Emerging Technological Applications for Teaching and Learning Process

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Abstract- The increase of advancement of information technology in the present world has been found that the educators and students make use of the technologies and applications for teaching and learning purposes. There are often no formal guidelines to assist with evaluating apps. The development of various mobile applications (apps), tablet computing, game-based learning, personal learning environments, and natural user interfaces helps in learning and teaching the concepts. Implementing these apps makes the process of education more innovative and interesting and even results in increase in the interest of the students.

Many educational applications are economical and affordable by the students. These applications help the students by getting expertise information instantly from professor or researchers. The system of collecting the feedback is also done quickly so that they can improvise the app based on the user requirement.

The advancement of these applications has their own advantages and disadvantages. So the emerging of applications is like a double edged sword having its own pros and cons. However it is we who need to take a right decision and use the applications in an optimum way.

Index Terms- Advancement of information technology, affordable, economical, game based learning, mobile apps, tablet computing.

I. INTRODUCTION

In the present world of advancement of technologies and applications there is an increase in the usage of the apps in various fields. Now these apps are implemented in the field of teaching and learning sector too. The implementation of such apps in the day-to-day scenario will slowly result in the elimination of the conventional or the traditional method of teaching and learning.

Traditional way of teaching and learning without any innovations turned out to be a bore after some time. So introduction of online learning and implementing the apps for educations makes the learning process a joyful and pleasurable one.

There are various ways which are adopted to teach innovatively. Few of them are as follows: mobile apps, tablet-computing, game based learning, Personal Learning Environments, Natural User Interfaces, and E-books.

Effective use of these technologies requires the students to exhibit digital literacy skills such as being able to access, manage, and evaluate digital resources. Further, students might be informally using many different applications for academic purposes, making it difficult to determine what and how to use such apps.

The need of technology in the Classroom

The usage of the technologies in classrooms makes the process of education innovative and it helps to make classroom a site of active learning and critical thinking, furthering student and related with the materials. The usage of technological application makes the students to explore fundamental areas and enable them to understand the concept whereby they can answer the core questions. Students are allowed to use internet, electronic databases, applets and other online sources to gather information. They make use of spreadsheets, virtual labs, and other programs to store, that helps to analyze information. Students are taught how to use certain software like desktop publishing, web publishing, video and audio editing, as well as graphic programs so that they can use them effectively for presentation purposes by doing so we can attain conceptual learning.

Many teachers make use of apps like *'rubrics'* to mark student's work, whether work habits, class work, assignments or homework. This process is usually performed on paper and is both time consuming and laborious. Assessment enables teachers to import their own rubrics and class lists into the app and mark student's work. Another app known as *'Chem. Pro'* is created by students for students. This app features 80 self-developed video lessons duration of 31 hours that take students through the entire year of college, General Chemistry or high school AP Chemistry. Various other apps like: *'Math Superheroes, Interactive Listening'* are emerged to make the learning process quick and portable. These applications make the process of learning more quick and interesting. It actually reduces the time for searching the data. Instead they provide expertise answers for the queries which are put forth by the educators and the students instantly.

Some apps which were recognized as Best Apps for Teaching & Learning are of exceptional value to inquiry-based teaching and learning as embodied in the *AASL's Standards for the 21st-Century Learner* are:

- **For Books**

'Al Gore – Our Choice': A Plan to Solve the Climate Crisis by Al Gore by Push Pop Press

- **For Science, Technology, Engineering, and Math (STEM)**

'Science 360' by the National Science Foundation
'NASA' by NASA Ames Research Centre

- **For Social Sciences**

'News-o-Matic, Daily for Kids' by Press4Kids

- **For Content Creation**

'Garage Band' by *Apple*

Therefore the emerging apps when used in the teaching and learning process help both the students and teachers in making the education process and innovative and a pleasurable one.

II.   EMERGING APPS AND ITS DESCRIPTION

There are various apps that are used in the field of learning and teaching the famous ones are as follows:

1. Mobile apps
   a) *Shakespeare In Bits*
   b) *Rubrics*
   c) *Chem.-pro*
   d) *Garage Band by Apple*
   e) *Math Superheroes*
2. Tablet computing
3. Game based learning
4. Natural user interface
5. E-books

MOBILE APPLICATIONS (APPS)

It is not uncommon to find the students of middle school using the mobile phones in the present world. The invention of smart phones has increased the usage of the mobile phones among the students and teachers. By these smart phones there is also an increased trend in usage of all the emerging apps that are available in the network. The usages of these mobile phone and apps will be effective in classroom only if there is proper supervision. These phones help to connect to the internet using 3g, or 4g wireless networking. The mobile phones are portable and can be used inside or outside the classrooms by which communications between the students and teachers and are effective.

Some of the apps used in mobiles for education purposes are as follows:

1. Shakespeare in Bits

'*Shakespeare in bits*' is a new exciting multimedia app used for learning and teaching the Shakespeare's plays. It is filled with audio and video of the popular plays like: *'Julius Caesar, Hamlet, Romeo & Juliet, Macbeth, and a Midsummer Night's Dream'*

2. Rubrics

'Rubrics' is an app which is used by teachers for assessment purposes. This app helps them to do the time consuming and laborious job of evaluating assessing the students.

3. Chem.-pro

'chem-pro' is an app which is created by students for the students. It is an app that consists of 80 video chapters that a student learns in their collage. This is helpful for the students who pursue General chemistry. This app also includes various study-aids such as reference table, periodic table, and flash cards by which students are able to reinforce the important concepts.

4. Garage band

'Garage band' is the app which is used by the students who are interested in the field of music. This is software which is developed by the *'Apple Inc'* as a part of *'ilife'* software package.

5. Math superheroes

'Math superheroes' is an app which is developed for the students who are above the age of 5. This app consists of various games which are related to the topics like numbers, shapes, patterns, sequences, and operations. This app helps the students to learn maths in more practical way.

TABLET COMPUTING

Tablet devices are those, which have a big screen compared to mobile phones. Their sharper display enables their use in educational specific applications. These tablets have touch screen options, built-in dictionaries and libraries.

The advancement in technology has witnessed a number of positive changes such as, once upon a time room sized computers have become extinct. Desktops and laptops explain the current trend and tablet computing is only adding more benefits. The portability of this device makes an added advantage to this device.

GAME BASED LEARNING

The visual impact created by video games is the reason for its extensive followers. Today many educational concepts find their way to students through games. Many concepts in the maths are in form of games like: puzzles and problem solving. Hence by incorporating of these games in learning has positive effects and can make the student to understand the concepts in more effective manner. On the other side there is also scope for increase in the creativity among the students.

NATURAL USER INTERFACE AND E-BOOKS:

Natural user interface (NUI) is a user interface that is designed to feel as natural as possible by the user. The main goal of the NUI is to create a flawless interaction between a human and a machine. The common example of NUI is the touch screen. These touch screen allows to move the objects by tapping and dragging them using finger or the stylus on the screen. The digital objects on the screen respond to the touch made by the people. This method of selecting the objects seems to be more natural rather than the usage of keyboard and mouse to interact with the objects on the screen.

Other few example of 'Natural user interface' are: Video games and Voice recognition. Here the objects on the screen can be controlled either by the users movement of the body or by their voice. Thus the natural user interface is an emerging application that makes the process of learning and teaching in more natural way.

III. MERITS AND DEMERITS OF TECHNOLOGICAL LEARNING

Online learning and usage of apps in teaching and learning has both their advantages and disadvantages. The advantages are as follows:

1. Flexibility- This is the major advantage of e-learning. The user has the space for planning their work and lectures on their ease.

2. Cost effective and accessible

3. Various learning styles are addressed and facilitation of learning occurs through many activities.

4. The self paced modules facilitate the learners to learn on their own pace.

5. The incorporation of these apps makes the learning process an innovative and pleasurable one.

6. The usage of these apps helps the students to become more creative person.

DISADVANTAGES:

As a coin has two sides, it also suffers from serious disadvantages, and they are as follows:

1. Requirement of sound knowledge: for using these applications both the students and the teachers need to have a sound knowledge on the devices for achieving a fruitful result.

2. These devices are not affordable by all group of society.

3. Unmotivated learners or those with poor study habits may fall behind and there is a large scope for the students to get deviated or carried away by other entertainment apps.

4. Unplanned study schedules tend to shift the students focus from completing tasks on time.

5. The absence of teacher student interaction poses as a great hindrance to assess the ward personally.

IV. CONCLUSION

The emerging apps which were invented by man, made the job of completing the task in an effective way. These apps are now used in various fields like education, research, entertainment and so on. The implementation of these apps in the field of education makes the process of education more effective and innovative. There is a large scope of conceptual learning through this process.

The incorporation of these apps in today's educational system will result in making the students a creative person. Hence the emerging apps in present day have a larger scope in near future.

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