The Pedagogical Potential and Limitations of Mobile and Hand-held Learning

Prof. M.M. Pant

Emerging Innovations in Education: Horizon Report (2011-2012)

- Cloud Computing (1-2 years)
- Mobile Devices (1-2 years)

- Game Based Learning (2 – 3 years)
- Open Content (2 – 3 years)

- Learning Analytics (4-5 years)
- Personal Learning Environments (4-5 years)

RIL Plans to Offer 4G on Tabs

Company to launch tablets for Rs. 3500 and bundle it with data offers as low as Rs. 10 for 1 GB by 2012-end

File Sizes in Different Formats

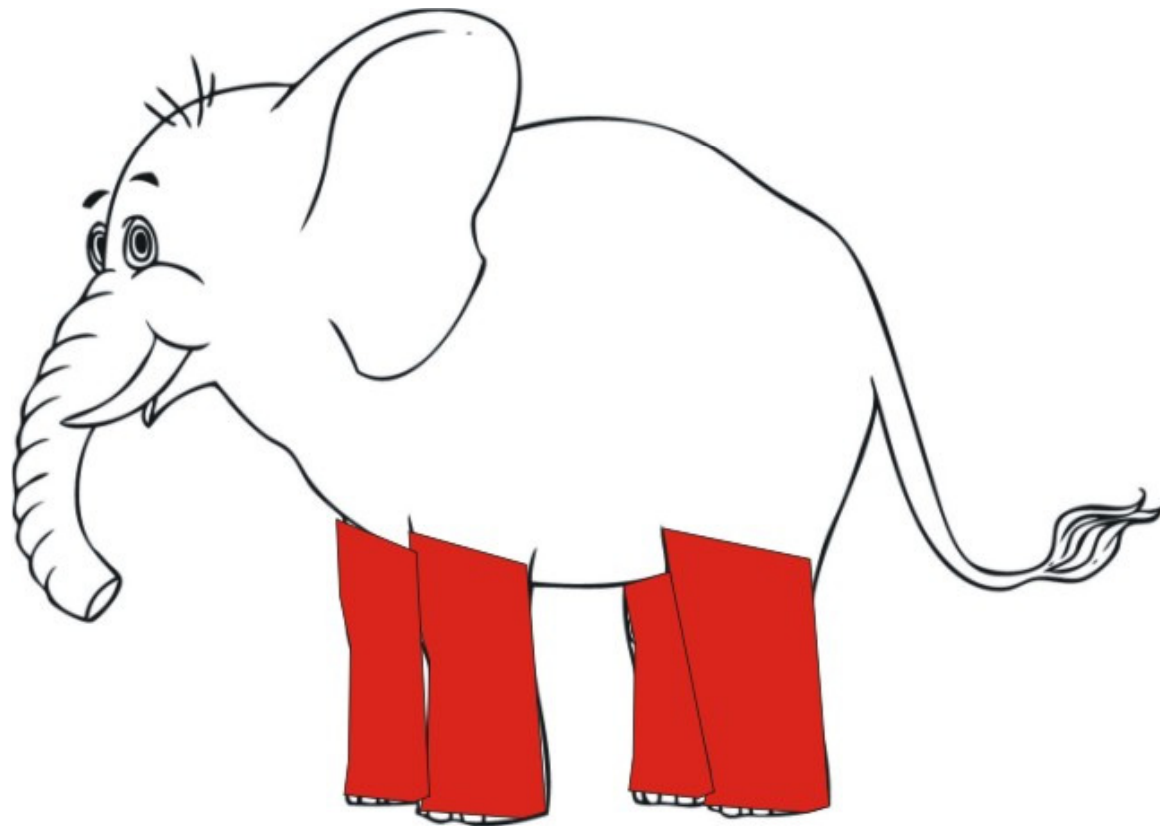| S. No.	File Type	Pages/ Duration	File Size (approx)
1.	Text file without any formatting	10 pages	12 kB
2.	Doc file without images	10 pages	40 kB
3.	Doc file with images	10 pages	150 kB
4.	PDF normal	10 pages	200 kB
5.	PDF with images	10 pages	500 kB
6.	Sound File - MP3	5 minutes approx	5 MB
7.	Photograph - (low res.)	1	100 kB
8.	Photograph - (high res.)	1	2.5 MB
9.	Flash Video	5 minutes	15 MB
10	Video (low res.)	5 minutes	500 MB
11	Video (high res.)	5 minutes	1 GB

Six Blind Man and Elephant

1st Man
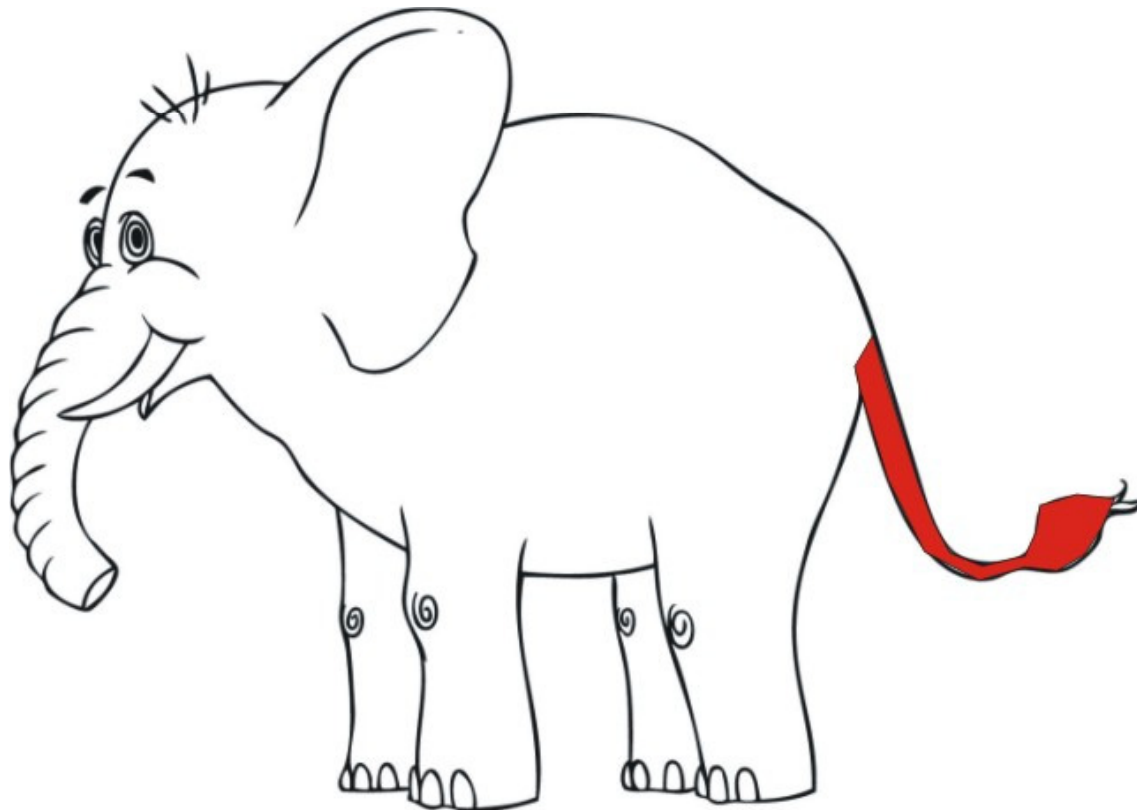
"Hey, the elephant is a pillar,"

— said the first man who touched his leg.

2nd Man

"Oh, no! it is like a rope"

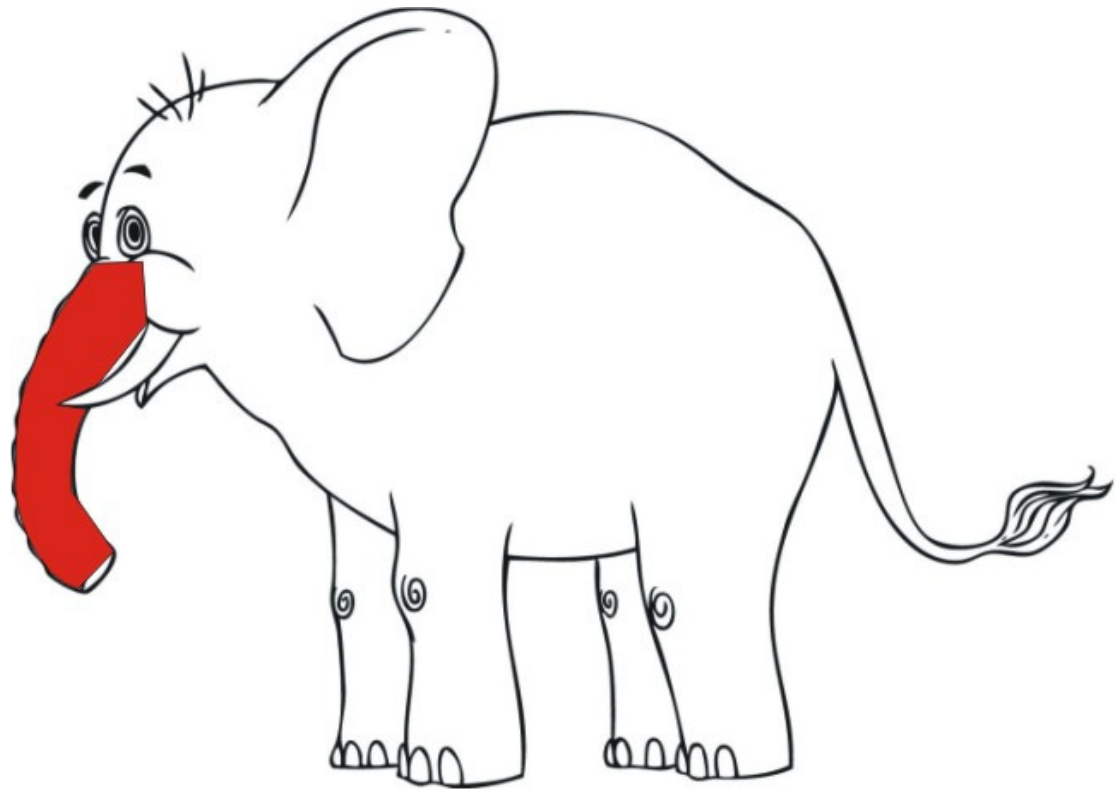—said the second man who touched the tail.

3rd Man

"Oh, no! it is like a thick branch of a tree"
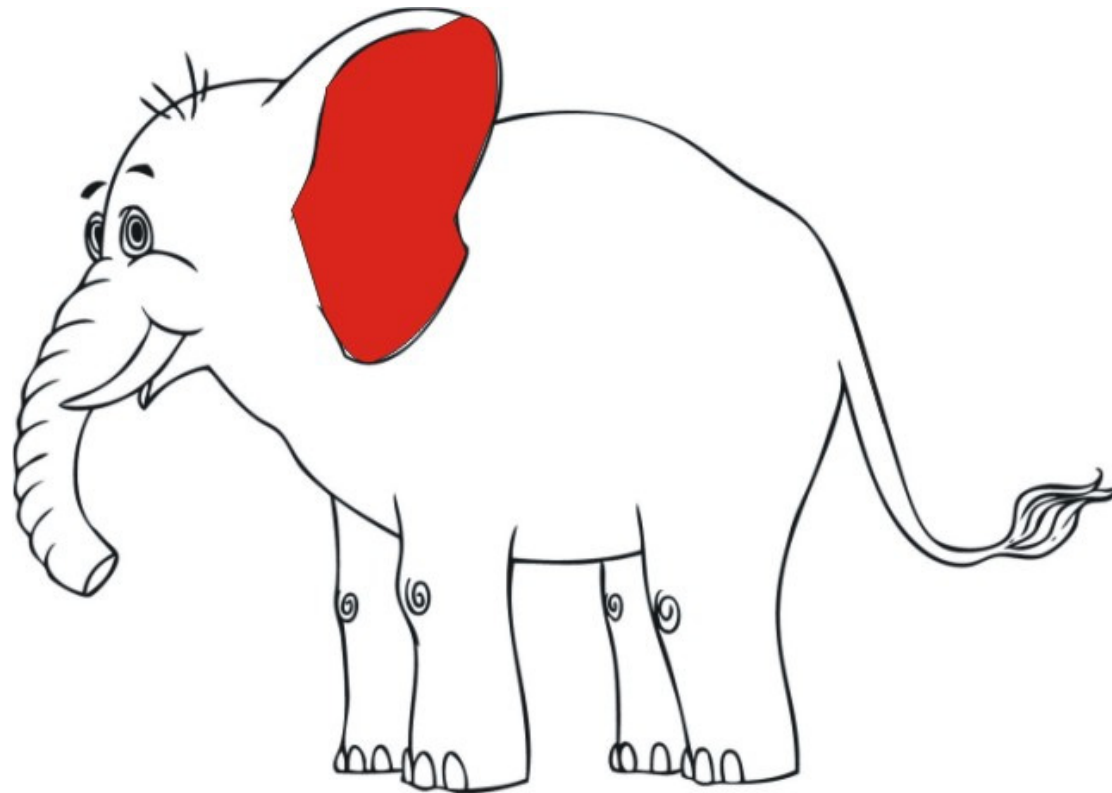
—said the third man who touched the trunk of the elephant.

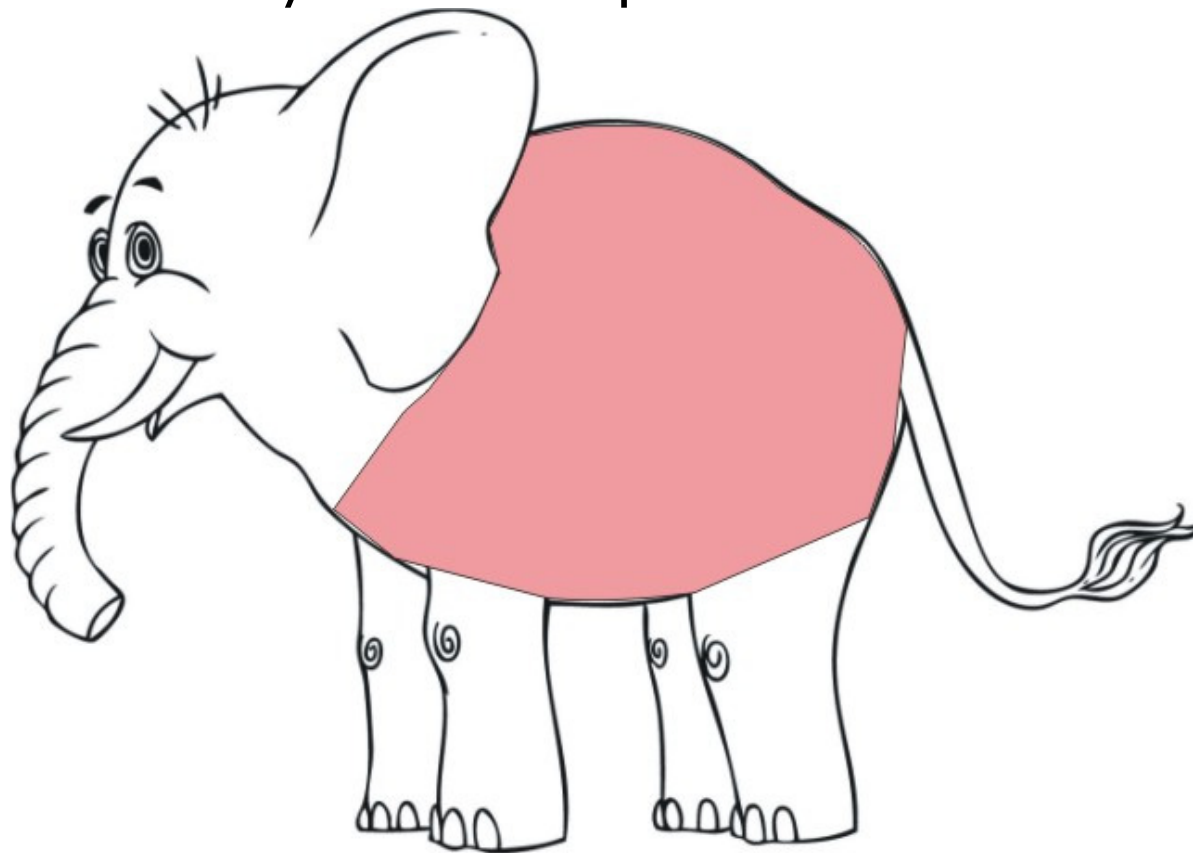# 4th Man

"It is like a big hand fan"

—said the fourth man who touched the ear of the elephant.

5th Man

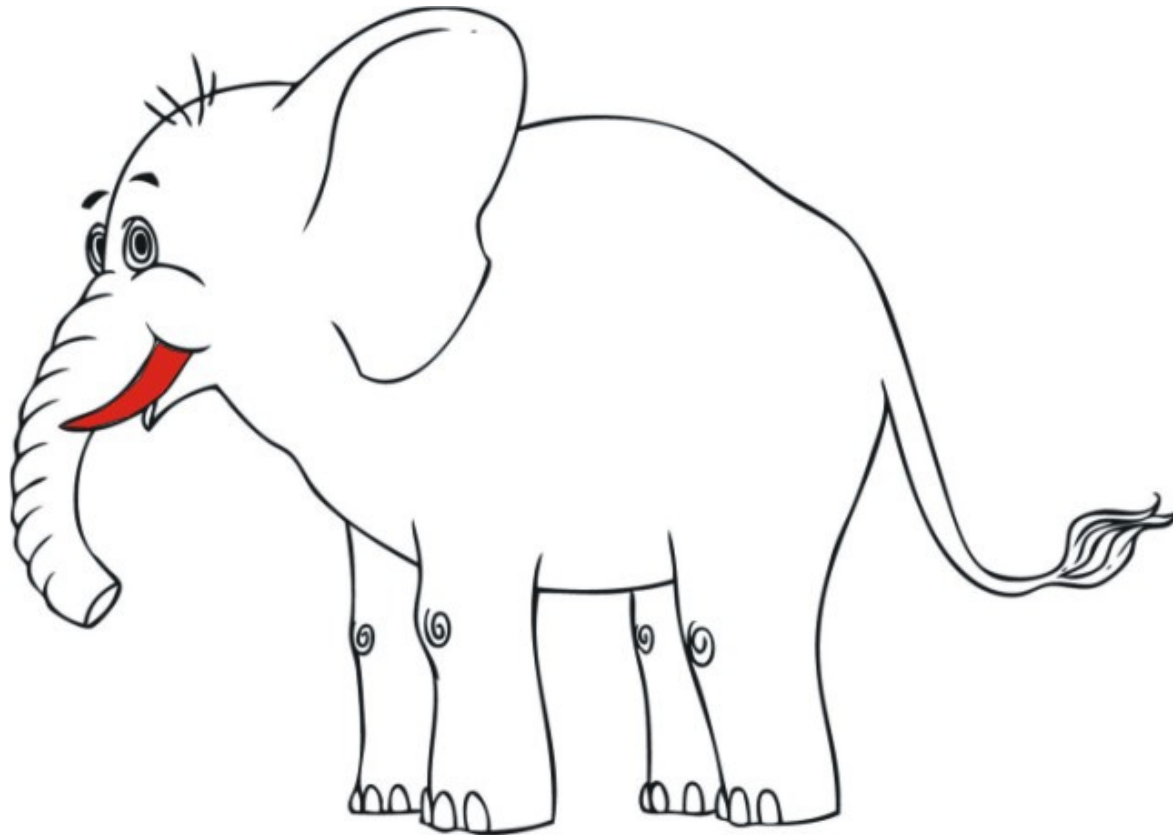- "It is like a huge wall," said the fifth man who touched the belly of the elephant.

6th Man

"It is like a solid pipe"

—said the sixth man who touched the tusk of the elephant.

Similar views on the Mobile

It is a Phone /Audio-player

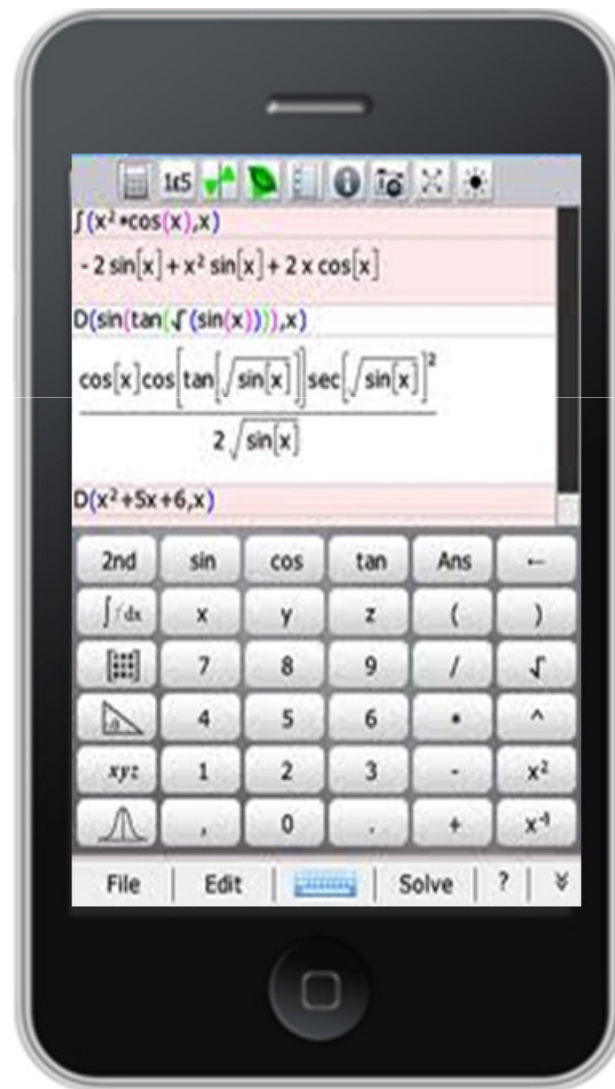# It is a Camera

It is a TV /Video-player

It is a Reading/Writing Device

It is Communication Device

Range of Handheld Devices

Basic Mobile

- **Phonebook:** 50
- **SMS :** Yes
- **Network:** 2G Network, GSM 900/1800
- **Display:** Monochrome Graphic (Black & white) 96 x 95 pixels
- **Ringtones:** Monophonic Ringtones
- **Games:** 2 (Snake & Space Impact)
- **Talktime:** upto 3 hrs

Feature Phone

- **Messaging:** SMS, MMS, Email
- **Display:** VGA, 640x480 pixels TFT colour Display
- **Memory Card Slot:** MMC, 32 MB card
- **Recording:** Audio, Video recording
- **Ringtone:** Polyphonic
- **Network:** Bluetooth, 2G (GSM 900/1800/1900)
- **Loudspeaker:** Yes
- **Talk-time:** 2 to 4 hrs.

Smart Phone

- **Screen Size :** 3.5 inch (LCD)
- **Resolution :** 640 × 360
- **Processor :** 680 Mhz
- **Platform :** Symbian ^3, Windows, Android,
- **RAM :** 256 MB
- **Internal Memory :** 140 MB
- **Memory Card:** Support upto 48 GB
- **Connectivity :** Bluetooth, Wi-Fi, 3G
- **Camera:** 5 MP
- **Video Recording:** HD
- **Messaging:** MMS, Email
- **Battery life:** 720 minutes

Pads & Tablets

- **Display Size :** 10.1-inch (1280 x 800 pixels)

- **OS:** Android, iOS, Windows, BlackBerry

- **Processor:** 1 Ghz dual-core

- **Internal Memory:** 16, 32, 64 GB

- **Camera:** 2MP Front, 3MP Rear

- **Connectivity:** Bluetooth 3.0, Wi-Fi 802.11a,b,g,n, 3G

- **Battery Life:** 5-7 hours

The XO : OLPC

- **Display Size :** 7.5-inch, 1200×900-pixel
- **OS:** Linux
- **Processor:** 433Mhz AMD Geode processor
- **Internal Memory:** 1GB of SLC NAND flash memory on board
- **External Memory:** 4 GB
- **RAM:** 256MB of dynamic RAM
- **Camera:** VGA
- **Connectivity:** Wi-Fi
- **Battery Life:** 3 hours
- **Price:** $100

Ultrabook

- **Display:** 13.3-inch 1366 x 768 LED-backlit TFT high-definition widescreen display

- **Processor:** Core i3, i5, i7

- **Operating System:** Windows 7

- **HDD:** 240, 320, 500 GB

- **RAM:** 4 GB

- **Battery life:** upto 8 hrs.

- **Weight:** 1.3 - 1.5 kg

Netbook

- **Display:** 10.1-inch glossy screen has a native resolution of 1024x600

- **Processor:** 1.33GHz Intel Atom N435

- **Operating System:** Windows 7

- **HDD:** 240, 320 GB

- **RAM:** 1 GB

- **Connectivity:** Bluetooth, Wi-fi

- **Webcam:** Yes

- **Battery life:** upto 3-4 hrs.

- **Weight:** 1.3 - 1.5 kg

Notebook

- **Display:** 14.1-inch diagonal WXGA anti-glare (1280 x 800 resolution)
- **Processor:** Intel® Pentium® dual-core mobile processor T3200
- **Operating System:** Windows 7
- **HDD:** 120, 160, 250 GB
- **RAM:** 1 GB-4GB
- **Connectivity:** Bluetooth, Wi-fi
- **Webcam:** Yes
- **Battery life:** upto 3-4 hrs.
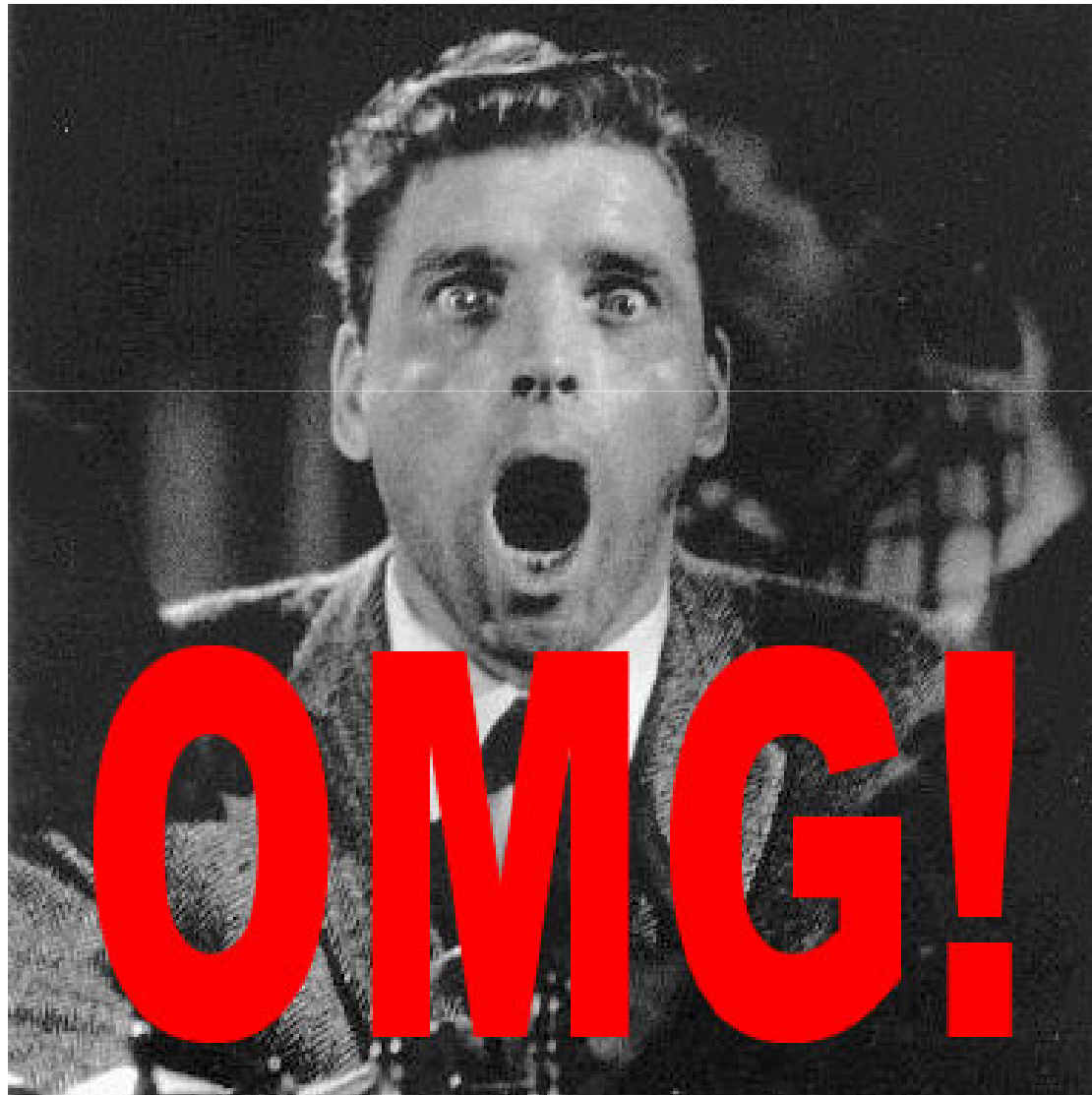- **Weight:** 2.5 kg

Laptop

- **Display:** 15.4-inch wide screen
- **Processor:** Intel Core 2 Duo, I3, I5, I7
- **Operating System:** Windows 7
- **HDD:** 120, 250, 500 GB
- **RAM:** 1 GB-4GB
- **Connectivity:** Bluetooth, Wi-fi
- **Webcam:** Yes
- **Battery life:** 2-3 hrs.
- **Weight:** 2.8 kg – 3.8 kg

OMG! It's a Tremendous Learning Device

Is it wise to ban it in the Classroom ?

- Mobiles are banned in all CBSE Schools

- In fact, the restriction has been imposed on use of cell phones by anyone on school campus, be it students, teachers, or any other working staff. The purpose of this move is to recreate the good old cellular phone-free, distraction less environment in educational institutions.

- Gujarat bans use of mobiles in Schools

- Karnataka bans use of mobile in Schools

So, why are we giving Aakash ?

- **New Delhi:** Indian students are likely to be provided with Akash tablets.

- This information was given by D. Purandeswari, Minister of State for Human Resource in written reply to a question in Rajya Sabha on Friday.

- According to wikipedia, Kapil Sibal has said that a million students will be provided with Aakash in 2011.

- In another report it was stated that 50 lakh such devices will be sold in 2012.

We need to transform them into Learning Devices

Features of a Learning Device

Useful for all ages:
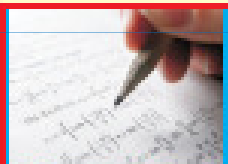School to Adults

Instant
Content
Search

LIVE
Learning
Guidance

Mastering
Maths
Program

Voice Support
In English, Hindi
& Regional
Languages

LearnPAD™

Programs for
Employability

24/7 English

English Language
Learning Suites

Learning 221

These Devices can be LearnTABs™ or LearnPADs™

Learn TAB™

PORTABLE LEARNING

Screen Size : 7 inch (LCD)
Resolution : 800 × 480
Platform : Android 2.3 Gingerbread
Processor : 1.2 Ghz "triple core"
Internal Memory : 4 GB, support upto 32 GB
RAM : 512 MB
Connectivity : Wi-Fi, external 3G dongle support
Camera: 1.3 MP front camera
Battery life: 4 hrs.
Weight : 400 grams

Learn PAD™

KNOW EVERYTHING. LEARN ANYWHERE

IN-DASH LEARNING PROGRESS

Screen Size : 10 inch (LCD)
Resolution : 1024 × 600
Platform : Android Honeycomb 3.1
Processor : Unknown
Internal Memory : 16/32/64 GB
RAM : 512 MB
Connectivity : Wi-Fi, 3G, GPS
Camera: 0.3 MP
Battery life: 8 hrs.
Weight : 675 grams

Categories : Level-1 (*)

- Minimal Learning Features

- Mostly from Website

- **How to use Handhelds for Learning (1/2 day tutorial)**

Categories : Level-2 (**)

- All Features of Level 1 (*)

PLUS:

- Some pre-loaded Apps

- Useful sites saved on favourites

- Weekly updates (pre-paid)

- Access to English Language Learning Suites (Pre-paid)

Categories : Level-3 (***)

- All features of Level 2 (**)

PLUS:

- Pre-loaded General Purpose Learning Apps (free as well as paid)

- Membership of APPs Club

Categories : Level-4 (****)

- All features of Level 3 (***)

PLUS:

- Pre-loaded curriculum based Apps (Maths, Science, Social Science)

- Support from 12 hour help-desk

Categories : Level-5 (*****)

- All features of Level 4 (****)

PLUS:

- Personal remote tutor
- Coaching / Mentoring by a Community of high achievers who are ex-IITians, ex-IIMers and Internationally educated, as well as their cognitive surplus.

Rated by Teachers, Users (Learners) and New Age Educational Specialists

- Commonwealth of Learning has created a framework for assessing the usefulness of multi-media content for learning.

- We are in the process of building on those ideas and other methods for curating Apps and other learning resources to come up with a ratings system.

- Inputs from Subject matter experts

- Feedback from learners

- Opinions of Educators

Limitations:

- Distraction
- Need for a new Pedagogy

- Resources developed abroad suitable only for a very small segment of our learner population.
- Localisation of content & learning support.
- Limited availability of suitable Learning Apps.
- Lack of Teacher Preparation.

Distraction:

- This was given as the main reason for banning mobiles in the classroom.

- The CBSE Board explains its decision pertaining to cell phones having become a "serious cause of distraction, lack of concentration, anxiety, fear and sometimes even misuse. Even if the mobiles are in silent mode, they can be a source of disturbance within the classroom as students can make use of Short Messaging Service (SMS) during the class or even during an assignment. The cameras which are a common feature now in most mobile phones can also be misused."

- Young persons have a wandering mind and today's generation can multi-task, but authority sees this as distraction.

New Pedagogy

- All pedagogical principles were developed in the context of young learners in a classroom for pre-defined learning outcomes.

- Then there was 'andragogy' by Malcolm Knowles for adult learning.

- We are now in the situation of life-long learning and development of generic skills of learning and thinking.

- We have named this new methodology 'Live Learning'

About APPs and Learning

- Apple's slogan " There's an App for that"
- There are a few hundred thousand Apps for each of the platforms.
- But very few relevant Apps for our needs.
- Also language is an issue.
- Appsineducation.blogspot.com
- Appitic: iPad Apps curated: http://appitic.com
- Apps for Teachers: appolocious.com
- www.iear.org
- www.bestappideas.com

No Teacher is Left Behind:

- The good news is that it is much easier to use Tablets and SmartPhones than it was to use desktops in the past.

- An induction/ kick off program can be done in 2 half day (3 hours each) instructor led sessions with one hour of pre-program prep and 3 hours of follow-up.

- In other words a 10 hour program that can be delivered for all teachers of all Institutions. All teachers can be covered within an academic year.

- Continuous support by membership of a learning community.

Thank you !

Email: **Professor@MMPant.in**

Website: **www.mmpant.net**

http://mmpant.wordpress.com/