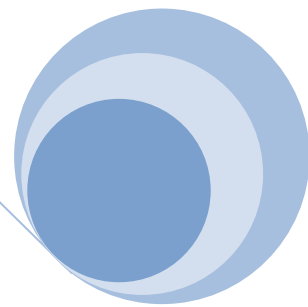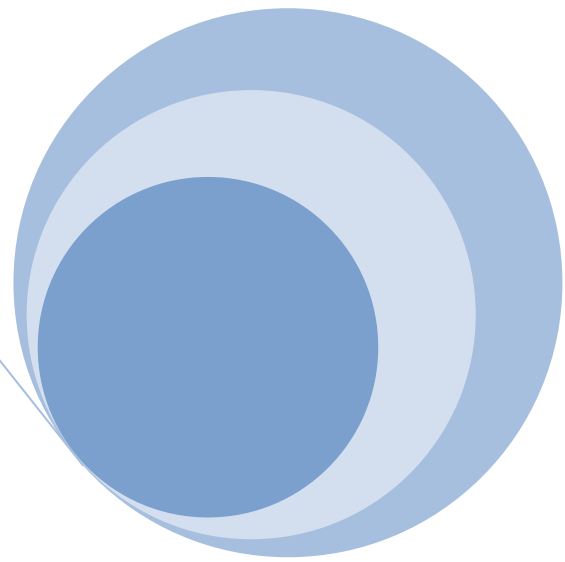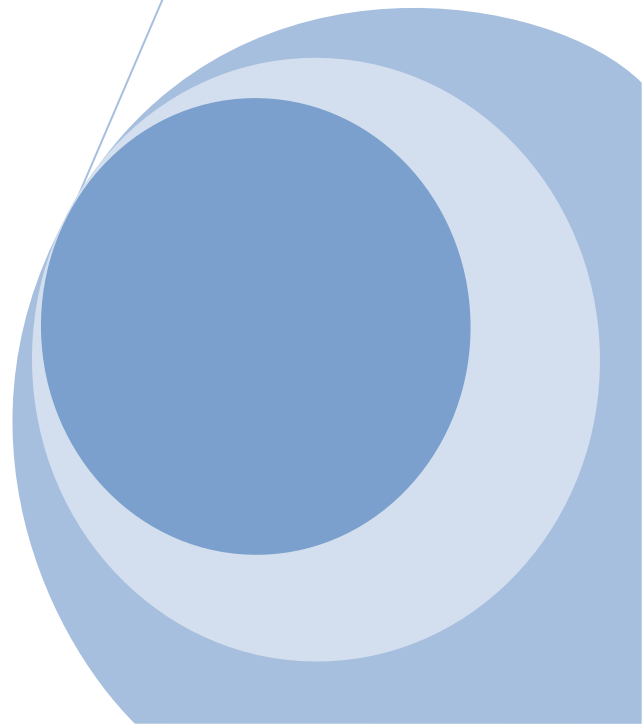# 42GEARS
Mobility Systems

Accelerating Enterprise Mobility

How tablets can change the way we teach and learn...

White Paper

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INTRODUCTION

> *"The principle goal of education is to create men and woman who are capable of doing new things, not simply repeating what other generations have done."*
>
> *- Jean Piaget, Swiss developmental, Psychologist and Philosopher.*

Educators today are aware of the significance of quality education. Quality education aims at enabling free thinking in minds of children so that they can relate what they learn with their surroundings and inculcating inquisitiveness to explore and understand more. Lots of effort has been made to make learning enjoyable, sometimes through regular revisions in curriculum, but little success has been achieved in this domain. Is that a problem of traditional and mundane form of teaching that fails to create interest among these kids?

Although, our education system has undergone significant changes in last few decades, still there seems significant scope of applying latest, easily adaptable technologies for education in schools, colleges and even at home. Several aspects of education are being revolutionized by innovative technologies. Internet, Personal Digital Assistants (PDAs), and Wireless technology are gradually making education easier and effective. Research has proved the positive impact of these technologies in the development of young minds. Latest entrant in this game is Tablet computer. Tablet can prove to be a powerful tool in the hands of students. As Arthur C. Clarke (1984) said, "Any smoothly functioning technology will have the appearance of magic." We already know that kids learned computer technology more easily than adults; it is as if children were waiting all these centuries for someone to invent their native language (Jaron Lanier). Teaching and learning through tablets and iPads sounds more interesting and enjoyable not only for the students but to the educators as well.

ORIGIN AND HISTORY OF TABLET

The Tablet computer and the associated special operating system is an example of pen computing technology which refers to a computer user-interface using a pen (or stylus) or finger, rather than devices such as a keyboard, joysticks or a mouse[1]. The facts show that development of tablets has deep historical roots, Alan Kay attempted to formulate his Dynabook as early as 1972 with his paper: "A personal computer for children of all ages"[2].

During the 2000s Microsoft came up with tablet pc concept[3] as a mobile computer for field work in business (Windows Mobile and Windows CE). Though, their devices failed to achieve widespread usage mainly due to price and usability problems that made them unsuitable outside of their limited intended purpose. In April 2010 Apple Inc. released the iPad, a tablet computer with an emphasis on media consumption.

The shift in purpose, together with increased usability, battery life, simplicity, lower weight and cost, and overall quality with respect to previous   tablets, was perceived as defining a new class of consumer device [4] and shaped the commercial markets for tablets in the following year. [5]

CREATIVE APPLICATIONS OF TABLETS

The creative applications of tablets are already well known and practiced by many students and educators in various schools, colleges and universities. Deployment of Tablet PCs span all the K-12, higher education, and graduate levels and deal with an amazingly diverse range of subject area, including writing, drawing, mathematics, computer science, languages, engineering, business and technical communications. These deployments generate passion among students and teachers despite the diversity in content areas[6]. The ***Design Technology*** students use tablets to draw images needed in Flash to produce their interactive animations. This enables a natural drawing process that allows personal style and expression to become a key feature of digital design.

Art students are required to build capable drawing skills in the development of their art practice. Graphic tablets allow the integration of technology and technique within the visual arts classroom. Art students can also do the emerging form of digital painting and speed painting with the help of these touch enabled tablets as these techniques require the pressure sensitivity, intuitive controls and many more things that can't be done using conventional keyboard and mouse*. **Mathematics*** is a subject in which a teacher needs a lot of energy, practice as well as much chalk work to deliver the lecture, but now by using tablets and smart boards, teachers are able to focus more on the learning of students and comfortably and conveniently demonstrate the working of formulae and equations and later on these notes can be distributed among students in PDF form[7]. If a tablet is creating rich and enjoyable experience to demonstrate the creativity of these professional course students, it is no less magic for primary school students. Nobody expects fifth standard students to write articles when they are young enough to just write essays and stories. By using a tablet and an application, which integrates drawing and photo editing with writing and layout functions, they are able to prepare a fantastic piece of article. Some of them use pen tablets for handwriting the title of the article and putting signature as an expression of their individuality.

In addition to creative edge that tablets brings to teaching and learning, it is almost capable of substituting personal laptops for activities such as emails, campus notices, capturing/recording lectures, etc. Teachers can make lectures more effective and interesting by using videos, charts, and graphs. Studies show that such interactive content can boost learning retention. *There can be infinite uses of the computer and of new age technology, but if the teachers themselves are not able to bring it into the classroom and make it work, then it fails. (Nancy Kassebaum, U.S Senator)*

Backed by Australian Government, Apple carried out multiple trials to study the reaction and impact of iPads on students in Australia. According to their Professor Chambers; *iPad has very quick start-up time. They are instantly on. If a person is watching television and sees something interesting they just press an iPad button and get the internet in a second. But with a computer, user have to go over to the desk, log on to the machine, wait till it boots, log in, boot the browser, even laptops are lacking this instantaneous factor.* In their opinion it is an extension of the body/mind. Martin Dixon, Education Minister, Australia said the trial had been very positive. The trial is to help schools make choices as to where they'll spend their IT dollar. In his opinion iPads really engage students in their learning and if they are engaged they are going to stay on in school.[8]

> *A survey conducted by Pearson Foundation in 2011, shows that 86% of college students who own a tablet say the device helps them study more efficiently, 76% report that tablets help them perform better in their classes.[9]*

At this time when tablet phenomenon is sweeping the consumer and enterprise world, educational institutions should be ready to embrace this with both hands. According to Heidi-Hayes Jacobs, an educational consultant, teachers need to integrate technology seamlessly into the curriculum instead of viewing it as an add-on, an afterthought, or an event.

CHALLENGES AND TOOLS TO GUIDE THE APPROPRIATE USE OF THESE DEVICES BY KIDS

Tablets in education also raise some concerns.

- Few parents and teachers are concerned about trusting children with these devices, with fear about theft or loss.
- Some are concerned that tablets would be a major source of distraction for the children and prevent them from spending time with family and friends or playing outdoors.
- Kids can accidently exit from the educational application they are supposed to use or disturb some essential settings of the device, making the tablet useless for them.
- Also, it is very easy to accidently drift to some inappropriate site on internet while searching for their studies.
- Tablets also present 'handy' access to internet 24hrs a day and thus attract intentional internet misuse by children.

Tablets not just facilitate easy, intuitive, organized access to educational content to a student but also pose to problem of misuse by kids. These devices allow multitasking due to which children can have Facebook page open while attending lectures and doing homework. Nonetheless, we can't ignore the benefits of these tablets and enhancement in kid's capabilities and learning. Hilary Decesare, a cyber bullying expert and CEO of Kid's social networking site Everloop, argued that in an increasingly digital world, it's important to expose the children to different technologies early so that they are prepared to adapt and thrive in more advanced professional settings. In her opinion kids as young as two can benefit from tablet use, as long as the "parent is monitoring what child is watching." [11]

Thankfully there are quite a few companies creating hardware and software tools to provide such control. Several of the larger tablet makers have stepped up and introduced new tablets with greater parental controls. NOOK HD and HD+ from Barnes & Noble, comes with ability to create multiple user profiles, which allow parents to select the apps, websites and media content which their kids can access. Amazon's Kindle Free Time, for the Kindle fire, does much of the same and let's parents set daily time limits for their children's use. Apple's iPad and iPad mini both include a suite of restrictions in the settings, parent can select which apps the child can open, and what kind of content they can download or experience. Quite a few parental control web browsers are available in both the Android and Apple app stores.[11] Few third party software like **SureLock** and **SureFox** are also available in market which enables comprehensive control and lockdown of these tablets, restricting their usage to few white listed websites and applications. These tools prevent accidental as well as malicious attempts by students to go away from their educational application or web site. Device management tools like **SureMDM** can be used to track the location and can be helpful to trace these devices in case of theft or loss.

CONCLUSION

Technology is increasingly recognized as an integral learning tool especially Tablet PCs for promoting the social, linguistic, and cognitive development of young children[12]. Now, this is no longer a hurdle for educators to think about to what extent technology should be used with children in the classroom, but rather how it should be used(Clements & Sarama, 2003). After recognizing the potential of technologies in enhancing the ability of children to learn, solving problems, and convey their ideas it is now a challenge for educators how they keep the classroom updated with new technologies and implement it into the curriculum.(Swaminathan & Wright, 2003).

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