as a foundational piece of living in the 21st century"
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In this modern era students want to learn their subject through new technology. They consider skills in computer, Smart board as their identity. Technology plays a vital role

*Research Scholar, Department of Education Madurai Kamaraj University, Madurai.

in their learning process. Especially, now-a-days Smart board is using as a tool to improve the liveliness of the classroom.The smart board is made up of a computer, smart board software, an interactive whiteboard, and a projector. "With a touch of a finger, students can control applications; navigate the Internet; and write, change, move around, and save content" (Sani, 2007). The smart board interactive whiteboard system is made up of a computer with the smart board software, a projector and the smart board interactive whiteboard itself. The entire premise of this technology is built upon active engagement. Touch-sensitive screens are mounted on the wall of the classroom and a projector shows information that can be manipulated and displayed with unlimited capabilities.

The advantage of smart board technology is its design for use in a spacious work area with group interaction. The enlarged visuals are easily seen due to the size of the interactive whiteboard. Students become both visually and physically engaged as they connect with electric content and multimedia in a collaborative learning environment. Students are also interested to learn from the Smart board.

Problem of the Study

Learning method has been brought into most advantageous level through the innovative technological tools. Students also interested to learn through information and communication technology. Students need an assistance to learn their subjects in effective manner. Thus, the title refers to the learning process of the students with the help of interactive whiteboard.

Need & Significance of the Study

The world includes all of the modification that humans make to the natural world to satisfy their needs and wants. Smartphones, Smartcards, Smart refrigerators much of our technology is smart and getting smarter in all the time. One of the most innovative ideas to come to the classroom is the Smart board. It is an interactive whiteboard that can do everything your computer does. Smart board plays a vital role to make the learning easier. It gives visual treat to the students in their studies. Smart boards are very important to the teachers to make the class livelier. Hence, this study attempts to find out the learning process with the assistance of Smart board among school students.

Objectives of the Study

To study the impact of learning process with the assistance of Smart board among 9th standard students

To study the difference learning process with the assistance of Smart board among 9th standard students with respect to the selected variables such as Locality, Medium of instruction and Father's education

Hypotheses

There existsno significant difference between Rural and Urban students in their learning process with the assistance of Smart board .

There exists no significant difference between Tamil and English medium students in their learning process with the assistance of Smart board.

There exists significant relationship degree holder and non-degree holder with respect to Father's education of students in their learning process with the assistance of Smart board.

Methodology

The researchers have adapted the Survey Method for this investigation

Tool

A Questionnaire that measures the learning process with the assistance of Smart board among 9th Standard students who attend their Smart class for studies

Sample

Data were collected from 120 ninth standard students who are studying in Govt aided school in Madurai District. For this study, investigators have used the simple survey method.

Analysis of Data

Hypothesis 1

There exists no significance difference between Rural and Urban students in their learning process with the assistance of Smart board.

Table 1

Difference between Rural and Urban students in their learning process with the assistance of Smart board

Variable	Locality	N	Mean	Std.Deviation	t value	Level of significance
Learning process	Rural	37	17.63	2.321	0.645	NS
	Urban	83	19.55	2.785		

It is inferred from the above table that the calculated 't' value 0.645 which is lesser than table value 1.96 at 5% level of significance. Hence null hypothesis is rejected. The above table 1, shows that there exists no significance difference between Rural and Urban students in their learning process with the assistance of Smart board. The mean of rural students is (M=17.63) and urban students is (M=19.55). So, urban students are better than rural students in their learning process with the assistance of Smartboard.

Hypothesis 2

There exists no significance difference between Tamil and English medium students in their learning process with the assistance of Smart board.

Table 2

Difference between Tamil and English medium students in their learning process with the assistance of Smart board

Variable	Locality	N	Mean	Std.Deviation	t value	Level of significance
Learning process	Tamil	65	17.88	2.450	1.795	NS
	English	55	18.06	2.788		

It is inferred from the above table that the calculated 't' value 1.795 which is lesser than table value 1.96 at 5% level of significance. Hence null hypothesis is rejected. From the above table, it is understood that there exists no significance difference between Tamil and English medium students in their learning process with the assistance of Smart board. The mean of Tamil medium students is (M=18.06) and English students is (M=17.88). So, English medium students are better than Tamil medium students in their learning process with the assistance of Smartboard.

Hypothesis 3

There exists significant relationship between degree holder and non-degree holder with respect to Father's education of students in their learning process with the assistance of Smartboard.

Table 3

Difference between degree holder and non-degree holder with respect to Father's education of students in their learning process with the assistance of Smart board

Variable	Father's Education	N	Mean	Std.Deviation	t value	Level of significance
Learning process	Degree holder	28	15.68	2.538	2.858	S
	Non Degree holder	92	17.86	2.285		

It is inferred from the above table that the calculated 't' value 2.858 which is lesser than table value 1.96 at 5% level of significance. Hence null hypothesis is accepted. From the above table, it is understood that there exists significant relationship between degree holder and non-degree holder with respect to Father's education of students in their learning process with the assistance of Smart board. The mean of Degree holders' sons is (M=15.68) and Non-degree holders' sons is (M=17.86). So, Non-degree holders' sons are better than Degree holders' sons in their learning process with the assistance of Smartboard.

Educational Implications

The findings reveal there is no significant difference with respect to the Locality, Medium of instruction and significant relationship between degree holder and non-degree holder with respect to Father's education of students in the learning process with the assistance of Smart board among seventh standard students. This is evidence that variables are not affecting the learning process of the students. Smart board enables students to learn and explore new concepts using technology to create a more dynamic. This paper presents a conceptual framework about the learning process with the use of Smart board among students.

Recommendations

In light of the study results, the following recommendations are proposed:

Encouraging the educational administration to provide all governmental schools with smartboards, and provide the teachers with the needed training to use the smart board in the Classroom

Doing more researches to reveal the effect of using smart board on achievement and retention such as: the ability of problem solving, critical thinking and attitudes toward learning Doing more researches to reveal the effect of using smart board in teaching subjects and for different grades

Doing more researches on the achievement and retention in learning process such as:

Developing learning methods and assessment techniques to enhance the students' achievement and retention

Suggestions for Future Research

Following are few areas of research related to the present investigation which deserve explorations.

- Studies need to be conducted on best innovative methods in learning.
- The contents and illustrations in the text books promoting interactive whiteboards.
- The ways to co-ordinate the textbook contents and makes pace available for the inclusion of the technology in the curriculum.
- A fullscale , extensive study could be conducted to assess the knowledge, attitude of students about information technology.
- The effective implementation of internally assessed subjects in the primary, secondary and tertiary level of school education could be conducted.

Conclusion

"Teaching in the Internet age means we must teach tomorrow's skills today." – Jennifer Fleming. The use of technology is both beneficial for the students and the teachers. One source of technology that has proved to be beneficial in the classroom is a Smart board.

References

urden, K. (2002).*Learning from the bottom up – the contribution of school based practice and research in the effective use of interactive whiteboards for the FE/HE sector*. Retrieved from www.lsda.org.uk/files/lsda/regions/8_Bio_KBurden.pdf

Carbonara, D. (2005).*Technology literacy applications in learning environments*.London,UK Information Science Publishing. http://dx.doi.org/10.4018/978-1-59140-479-8Digregorio, P., &Sobel-Lojeski, K.(2010).

Morgan, L. (2008). Improving student engagement: Use of the interactive whiteboard as an instructional tool to improve engagement and behavior in the junior high schoolclassroom.Unpublished doctoral thesis, The Faculty of the School of Education, Liberty University.

Moss, G., Jewitt, C., Levaãiç, R., Armstrong, V., Cardini, A., & Castle, F. (2007).The interactive whiteboards, pedagogy and pupil performance evaluation.Retrieved 20.06.2011.www.dfes.gov.uk/research/data/uploadfiles/RR816.pdf.

Murcia, K. (2008). Teaching for scientific literacy with an interactive whiteboard.Teaching Science, 54(4), 17–21.

Rakes, G. C., Flowers, B. F., Casey, H. C., & Santana, R. (2006). Analysis of instructional
technology use and constructivist behaviors in K-12 teachers. *International Journal of Educational Technology*, *1*(12).

https://www.bamradionetwork.com/quoted/viewquote/4454-technology-can-no-longer-be-viewed-as-a-learning-enhancer-it-must-be-viewed-as-a-foundational-piece-of-living-in-the-21st-century#

Technological Pedagogical Content Knowledge (TPACK) Competency Among Teacher Educators: An Empirical Analysis

***ANITHA C R & KALAKRISHNAN**

Abstract

This study aims to understand the TPACK (Technological Pedagogical Content Knowledge) competency of teacher educators in Kerala. The data required for the study has been collected from 50 teacher educators working in different types of training institutes. Factor analysis revealed seven factors, which is related to TPACK: technological knowledge, content knowledge, pedagogical knowledge, pedagogical content knowledge, technological pedagogical knowledge, technological content knowledge, and technological pedagogical content knowledge.

***Key words**: TPACK (Technological Pedagogical and Content Knowledge), Teacher Educators*

Introduction

"Technology can become the 'wings' that will allow the educational world to fly farther and faster than ever before; if we will allow it" (Jenny Arledge, 2016). Today the new technologies change the teaching-learning environment very fast. Every day new technologies, software and hardware solutions are developed and it demands transformation in methods and approaches in the learning process. Innovative methods are part of the learning process, as well as a new approach to training and developing the practical skills of teachers. One of the imperative and prominent 21st century conceptual developments in the area of educational technology and teacher education is the TPACK model for thinking about the knowledge, skills, and dispositions a teacher needs in order to successfully integrate educational technologies into the classroom teaching-learning practices (Kohler & Mishra, 2008; Mishra & Koehler, 2006). TPACK

* M.Ed Students, Institute of Advanced Study in Education (IASE), Thrissur, Kerala-680020
E-mail: anusivas999@gmail.com

(technological pedagogical content knowledge) has emerged as a clear and useful construct for researchers working to understand technology integration in learning and teaching. Whereas first-generation TPACK work focused upon explaining and interpreting the construct, TPACK has now entered a second generation where the focus is upon using the construct in both research and development projects. Keeping technology as a separate knowledge set causes problems, but when we understand the framework of TPACK, we can integrate technology into the content and pedagogy of our classrooms. The integration will help our students learn more effectively. Mishra and Koehler (2006) suggest that TPACK should guide curriculum development and teacher education.

The rapid developments in the field of educational technology have redefined the teaching and learning process to a greater extent. The teachers need to get acquaintance with the application of recent technological principles and gadgets in their teaching and hence there is an urgent need to examine the techno-pedagogical competencies possessed by the teachers. The techno-pedagogical competency is nothing but the ability of the teachers to make use of technological innovations in their classroom.

Theoretical Frame Work of TPACK Model

Teaching is a complex cognitive skill occurring in an ill-structured, dynamic environment (Leinhardt&Greeno, 1986; Spiro, Coulson, Feltovich, & Anderson, 1988; Spiro, Feltovich, Jacobson & Coulson, 1991). There are clearly many knowledge systems that are fundamental to teaching, including knowledge of student thinking and learning, and knowledge of subject matter. Historically, knowledge bases of teacher education have focused on the content knowledge of the teacher (Shulman, 1986; Veal &MaKinster, 1999). More recently, teacher education has shifted its focus primarily to pedagogy, emphasizing general pedagogical classroom practices independent of subject matter and often at the expense of content knowledge (Ball &McDiarmid, 1990).

Shulman (1986) advanced thinking about teacher knowledge by introducing the idea of pedagogical content knowledge (PCK). PCK represents the blending of content and pedagogy into an understanding of how particular aspects of the subject matter are organized, adapted, and represented for instruction. He included that PCK as a specific type of learning for showing which alludes to the transformation of topic information into the relevant information for encouraging learners' understanding. Pedagogical Content Knowledge is a type of functional learning that is utilized by educators to direct their activities in exceptionally contextualized classroom settings. The work of Mishra and Koehler (2006) on developing PCK to incorporate another area – the

utilization of technology to help to instruct learning. The subsequent model, Technological, Pedagogical and Content Knowledge (TPACK) promote intricacy to the way we consider teaching, learning and technology. It does by including another information area (Technological Knowledge or TK) to the essential model and furthermore including extra intelligent connections between the distinctive core areas. TPACK is the premise of effective teaching with technology, requiring an understanding of the portrayal of ideas utilizing technological innovations; educational systems that utilize advances in useful approaches to show content; information of what makes ideas troublesome or simple to learn and how innovation can help change a portion of the issues that learners confront; learning of learners' earlier learning and hypotheses of epistemology; and information of how advances can be utilized to expand on existing learning to grow new epistemologies or fortify old ones (Koehler and Mishra, 2009).
Quality teaching requires developing a nuanced understanding of the complex relationships between technology, content, and pedagogy, and using this understanding to develop appropriate, context-specific strategies and representations. Productive technology integration in teaching needs to consider all three issues not in isolation, but rather within the complex relationships in the system deûned by the three key elements.
The ability of the teachers to integrate technology into different teaching methods has become essential because of the rapid advancement of technology in the twenty-first century. This advancement has transformed ways in which people teach and learn in the school setting. Researchers have shown a growing interest in studying how teachers incorporate technology into their teaching (Graham et al., 2009, Niess, 2005, Srisawasdi, 2014). Recent studies (Gur and Karmete, 2015;Martin, 2015;Gloria and Benjamin, 2014;Pierson and Borthwick, 2010) have shown that teachers need to have a good understanding of how technology can be incorporated with pedagogy and content knowledge in order to integrate technology effectively into classroom instruction. This requires an expansion in our understanding of the teacher knowledge framework—that is, how teachers relate their pedagogical knowledge to their content knowledge or, as introduced by Shulman (1986), their pedagogical content knowledge (PCK)—to a new framework that includes technological knowledge (TK), the so-called Technological Pedagogical Content Knowledge (TPACK) framework (Angeli and Valanides, 2009, Mishra and Koehler, 2006). According to Mishra and Koehler (2006), TPACK is an integration of technological, pedagogical, and content knowledge. These integrated forms of knowledge are pedagogical content knowledge (PCK), technological content knowledge (TCK), technological pedagogical knowledge (TPK), and technological pedagogical content knowledge (TPACK).

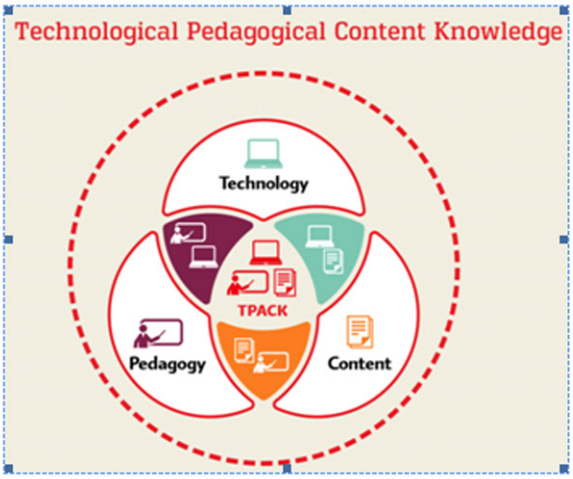

Fig 1: TPACK Model))
(Source: http://tpack.org)

Review of Related Literature

Gur and Karmete (2015) conducted a short review of TPACK for Teacher Education, using Miles and Huberman's qualitative study framework. The study analyzed 116 articles that focused on ICT and TPACK. The study concludes with the recommendation to the teacher education program providers to analyze the policy documents of training programmes in the light of TPACK to create a deeper understanding of techno-pedagogy requirements.

Martin (2015) examined recent publications on the topic of technology in teacher preparation through the theoretical lens of Technology, Pedagogy and Content Knowledge (TPACK) which has shown potential to emphasize a teacher's understanding of how technologies can be used effectively as a pedagogical tool. Through the review of TPACK literature, it is evident that many teacher preparation programs are relying on out-of-date technology models and are in need of a redesign. The study suggests improvements to be made in the programmes to make future teachers effective users of technology.

Gloria and Benjamin (2014) give a framework of techno-pedagogical skills in the light of the TPACK framework. The important contribution of teacher education is its

development of teacher's abilities to examine teaching from the perspective of learners who bring diverse experiences and frames of reference to the classroom. The study concludes with the observation that teacher educators and training graduates can play an effective role only if they are prepared in a creative, resourceful and efficient manner to use techno-pedagogical skills to nurture the students as per the demand of the changing times.

Pierson and Borthwick (2010) created a model for meaningful assessment and reflection with TPACK at the core. The model illustrates how effective and meaningful assessment of educational technology professional development (ETPD) requires that educators design in-service learning activities that can be measured using methods consistent with teaching and learning. The authors importantly note that reflection and evaluation through inquiry and sharing is an inseparable component of on-going teacher action and growth.

The objective of the Study

The Objective of this study is to analyse the factors that determine TPACK competency among teacher educators.

Methodology

The study is an empirical one. Researchers used primary data for the study. The design of the study is Cross-Sectional in nature. Data have been collected from total eight teacher education institutes including both working in Government and Unaided sector. The collected data was reduced with the help of factor analysis. The extraction method used was the Principal Component Analysis. The result of factor Analyses is shown in table 1. Only those factors which had an Eigenvalue of greater than one were retained.

Development and Administration of the Tool

On the basis of the review of the literature, a list of statements regarding variables which potentially influence the TPACK competence of teacher educators working in institutes of education was prepared. The questionnaire was constructed to collect data on in-service teachers' assessment of the seven knowledge domains within the TPACK framework. The list of statements comprised of seven sub areas corresponding to the combinations of Techno-Pedagogical- Content areas of TPACK. The responses of the respondents (concerning the importance of these variables in determining the TPACK competence) variables were anchored on a five-point Likert type scale. The

scale was conveniently administered to teacher educators working in different teacher education institutes.

Results and Discussion

The exploratory factor analyses were performed with the maximum probability approach to identify the rate of loading of variables recognized in the component, and the Varimax orthogonal approach was used to interpret the variables. The results showed that 7 factors came out from the TPACK competency component with Eigenvalues bigger than 1. These factors explained 18.248, 14.738, 12.363, 10.116, 10.104,7.982 and 5.597 of the total variances respectively. Therefore these 7 factors explained 79.148% of the total variances of variables

Table 1: TPACK Competency Factor Analysis

	Eigen Values	% of Variance	Cumulative Variance %
Technological Knowledge	5.474	18.248	18.248
Pedagogical Knowledge	4.421	14.738	32.986
Content Knowledge	3.709	12.363	45.349
Pedagogical Content Knowledge	3.035	10.116	55.465
Technological Content Knowledge	3.031	10.104	65.569
Technological Pedagogical Knowledge	2.395	7.982	73.551
Technological Pedagogical Content Knowledge	1.679	5.597	79.148

Extraction Method: Principal Component Analysis.

Factor 1: *Technological Knowledge (TK)*

The first knowledge domain, technological knowledge (TK), refers to understanding how to use various technologies and the updation of advancements in technologies. This factor, accounting for 18.25% of the total variance, was present using the five items that captured teacher educators' assessment of their technological knowledge (Eigenvalue 5.47). A review of the research on technology integration identified teacher knowledge as one of the key barriers for effective technology integration (Hew & Brush, 2007; Mishra & Koehler, 2006). Teachers must know more than the technical aspects of technology and must understand that technology has affordances and constraints both for representing content and identifying pertinent teaching approaches (Harris, Mishra & Koehler, 2009). As the result of the fact that teachers need to have

sufficient knowledge of their own branches and also on technology because technology is present at every stage in life today and teachers have been trying to reach a sufficient level in this domain.

Factor 2: ***Pedagogical Knowledge (PK)***

Pedagogical knowledge (PK), the second subdomain, refers to the methods and processes of teaching and would include fundamental knowledge in areas such as classroom management, assessment, lesson plan development, and student learning. After completing the factor analysis on the four items representing PK, the results produced a single factor structure having 14.74% variance (Eigenvalue 4.42). It was also founded that adequate level of knowledge for the sub-dimensions of pedagogical knowledge in regard to knowing how to access student performance in the classroom, changing teaching activities according to what student understand or do not in the current situation, changing teaching styles according to the learners needs, assessing student learning in different ways and knowing how to organize and maintain classroom management.

Factor 3: ***Content Knowledge (CK)***

The third knowledge domain, content knowledge (CK), refers to the knowledge teachers know about for the content they are going to teach and the nature of that knowledge is different for various content areas. After completing the factor analysis on the items representing CK, the results produced 12.36% variance(Eigenvalue 3.71). This shows that teachers had command of their subject content and they possess competency inadequate level.

Factor 4: ***Pedagogical Content Knowledge (PCK)***

The fourth knowledge domain, pedagogical content knowledge (PCK), refers to the content knowledge that deals with the teaching process. After completing the factor analysis on the four items representing PCK, the results produced a single factor structure having a 10.12 % variance (Eigenvalue 3.04). Without a full grasp of PCK, teachers face difficulty in teaching the subject effectively. To overcome this, teacher education and training programs could focus on classroom management prior to and throughout the teaching.

Factor 5: ***Technological Content Knowledge (TCK)***

The fifth knowledge domain technological content knowledge (TCK), refers to the knowledge of infusing technology into specific content that deals with the teaching process. After completing the factor analysis on the items representing TCK, the result

produced 10.10% variance (Eigenvalue 3.03). This area reveals that teachers competency in selecting digital tools available that can enhance or transform the content and how it's delivered to students and how students can interact with it.

Factor 6: ***Technological Pedagogical Knowledge (TPK)***

Technological pedagogical knowledge (TPK) refers to teachers' knowledge of how various technologies can be used in teaching and understanding that using technology may change the way an individual teaches. For the fifth knowledge domain, one factor emerged from the five items included on the TPK subscale. The total variance reported for the TPK domain was 7.98% (Eigenvalue 2.34). The TPK factor enhances the understanding of how to use digital tools as a vehicle to the learning outcomes and experiences.

Factor 7: ***Technological Pedagogical Content Knowledge (TPACK)***

The final knowledge domain, technological pedagogical content knowledge (TPACK), refers to the knowledge teachers require for integrating technology to their teaching-learning process- the total package. Teachers must have an intuitive understanding of the complex interplay between the three basic components of knowledge (CK, PK, TK) by teaching content using appropriate pedagogical methods and technologies. After factor analysis of the items representing TPACK included one accounting for 5.58% of the item variance(Eigenvalue 1.68). This shows, consciously or not, that the mere presence of TPACK competency in classrooms and the purposeful blending of technology, content, and pedagogy in the teaching-learning process. TPACK framework enhanced teacher educators ability to use technology in their teaching and in their professional development.

Conclusion

Many researchers recognize the broad appeal and potential of the TPACK framework, and it has been embraced as a theoretical basis for developing teachers' understanding of how to use technology constructively to support students' learning. In this study, seven factors have been identified which determine the technology integration of teacher educators working in training institutes. These factors, which significantly influence the TPACK competency of teacher educators' viz., technological knowledge, pedagogical knowledge, content knowledge, technological content knowledge, pedagogical content knowledge, technological pedagogical knowledge and technological pedagogical content knowledge are to be taken into consideration for the enhancement of quality of teacher education.

References

AACTE (Ed.). (2008). *Handbook of technological pedagogical content knowledge (TPCK) for educators*. New York, N Y: Routledge.

Angeli, C., &Valanides, N. (2009). Epistemological and methodological issues for the conceptualization, development, and assessment of ICT-TPCK: Advances in technological pedagogical content knowledge (TPCK). Computers & Education, 52(1), 154-168.

Ball, D. L., &McDiarmid, G. W., (1990). The subject matter preparation of teachers.In W. R. Houston and M. H. J. Sikula (Eds.), Handbook of research on teacher education (pp. 437-449). New York: Macmillian.

Chai, C.S., Koh, J.H.L., & Tsai, C.C.(2010). Facilitating preservice teachers' development of technological, pedagogical, and content knowledge (TPACK). *Journal of Educational Technology & Society*, 13(4), 63-73.

Gur, H., &Karamete, A. (2015).A Short Review of TPACK for Teacher Education.*Educational Research and Reviews*, 0(7),777-789. http://dx.doi.org/10.5897/ERR2014.1982.

Graham, C. R., (2009). TPACK development in science teaching: Measuring the TPACK confidence of in service science teachers. *Tech Trends, 53(5),* 70-79.

http HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/": HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/"//t HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/"p HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/"a HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/" HYPERLINK "http://tpack.org/"ck.org/

Baran, Evrim., Chuang, Hsueh-Hua; Thompson, Ann. (2011). TPACK: An emerging research and development tool for teacher educators. *International Journal on Integrating Technology in Education* (IJITE), 4(1), 17–26. Retrieved from https://www.researchgate.net/

Koehler, M.J., & Mishra, P. (2008).Introducing TPCK. AACTE Committee on Innovation and Technology (Ed.), The handbook of technological pedagogical content knowledge (TPCK) for educators (pp. 3-29). Mahwah, NJ: Lawrence Erlbaum Associates.

Leinhardt, G. and Greeno, J. (1986).The cognitive skill of teaching.*Journal of Educational Psychology*, 78(2), 75-95.

Martin, B. (2015). Successful Implementation of TPACK in Teacher Preparation Programs.*International Journal on Integrating Technology in Education (IJITE),* Vol.4, No.1.

Mishra, P. & Koehler, M.J. (2009).Too cool for school? No way! Using the TPACK framework: You can have your hot tools and teach with them, too. Learning & Leading with Technology, 36(7), 14-18.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, *108(6)*, pp.1017-1054.

Niess, M. L., (2005). Preparing teachers to teach science and mathematics with technology: Developing technological pedagogical content knowledge.*Teaching and Teacher Education, 21(5),* pp.509-523.

Schmidt D.A., Baran, E., and Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). Technological Content Knowledge (TPCK): The development and validation of an assessment instrument for pre-service teachers. *Journal of Research on Technology in Education*, 42(2), 27-30.

Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.

Shulman, L. S. (1986), Those Who Understand: Knowledge Growth in Teaching, *Educational Researcher*, Vol. 15, No.2, pp.4-14.

Spiro, R.J., Coulson, R.L., Feltovich, P.J., & Anderson, D. (1988). Cognitive flexibility theory: Advanced knowledge acquisition in ill-structured domains. In V.Patel (ed.), *Proceedings of the 10th Annual Conference of the Cognitive Science Society*. Hillsdale, NJ: Erlbaum.

Spiro, R.J., Feltovich, P.J., Jacobson, M. J., and Coulson, R. L., Cognitive Flexibility, Constructivism, and Hypertext: Random Access Instruction for Advanced Knowledge Acquisition in I 11-Structured Domains. Educational Technology, May 1991, 37(5), 24-33.

Srisawasdi, N., (2014). Developing technological pedagogical content knowledge in using computerized science laboratory environment: An arrangement for science teacher education program.*Research and Practice in Technology Enhancement Learning, 9(1),* pp.123-143.

Veal, William, R., Makinster, & James, G. (1999). Pedagogical Content Knowledge Taxonomies: *Electronic Journal of Science Education*, V3 (4).

A Study On The Perception Of Teacher Educators On Educational Technology

***SAJINI E.K**

Abstract

Modern age is the age of science and technology. Educational technology is a process oriented techniques. Learning with technology has become essentials in today's educational system. In the eyes of the public ,parents as well as teachers the use of technologies in the teaching process is connected with a modern and successful institution ,which can well prepare in students for work and life in problem solving ,examinations of the knowledge society. The study was conducted to find out perception of teacher educators on educational technology .Simple random sampling method was adopted by selecting 30 teacher educators .A standardized questionnaire constructed by investigator was used to find out level of perception. It was found that most of the teacher educators have average perception on educational technology .Analyses were done by testing the hypothesis to find out the significant difference in their perception level with reference to their gender and subject taught.

Key words: *Perceptions, Educational Technology.*

Introduction

Educational technology has absolutely revolutionized the entire education system .Until recently ,the teachers used to be the sole interpreter of knowledge to the learners and the text books the sole resource .Educational technology has affected the conventional roles and it has opened up the new areas of teacher functions such as management of resources and management of learning .Today , teachers have a range of media to assist and supplement instructional work.

Educational technology has provided a scientific base to the educational theory and practice. It has transformed a passive classroom to an active and interactive classrooms, with audio-visuals, charts and models ,smart classrooms and e-learning room with which has drastically motivated and increased the attention level of the students.

*Research Scholar
Mar Theophilus Training College Nalanchira, Thiruvananthapuram

Educational technology is required in each and every aspect of teaching -learning process. Educational technology serves all the purposes for modern education. Educational technology can't go far without the help of educational technology. It has provided practices and strategies that help teachers to teach according to the individual difference of learners. Educational technology has opened up new field of educational researches in the field of classroom teaching.

The use of technology in the classroom becoming more prevalent due to its benefits in improving the attitudes of teachers and students outcomes, both in their academic performance and academic behaviors. However it is clear that the teachers play a big role in facilitating the use of technology in the classroom so that such way may lead to productive results. Technology will not only help them improve in their use of traditional teaching strategies ,but will also enable them to effectively integrate technology use in their classroom..

Literature survey

Bulnt and Delen (2001) and Costely (2014) research revealed that learner's exposure to information and communication technology at home and school had a a significance effect on their maths and science attainment scores.Mohanmadkhani,NazariFarokhi (20013) demonstrated that the use of technologies has a great effect on listening comprehension. Jonassen, Howland, Crismond (2008) study revealed that techniques are used to promote meaningful learning that should be used as facilitator of thinking.

Walker (2012) technology integration helps learners become capable of information technology users, information seekers, analyzers, administers, public servers, decision makers, creative users of technology tools, communicators and collaborators. Karoolcik&Cipkova (2014)It is necessary that teacher critically assessed the available teaching aids and properly determines the scope of technology in teaching. To be able to prepare their students for life, they must know and respond to new needs and expectations of the society. Barriers to implementations of technology in curricula including teachers attitudes towards digital technologies (Ertner1999,Snoeyink&Ertmer,2001)states that it is not reasonable to provide a large no of devices ,if teachers do not trust these technologies and do not hold attitudes required to change their class practices.

Aberta edition 2006;Chaike;Zucker,(2005) successful teaching programmes provides student and staff with access to updated software and well functioningequipment.National educational association ;2008Dunovan et.al Lee'2007,Marshall,2004)Experts argue that when teachers have impact planning

and purchasing decisions ,they are more likely to perceive the selected technology as useful as integrate the technology in their class rooms.

Donleavy et.al,(2007)technology gives teachers the ability to tailor instructional material and assessments to directly address their students learning needs ,offers access to more authentic material to assist in the development and delivery of lessons and provides additional source of Information for their student to draw I the class room.

Need and importance of study

Effective use of technology in education has changed the face of education and it has created more educational opportunities. both teachers and students have benefited from various educational technologies , teachers have learned how to integrate technology in their classrooms and students are getting more interested in learning with technology .

Educational technology is a wide field. Educational technology can be considered either as a design science or as a collection of different research interest addressing fundamental issues of learning, teaching and social organization. Educational technology is the study and ethical practice of facilitating learning and improving performance by creating ,using and managing appropriate technological processes resources .As a field ,educational technology emphasizes communication skills and appropriate teaching and learning through the judicious use and integration of diverse media .Scholars in the field examine the use of innovative media and technology for education ,examining all aspects from direct student learning to management and impacts on institutions. Educational technology is the effective tools in learning and improve education. It is a systematic, interactive process for designing instruction or training used to improve performance.

The purpose of e educational technology is to Increase the quality of life. It emerges with the problems and difficulties people encounter .Technology produces knowledge ,tools and processes to solve these problems(Baser,2006).Educational technology is the act of systematically transform scientific knowledge in to application (Fidan,1996)educational technology includes planning ,designing ,developing and implementing teaching learning processes.(Alkan,1997).Technology is an important elements for an effective learning(Yanpar,2008).

The educational system around the world are under increasing pressure to use the new educational technologies to teach student he knowledge and skills they need. Teacher education plays a crucial role in structuring day to day systems of the society and shaping the future of quality of education. Teacher education programmes are faced with the challenges of preparing a new generation of teacher educators to

effectively use the new learning tools in their teaching practices. Teacher educators should have knowledge and skills to use new digital tools and resources to help all students.

Statement of the problem

Educational technology greatly affects employees in all areas, and perhaps the most prominent of these areas is the educational field. Technology may contribute to the educational process dramatically if teachers invest their time and energy in programs and activities that will benefit the students and help them in the process of academic achievement. Are today's teacher educator effectively integrate technology in their classroom instructions and organization ,identification interpretation of sensory information in order to represent and understand the educational technology .Hence the investigator thought of present problem entitled as **"A study on the perception of teacher educators on educational technology".**

Objectives

1. Tofind out the level of perception of teacher educators on educational technology
2. To find out the difference in perception between male and female teacher educators on educational technology
3. To find out the difference in science and arts teaching teacher educators perception on educational technology

Hypotheses

1. There is a significant difference between male and female teacher educators in their perception on educational technology.
2. There exists significant difference between science and arts teaching teacher educators in their perception on educational technology.

Methodology

Methodology is the description of procedures and techniques adopted in research study. The success of any research depends on the effectiveness of the methodology. It gives an outline of the entire study conducted by the investigator .It includes the design of the study, description of tool used and statistical techniques.

Methods of the study

Descriptive Survey method is adopted for the study.

Sample

The sample consists of 30 teacher educators were selected as the sample of the study. Purposive sampling is method is used to select sample.

Tools used

To find out the perception of teacher educators on educational technology, scale was used in the present study. The scale consist of 35 statements .Each item has five alternatives from which a respondent has to choose any one which candidly expresses his response.

Procedure for data collection

The study is of descriptive survey in nature that was based upon data collected through questionnaire served to the teacher educators .Sample was selected through purposive sampling method consists of 30 teacher educators of different BEd training colleges. The investigator distributed the scale to 30 teacher educators and gave them enough time tocomplete the same. There were 35 positive statements in the scale and the same was validated by expertsand pilotstudy wasdone accordingly .Comments were converted in to scores as per five point scale likert type rating scale .The points were

1Exactly
2) Nearly
3) Some what
4) Marginally
5) Rarely

For favorite items 5 marks were assigned to Exactly, 4 marks were assigned to Nearly,3 marks to Some what,2 marks to Marginally and 1 marks to Rarely .The marks obtained in all 35 items by the teacher educators summed up to know the perception on educational technology. The scores was analyzed and calculate the mean , standard deviation and t -test was used to compare the teacher educators perception.

Statistical analysis

For hypothesis testing data analysis made employing descriptive analysis such as percentage analysis ,standard deviation and inferential statistics such as t-test.

Analysis and interpretation

The results are shown and **i**nterpreted according to the objectives framed.

Objectives 1

To find out the level of perception of teacher educators on educational technology.

Table- 1 Level of teacher educators perception on educational technology with reference to gender and subject taught.

Sl.No	Variables	Categories	Low%	Average%	High %
1	Gender	Male/female	7	73	20
2	Subject taught	Science/arts	10	70	20

Fig.1 Graphical representation ofteacher educators perception on educational technology with reference to gender and subject taught.(Percentage analysis)

Table(1)figure(1)shows that 7 % male and female teacher educator have low,73 % male and female teacher educator have average ,20% male and female teacher educator have high perception on educational technology, 10% of teacher educator teaching science and arts have low, 70,%teacher educator teaching science and arts have average ,20% teacher educator teaching science teacher educator teaching arts have high perception on educational technology. Therefore it is inferred that in teacher education institutions technical devices are available and use equipments related to educational technology are satisfactory .Over all feelings about educational technology were good among teacher educators.

Hypothesis 1

There is a significant difference between male and female teacher educators perception on educational technology.

Table-2 Standard deviation and t-ratio for male and female teacher educators perception on educational technology.

Gender	No of teacher educators	SD	t-value	Significant level
Male	15	5.56	.6396	Not significant
Female	15	5.58		

Table (2) reveals or shown that comparison of mean score of male and female teacher educators perception on educational technology. Standard deviation of male teacher educators (15) 5.56 and standard deviation of female teacher educators (15) 5.58 .t - test computed for the comparison of mean score of male and female teacher educators value was calculated to be .6396 Which is in significant at .01 and .05 level of significance. Therefore the hypothesisis significant differencebetween male and female teacher educators perception on educational technology. Hence it is concluded that male teacher educators have high in creating ,using and managing appropriate technological process and resources.

Hypothesis 2

There is a significant difference between arts and science teaching teacher educators perception on educational technology.

Table-3 Standard deviation and t-ratio for science and arts teaching teacher educator on educational technology

Subject taught	No of teacher educators	SD	t-value	Significant level
Science	15	5.56	6362	Not significant
Arts	15	5.57		

Table (3) reveals or shown that comparison of mean score of teaching science and arts teacher educators perception on educational technology. Standard deviation of science teacher educators (15) 5.56 and standard deviation of arts teacher educators (15) 5.57 .t - test computed for the comparison of mean score of science and arts teaching teacher educators value was calculated to be.6362 Which is in significant at .01 and .05 level of significance. Therefore the hypothesis is significant difference in teaching science and arts teacher educators' perception on educational technology. Hence it is concluded that science teacher educators have high favorable opinion in using technology in teaching and learning process.

Limitations of the study

1.The present study limited to B.Ed teachers only.

2. The investigator could not analyze the student's perception on educational technology.

3.Sample for present study comprised of 30 teacher educators .This sample is only a very small proportion of the entire populations of teachers in state. Therefore research studieswith much larger sample size would be required to ensure appropriate generalization of the findings of the study.

Further research studies

1. Perceptions of school teachers on educational technology in relation to professional competency and professional satisfaction.

2.Perception ofteacher trainee on educational technology

3. Replica of present study with other district in Kerala.

4. Replica of the present study with other variables.

Educational implications

- The present study is expected to helpful in an insight in to the current status of the educational technology in B.Ed curriculum, which in turn can reveal its effectiveness.
- A probe in to the competencies attained by teachers would expose the inhibitions and limitations involved in the effective transaction of B.Ed curriculum.
- It is hoped that this would not only call attention of the authorities, but also create an awareness in them regarding the necessity of taking step for the effective transaction of the B.Ed curriculum ,such as providing adequate orientation and infrastructural facilities ,revision of text books ,hand books and modification in the evaluation system.
- Experts in the field of education are to be encouraged to prepare self study materials and contribute to the teacher education institutions.
- Research should be conducted to develop effective and feasible self study learning materials and ICT based teacher education curriculum should be adopted .

Conclusion

In educational technologies have yield positive results in our education sector. Results of survey found that teacher educators had good feeling about technologies effects on learning. Seventy percent said they felt technology had positively affected their students learning. The study revealed that there exists significance difference between teacher educators in the sub samples, male and female and subject taught. Opinion study found teachers believe educational technology helping them do better job in the classroom.

References

1. Aggarwal S.C (2010) Essentials of educational technology (innovations in teaching learning)vikas publishing housing PvtLtd,New Delhi.
2. Anderson.R., &Speck,B(2000)Using technology in K-8 Itinerary classrooms upper saddle river,N.J;prentice hall.
3.Bayk,A.,taman,B&Ayas,C (2000)Experiencing technology in education: children's perceptions *,international journal of elementary education*.
4.PourhoseinGilakjani,.Abbas (2017)A review of literature on the integrate of technology into the learning and teaching of English language skills*, interactive journal of English linguistics* ,published by Canadian Centre of science and education, Iran.
5. *https:/wikieducator*.org/*meaning and scopeof educational technology.*
6. Sindhukulbirsingh(2000) Methodology of research in education ,sterling publishers Pvtltd,NewDelhi.
7. Best, J.W(1995) Research in education seventh edition prentice hall of India,NewDelhi.
8. Dr.Lazerstoic (2015) Importance of educational technology in teaching, international*journalof cognitiveresearchinscience,engineeringandeducation*,Serbia.
9. https:/www.edtech/ Importance of technology in education.
10. Pierce,R.,& Ball ,L(2009) Perceptions that may affect teachers intention to use technology in secondary mathematics classes,educational science in mathematics
11. Garret ,H.E (1979) Statistics in psychology and education, Allied pacific Pvt Ltd, Mumbai
12. Alam, M. (2011) Technology supported teaching and lerning techno learn, *An International journal of educational technology*
13. Ball, D. M and Levy, Y (2008) Emerging educational technology; Assessing the factors that influence instructors acceptance in information systems and other class rooms, *journal of information systems education*
14. Marwan, A and Sweeney, T (2010) Teachers perception of educational technology integration in an indonasianpolytechnic,*Asia Pacific Journal of Education*
15. Chauhan, S. S, (1978) Advanced education psychology, Vikas publishing, NewDelhi.
16.*http:/learning English.voannews.com.*

A Study On The Attitude Of Secondary School Teachers Towards Samagra e-Resouces Portal

***DR. SHEEBA. P**

Abstract

SamagraeResource Portal is an online learning platform completely developed by KITE, under the Public Education Rejuvenation Mission of the State Govt. In order to supplement the Hi-Tech school project, it is essential for the schools to have right content in addition to adequate ICT equipments and trained teachers. In the present paper the investigator used the survey methodto find the attitude of secondary school teachers towards samagra e-resources portal. An attitude scale was prepared by the investigator and the same was distributed among a sample of 84 secondary schoolteachers teaching in various high schools in thiruvantanthapuram district. The data obtained was analyzed with the help of mean, standard deviation and test of significance of difference between means. The findings of the study are:1) The secondary school teachers have a high positive attitude towards samagrae-portal 2) Government school teachers have significantly high attitude towards samagra e-portal, 3) There is no significant difference between the male and female secondary school teachers with respect to their attitude towards samagra e-portal and 4) Less experienced teachers have high attitude towards samagra e-portal than more experienced teachers.

Key words: *attitude, samagra e- portal, secondary school teachers*

Introduction

SamagraeResource Portal is an online learning platform completely developed by KITE, under the Public Education Rejuvenation Mission of the State Govt. In order to supplement the Hi-Tech school project, it is essential for the schools to have right content in addition to adequate ICT equipments and trained teachers. It is in this context that KITE, with the academic support of SCERT, developed a comprehensive

*Associate Professor, SreeNarayana Training College, Nedunganda

resource portal viz SAMAGRA, which is a repository of digital resources of all subjects from Class 1 to 12. As its name implies the software act as a resource which cover syllabus based teaching resources for schools all over Kerala. Teachers contribute various learning resources such as avideos, images, interactive like pdb, ggb, swf, gif and the students are able to access these contents without any restriction. The resources are arranged in such a way that which can be accessed by subject-chapter-topic filtering.

The scope of *SAMAGRA* is not limited to being a resource portal, instead as a complete online learning management system beneficial for students, teachers, public and academicians. Understanding the need of the hour, SAMAGRA is positioned as a one-stop permanent source for digital contents for all students which ease the learning process in classrooms.

SAMAGRA has the digital resources for all subjects from Std 1 to 12, in the form of videos, animations, audios, stimulations, interactive contents, pictures etc. It also enables the unit plan of every chapter in addition to micro planning. Multiple levels of log-ins are integrated in SAMAGRA for the Teachers, Public and Administrators. All e-Resources available in SAMAGRA can be downloaded from anywhere. The portal also features specific Forums for discussions, in which teachers can clarify the doubts irrespective of location constraints. SAMAGRA also has eTextbooks of all subjects in four medium viz Malayalam, English, Tamil and Kannada. This enables the students to study the subjects even in the absence of physical textbooks. SAMAGRA can be accessed at samagra.kite.kerala.gov.in

KITE (Kerala Infrastructure and Technology for Education) is a Govt of Kerala establishment set up to foster, promote and implement modernisation of educational institutions in the State of Kerala, owned by the State or run under the aid of Government. KITE is registered as a Section 8 Company, by transforming the erstwhile IT@School Project, which revolutionised the education system of the State. An Infrastructure division has also been set-up under KITE for upgrading the infrastructural facilities in schools. The spectrum of KITE include Information & Communication Technology, Capacity Building, Content Development, Connectivity, e-Learning, Satellite based education, Support and Maintenance mechanism, e-Governance or other related activities.

KITE aims to upgrade the Government sector educational institutions at par with international standards in terms of infrastructure, facilities, resources, curriculum, pedagogy, etc. It also aims to formulate and implement projects for the use of ICT as a tool for the improvement of the education quality in the State of Kerala.

Further KITE acts as Advisor or Consultant to the Government and private sector in improving education quality through ICT. KITE has implemented the prestigious Hi-

Tech school programme of the Education Department, by which 45000 classrooms in 4752 schools have been made Hi-Tech, funded by KIIFB in tune of Rs. 493.50 Crores. more..

The Infrastructure Division of KITE focuses on modernisation of physical infrastructure Under the **"Public Education Rejuvenation Campaign"**, the objective is to upgrade the public education system of Kerala to international standards. Government of Kerala is approaching this objective with a holistic approach of improving
1. Improvement in pedagogy – shift from teacher centric to student centric approach
2. Technology interventions – high-tech class rooms and academic content creation
3. Upgradation of physical infrastructure – thrust on adding class rooms, extra-curricular infrastructure and school hygiene, sanitation and security

Need and significance of the study

The use of ICT in teaching-learning process is a relatively new phenomenon. Information explosion is an ever increasing idea and there is requirement to get access theØ information. Education should meet the needs of variety of learners and teachers; therefore ICT is important in meetingØ this need. The effective integration of this technology into classroom practices is a means to achive effective teaching. Education should meet the needs of variety of learners and teachers; therefore ICT is important in meetingØ this need. Today all most all classes in our schools are smart classes. Also our younger generations are technocrats. Hence technology can make teaching learning more effective. The content materials can also be easily and effectively transacted through a digital medium. By considering all these and more as part of Public Education Rejuvenation Mission of the State Govt ,samagra e portal have introduced in secondary classes. But the effectiveness of the implementation of this portal depends on the attitude of teachers who are actually implementing it. Hence the problem aroused

Objectives of the study

1) To find the attitude of secondary school teachers towards samagra e-resource portal
2) To study the significance of difference in the attitude of male and female secondary school teachers towards samagrae-resource portal.
3) To study the significance of difference in the attitude of government and aided secondary school teachers towards samagrae-resource portal.
4) To study the significance of difference in the attitude of less-experienced and experienced secondary school teachers towards Samagrae-resource portal.

Hypotheses of the study

1. There is no significant difference in the attitude of male and female secondary school teachers towards samagrae-resource portal.
2. There is no significant difference in the attitude of government and aided secondary school teachers towards samagrae-resource portal.
3. There is no significant difference in the attitude of less-experienced and experienced secondary school teachers towards samagrae-resource portal.

Design of the study

Descriptive method of research was employed for the present study. The population of the study was the government and aided school teachers teaching inKerala State syllabus. A sample of 84 secondary school teachers from 16 schools was taken as the sample. Out of these 84 teachers, 32 are male and 52 are female; 35 are with less-experience(ie, length of service <=10years) and 49 are experienced (length of service>10 years)and 42 teachers each from government schools and aided schools. The investigator herself prepared a questionnaire (attitude scale)for collecting the data which contains 30 items which has five choices.

Procedure of the study

The investigator visited the school personally and contacted the teachers and distributed the scale among the teachers. Enough time was given to the teachers for filling up the required data. The filled up scales were collected and scored by giving five marks for most positive option, four marks to the positive option, three marks for neutral, two marks for negative option and 1 mark for least negative option. By adding the scores to each item, the score for each teacher's attitude towardssamagra e-portal was obtained. After collecting the data, t-test was used to compare the attitude of secondary school mathematics teachers towards computer assisted learning.

Analysis and Interpretation of Data

The data was analyzed carefully employing appropriate statistical techniques.

For finding the attitude of secondary school teachers towards samagra e-portal, the investigator found mean standard deviation and the investigator obtained 120.81 as mean and 6.o2 as the standard deviation. By applying m+sd and m-sdprinciple the investigator found the attitude of secondary school teachers and the values obtained are given in the followingtable

Table 1

Level of attitude of secondary school teachers towards samagra e-resource portal

Level of attitude towards ICT	Frequency	Percentage
High	44	52
Moderate	22	26
Poor	18	22
Total	84	100

From the table, it can be observed that majority of secondary school teachers show high positive attitude towards samagra e-resource portal.

The data was tabulated and analysed from the point of view of the hypotheses formulated by employing two-tailed test of significance of difference between means (t-test). Table 2 represents the t-value of the test of significance of difference between mean scores of attitude of male and female secondary school teachers towards samagra e-resource portal.

Table-2

Significance of difference between mean scores of attitude of male and female secondary school teachers towards samagra e- portal.

Sl.No.	Group	N	Mean	S.D	t-value
1	Male	32	120.2	6.54	0.71
2	Female	52	121.2	5.91	

Interpretation:

It can be observed from the table that calculated value of t-ratio is less than the table value at 0.01 level of significance. Thus the null hypothesis is accepted. It indicates that there is no significant difference between attitude of male and female teachers towards samagra e- portal.

Table 3 represents the t-value of the test of significance of difference between mean scores of the attitude of government and aided secondary school teachers towards samagra e-resource portal.

Table-3

Significance of difference between mean scores of the attitude of government and aided secondary school mathematics teachers towards samagra e- portal.

Sl.No.	Group	N	Mean	S.D	t-value
1	Govt Schools	42	122.6	6.82	2.52*
2	Aided Schools	42	118.9	6.6	

* represents significance at 0.01 level

Interpretation:

It is observed from the table that the calculated value of t-ratio is greater than the t-value at 0.05 level of significance. Thusthe null hypothesis is rejected. This indicates that there is significant difference in the attitude of government and aided secondary school teachers towards samagra e- portal.

Table 4 represents the t-value of the test of significance of difference between mean scores of attitude of less experienced and experienced secondary school teachers towards samagra e- portal.

Table-4

Significance of difference between mean scores of attitude of less experienced and experienced secondary school teachers towards samagra e- portal.

Sl.No.	Group	N	Mean	S.D	t-value
1	Less Experienced	35	124.5	6.67	4.74*
2	Experienced	49	118.07	5.2	

** represents significance at 0.01 level

Conclusion

The main conclusions of the study are the following.

• Government school teachers have significantly high attitude towards samagrae-resource portal than aided school teachers.

• There is no significant difference between the male and female secondary school teachers with respect to their attitude towards samagrae-resource portal.

• Less experienced teachers have high attitude towards samagrae-resource portal than more experienced teachers.

Educational Implications

The present study has implications for secondary school teachers andteaching in secondary school classes. samagrae-resource portal helps in the understanding of the school content and ideas easy. In general teachers have positive attitude towards samagrae-resource portal. But due to the lack of availability of resources and proper training it is not mostly used in the teaching of different subjects in the secondary classes. Hence to develop interest of teachersattitude towardssamagra e-resource portal in classrooms, the following measures should be taken.

• The authorities should take necessary steps to provide enough computers and related devices

• -proper training in using computers samagra e-resource portal should be provided.

• -arrange in-service courses, workshops, seminars in computer assisted learning and samagra e-resource portal.

The above measures, if given due consideration, can bring about a desirable change in the attitude of secondary school teachers towards samagra e-resource portal which would in turn foster the scientific outlook amongst teachers and students.

References

*Abbas, Z.W.(1995).Attitude towards using Computers among Malasian Teacher Education Students, in World Conference on Computers in Education VI(WCCE 95) Liberating the Learner 153-162 London,Scturyn(1997) .

*Baylor,A. and Ritchie,D.(2002) What factors facilitate teachers skill, teacher morale and perceived student learning in technology using classrooms? Computers and Education,39(1),395-414

*Cox,M. (1999).Using Information and Communication Technologies(ICT) for Pupil's learning.In Learning to Teachby Gill Nicholls, London: Kogan Page.

* Shukla, Bhavna (2016). ICT in Education: Visions and Realities. Agra: Agrawal Publication. [2]. Sharma, * Pooja and Nigam, Shivani (2016). Information and Communication Technology. Meerut: R. Lall Book. * * Aravindan, P. (2017) ICT in Higher Education: Opportunities and Challenges. New Delhi: University News, Vol. 55 (34) 21-27 August, 22-29p.
*https://learningportal.iiep.unesco.org/en/improve-learning/curriculum-materials/appropriate-educationaltechnologies#quinze
* http://ictcurriculum.gov.in/?redirect=0
* https://www.myclassboard.com/blog/need-importance-ict-education/
https://fedena.com/blog/2016/05/importance-of-information-and-communication

Techno Friendly Classrooms For Techno-Pedagogy Praxis

***DR. RATHEESH KALIYADAN**

Abstract

The well knitted propaganda materials and organized campaign strategies together worked to highlight achievements of private institutions. Contrary to this approach Kerala developed a new approach: Public Public Partnership (PPP) by assuring democratic participation of the public in infrastructural development, planning academic activities and imparting knowledge.In a revolutionary critical pedagogy class room environment, Techno-pedagogy is not a mere application of technological devices or gadgets. Mediavism, a contemporary add on to critical pedagogy, offers gizmos to praxis techno-pedagogy in technologically sophisticated educational ecosystem. Flipped and blended modes of exploration are possible in mediavism. Since it is a three tier activity, technological interventions in a different coherence on any one of the phases should be fixed.

Key words: Mediavism, Techno-pedagogy, critical pedagogy, critical thinking

Thanks to the Marxian perspective of educational development, almost all classes in Kerala are transformed to techno-friendly recently. Marx's position on technology is expounded in the works on concept of base and superstructure. Marx stresses the central role of technology in the progress of history and describes economic base as the material foundation of the society that includes forces of production and relations in production. Forces of production are technologies, machines, and raw materials; relations in production are class relations between the ruling class and the powerless class (i.e., between slave owner and slave, feudal lord and peasant, factory owner, and wage-worker). Superstructure, which includes legal, political, religious, artistic,

*Education Expert,PothuvidyabhyasaSamrakshanaYajnam
(Govt. of Kerala), Thiruvananthapuram
e-mail:ratheeshkaliyadan@gmail.com

and philosophic ideological forms of social consciousness, is determined by the base (Marx 1904).

The contemporary global reach of neoliberal economic liberalization and privatization reachedIndia in the 1990s. Corbridge and Harriss (2001) outlined four clear ways in which Indiaimplemented economic reforms in the early 1990s: (a) investment reform that promotedderegulation of foreign equity investment, (b) trade policy that reduced tariffs on both foreigntrade imports and domestic exports, (c) financial reform that deregulated, to a significant extent,the formerly state-run banking system, and (d) privatization of many previously state-controlledservices and industries. Governments emphasized on privatization of schools and education system as part of practicing neoliberal agenda in education.Public Private Partnership (PPP) model educational development is the tonic offered by governments to cater the neoliberal agenda of educational practices. There are high-profile Indian academics in India and abroad who proactively advocate for the privatization of Indian schooling and their work affects public sentiment and educationalpolicy in India.

The well knitted propaganda materials and organized campaign strategies together worked to highlight achievements of private institutions. Along with the qualitative changes, the advancement of infrastructure and technological amenities also described elaborately to ascertain that private schools are the best hubs to transact educational content. Massmedia also joined in the campaign by highlighting the positives of private schools and negatives of common/government schools. It seems clear that the media promotion of private schooling is having an impact on the popularity of private schools. The message that private schools are better for children than thefailing public schools can easily become internalized by parents, and when influential academicsand experts of education policy are leading the agenda, it seems authoritative and reasonable. Contrary to this approach Kerala developed a new approach: Public Public Partnership (PPP) by assuring democratic participation of the public in infrastructural development, planning academic activities and imparting knowledge. Development process of Academic Master Plans in all schools is one of the examples for how do you assure public partnership in academic planning and dissemination of knowledge.

It is in such a context, govt. of Kerala took initiative to begin a mass campaign on public education system and revamping the whole efforts through modernizing both infrastructure and academic interventions. Through Pothu vidyabhyasa SamrakshanaYajnam, a mission for rejuvenation of public education system under the general education system, Govt. of Kerala focused to highlight the infrastructural, technological and academic development in government and government educational institutions. Transformation of techno-friendly class rooms is one of the byproducts of this government policy to strengthen public education system.

On the suburbs of the two mainstream ideological conversations, there is a conspicuous collection of theorists and practitioners who claim that digital technology opens new possibilities for implementation of revolutionary ideas. It has become technically possible to open archives, libraries, and repositories of books, audio, and video materials. Such development is related to pervasive digitalization of analog information and its decentralized distribution at all levels including education system.The Hi-Tech school programme is a major highlight of the Public Education Rejuvenation Mission of the State Govt, aimed at upgrading all classrooms to international standards.Each Hi-Tech classroom is equipped with Laptop, ceiling mounted Multimedia Projector, HDMI Cables and Faceplates, Whiteboard / Projection Screen, USB Speakers, High Speed Broadband internet and access to SamagraResrouce Portal. The Hi-Tech IT Labs feature Laptops ,Sound system and Multifunction Printers. In addition to that, each of the 4752 schools are provided with a 42 inch LED TV, Full HD webcam and a DSLR Camera. The IT Labs and Classrooms would be connected via network through a Central server in the Lab, which would allow sharing of information.In order to supplement the ICT hardware deployment in schools, KITE has imparted ICT based trainings to 77,194 teachers from High School, Higher Secondary, Vocational Higher Secondary and Upper Primary sections (KITE 2018). By digitalizing class rooms and instigating for teacher empowerment programmes, govt. of Kerala initiated to set stage for implementing techno-pedagogy meaningfully.

What remains is the real capacity building in tune with the philosophical and practical aspects of revolutionary critical pedagogy using the technologically sound class room biome. "Specifically in the context of school life, capital produces new human produc-

tive and intellectual capacities in alienated form. Critical pedagogy's basic project over the last several decades has been to adumbrate the problems and opportunities of political struggle through educational means as a way of challenging the alienation of intellectual capacity and human labour. In is incoherent to conceptualize critical pedagogy, as do many of its current exponents, without an enmeshment with political and anti-capitalist struggle" (Peter Mclaren, 2005). How to implement philosophical notions of techno-pedagogy in a revolutionary critical pedagogy class room is a challenge.

In a revolutionary critical pedagogy class room environment, Techno-pedagogy is not a mere application of technological devices or gadgets. Traditionally 'pedagogy' refers to the art-science of teaching and 'techno' refers to the art-skill in handcrafting, derived from the Latin 'texere' (to weave or fabricate). Then the application of this formula may lead to handhold a conclusion: Techno-pedagogy refers to weaving the techniques of the craft of teaching into the learning environment itself. Critical pedagogues break this tradition by defining Techno-pedagogy as a means of inquiry."Pedagogy may be described as a deliberate attempt to influence how and what knowledge and identities are produced within and among particular sets of social relations (Giroux and Simon, 1989). Application of technology in critical pedagogy isa tool to nourish critical thinking capacity of the learners and the teachers to humanize learning experiences. The pedagogues may synchronize gadgets and apps to foster critical discourses and reflections.

Mediavism, a contemporary add on to critical pedagogy, offers gizmos to praxis techno-pedagogy in technologically sophisticated educational ecosystem. "The activist mode and mood of content generation is the prime probability of this approach. The Mediavist approach enables students to post logical queries and familiarise them with private debates as precursors to public engagement as critical questioning skills are mastered. More so, this user-friendly ambience renders informing possible through presentation of queries, which would not otherwise be raised in educators due to perceived psycho-social, cognitive, and semiotic fragilities like feelings of alienation, limited self-confidence, and constrained linguistic competence" (R. Kaliyadan,).

Flipped and blended modes of exploration are possible in mediavism. Since it is a three tier activity, technological interventions in a different coherence on any one of

the phases should be fixed. Selection of media, message and metadata is important.Radical democratization of distribution of information is directly linked to critical emancipation; understanding of information as a commons is prerequisite for equal opportunity; the free/libre/open source software is a convivial tool which removes the differences between producers and consumers of technology (McLaren and Jandri? 2014).

Paulo Freire always urged educators to think critically about the use of technology in teaching and "to create new channels of knowledge, new methodologies, new relationships between the subjects who seek knowledge and the most advanced technological innovations that we have at our disposal".The first and foremost thing is that the teacher should be careful before choosing the media and the content/message. Intention of choosing a material/message should be clear and well defined. Source of information and reliability is also similarly important where, a bunch of materials are available in the market to mislead the whole spirit of critical thinking and practices. Capacity building of teachers in tune with the philosophical and practical tenants of mediavism and critical pedagogy is the fast track need of the next level development of Kerala model educational advancement.

Reference

https://kite.kerala.gov.in/KITE/index.php/welcome/ict/

Drick Boyd, What Would Paulo Freire Think Of Blackboard: Critical Pedagogy In An Age Of Online Learning ,International Journal of Critical Pedagogy Vol. 7 No. 1, 2016 Karl Marx, Grundrisse, (Penquin Books, 1973)

Katarina Vukovi?Peovi?andPetarJandri?,Critical Pedagogy and Digital Technology: Postmodernist and Marxist Perspectives: M.A. Peters (ed.), Encyclopedia of Educational Philosophy and Theory, DOI 10.1007/978-981-287-532-7_121-1,SpringerScience+Business Media Singapore 2015

Peter Mc Laren, Critical Pedagogy and Class Struggle in the Age of Neoliberal Globalization: Notes from History's Underside,The International Journal of INCLUSIVE DEMOCRACY, Vol. 2, No. 1 (September 2005)

RatheeshKaliyadan, "Mediavism in Fifth Estate Platform", National seminar on

New Media: Prospects and Problems, October 11-12, 2013, Sri RamananthTheerthMarathwada University, Nanded, Maharashtra.
RatheeshKaliyadan, "Mediavism: Gizmo of 'Y.Gen.' Media Mentors", National seminar on Quality configuration of media education, November 02-03, 2015, Donbosco University, Guwahaty jointly organized by Mizoram University and Donbosco University.
Sponsored by Indian Council for Social Science Research, New Delhi
RatheeshKaliyadan, "Mediavism: Marginal Thwart to Communalolitics", National Media Conclave, May 03-04, 2017 KIIT University Banquet Hall, Bhubaneswar organized by Institute of Mdia Studies, Bhubaneswar, Odisha. Moderator of plenary session III:
Peace, Integration, Privacy and Media.
RatheeshKaliyadan, Edupolis: knowledge economy hub for next education, January-December, 2014, Excellence in Education ISSN: 2320-7019
RatheeshKaliyadan, Social tech: can it be a tool for mediavism? June 2014, International Journal of Psychology and Education ISSN: 2321-8606

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(Kessler,2003,p.50); (joreskog&Sorborn,2007,pp 50-66); Banerji & Chatterjee, 2007) [first instance]: Basu et al. (2007) [Second instance onwards]; ("Study finds'',2007); (Anonymous, 1998); (Gogel, 1990, 2006, in press); (Gogel, 1996; Miller,1999)