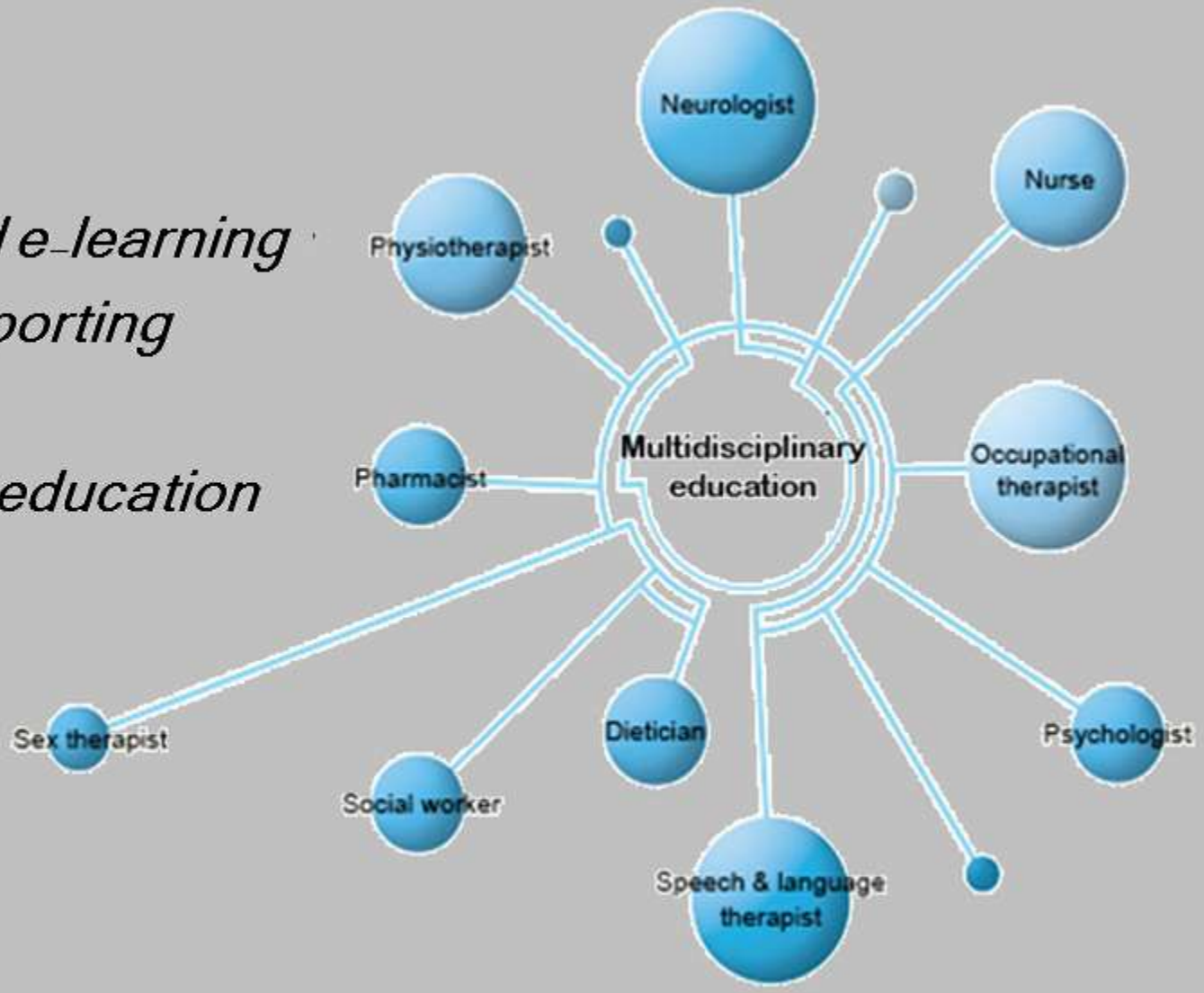
Role of advanced e-learning strategies in supporting health students' multidisciplinary education



By

Dr. Mohammad Fahad Al-Ajmi, PhD

Prince Sultan College of EMS

King Saud University

malajmii@ksu.edu.sa

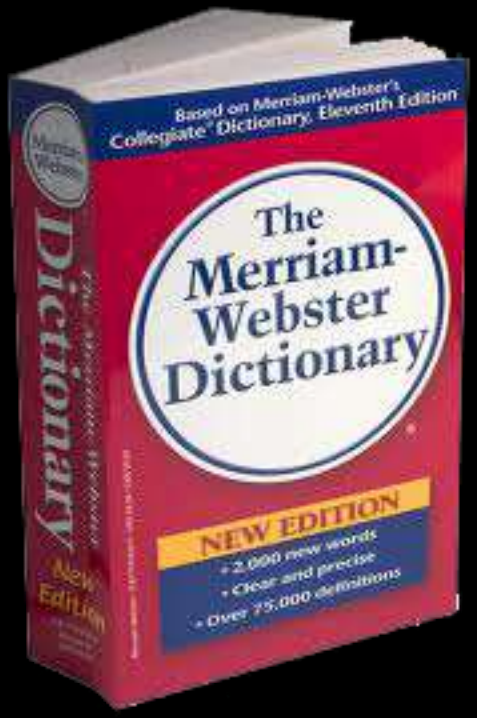
Agenda

1. Multidisciplinary, interdisciplinary or interprofessional?
2. Web 2.0
3. Mobile learning
4. Ubiquitous learning

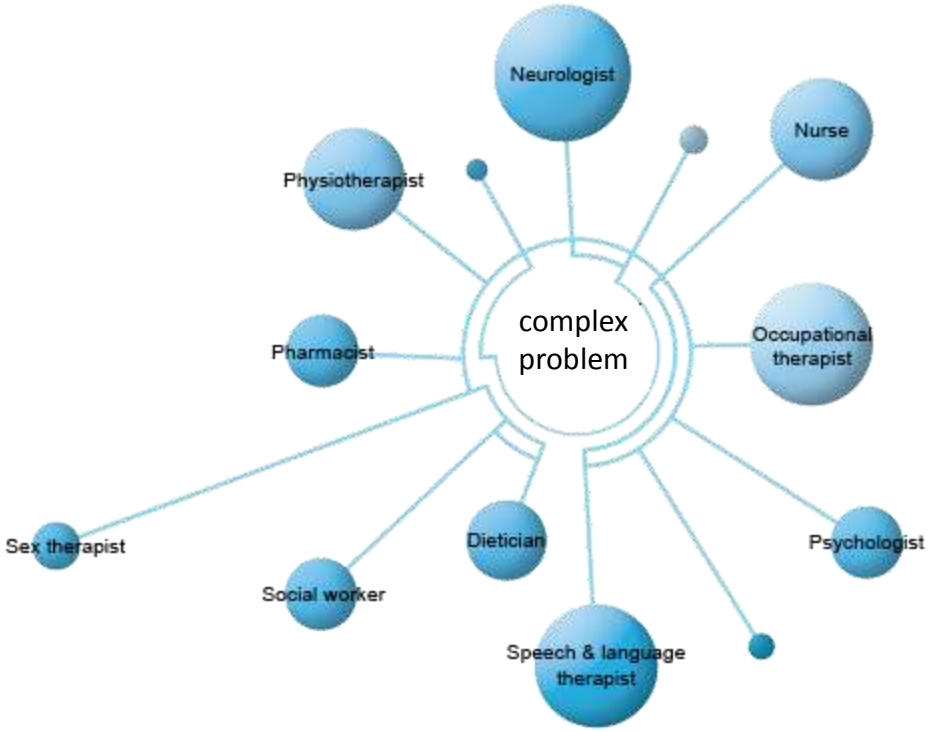
What is Multi?

According to Webster:

multi = more than two



So what is Multidisciplinary?



Multidisciplinary simply refers to bring together numerous experts from diverse disciplines to collectively address a complex problem, with each expert addressing the problem from the perspective of his or her own discipline.

“

Multidisciplinary Education

sometimes also referred as

Shared Education...

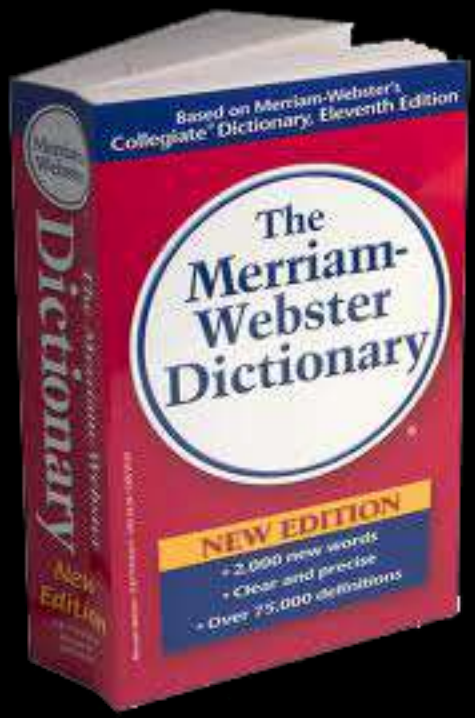
Multidisciplinary Education does not mean….

placing 100 pharmacy students in the same physiology class with 140 medical students, 85 dental students, or 50 nursing students.

So what actually Multidisciplinary Education means?

Bringing together several health care disciplines, as well as other related fields, to work together through joint planning, decision-making, and goal setting to enhance the contribution to positive students' outcomes within each discipline.

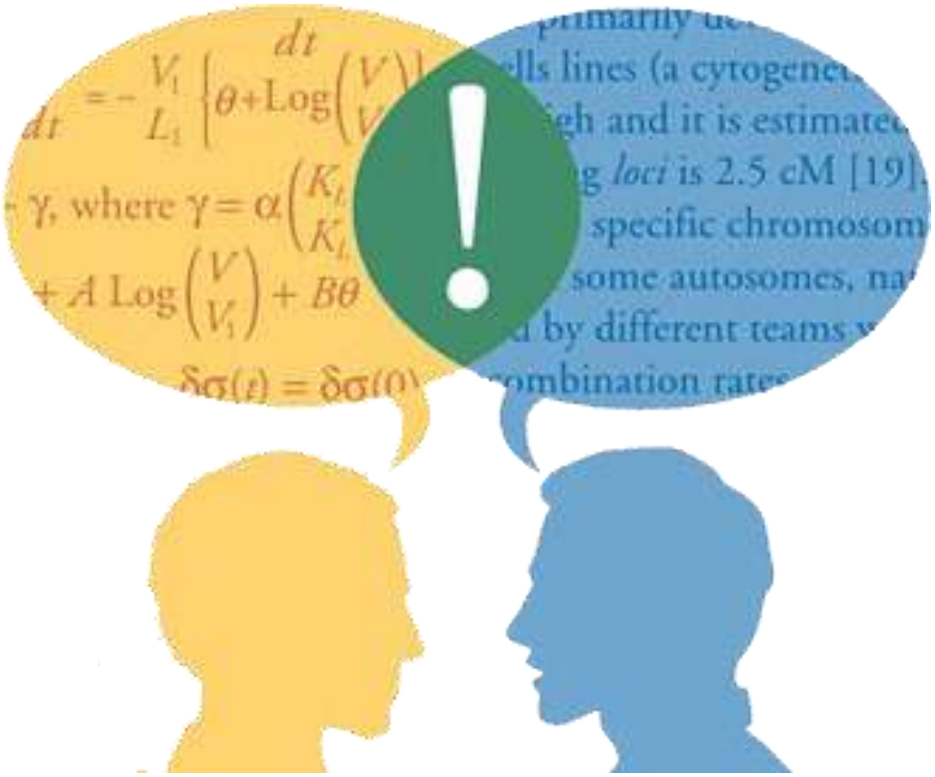
What is Inter?



According to Webster:

"Inter" means between or among, with/or on each other together, mutual or reciprocal.

So what is Interdisciplinary?



Interdisciplinary simply refers to melding of two or more disciplines to create a new discipline.

Biophysics, biostatistics, bioinformatics etc. are just a few examples of interdisciplinary sciences.

Difference between

Multidisciplinary and Interdisciplinary

When experts from different fields work together on a common subject within the boundaries of their own discipline,

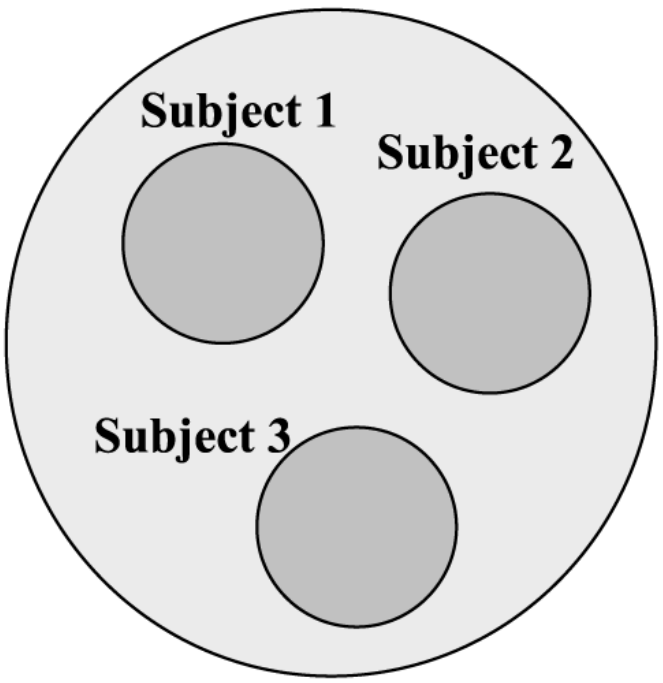
they are said to adopt Multidisciplinary.

If they stick to these boundaries they may reach a point where the project can not progress any further. They will then have to bring themselves to the fringes of their own fields to form a completely new field;

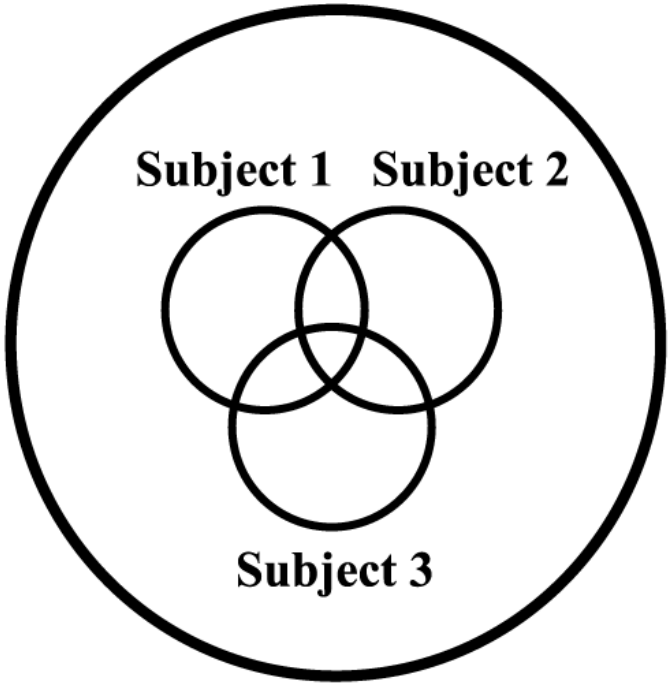
this is what we call Interdisciplinary.

Difference between

Multidisciplinary and Interdisciplinary



MULTIDISCIPLINARY



INTERDISCIPLINARY

Difference between

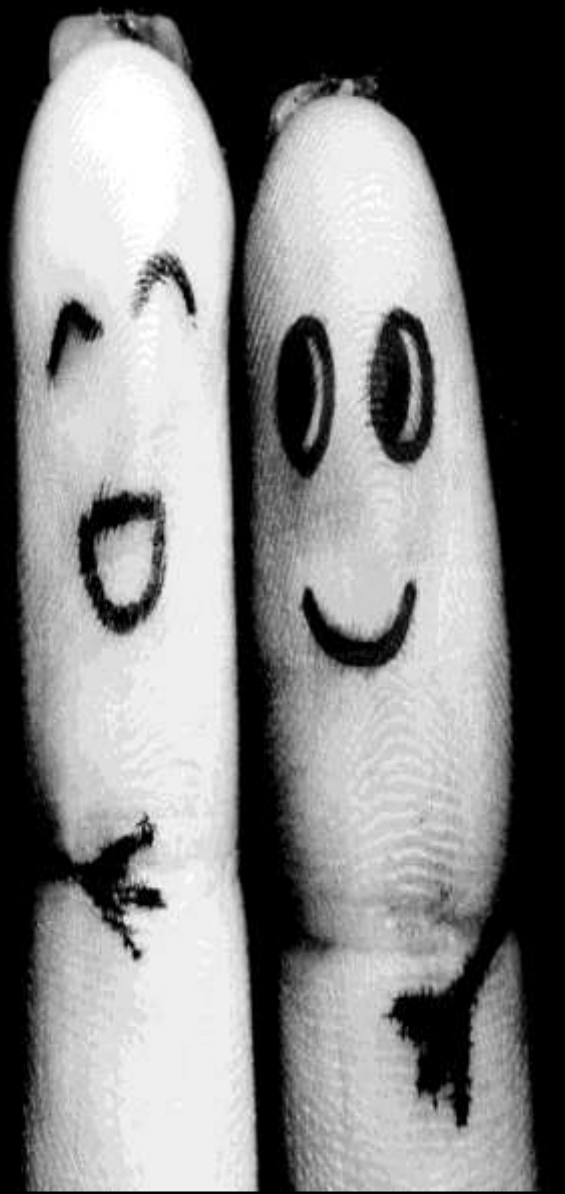
Multidisciplinary and Interdisciplinary

Characteristics	Multidisciplinary	Interdisciplinary
Organizing Centre	Standards of the disciplines organized around a theme.	Interdisciplinary skills & concepts embedded in disciplinary standards.
Conception of Knowledge	• Knowledge best learned through the structure of the disciplines. •A right answer.	• Knowledge considered to be socially constructed. • Many right answers.
Degree of Integration	Moderate.	Medium/intense.
Assessment	Discipline-based.	Interdisciplinary skills/concepts stressed.

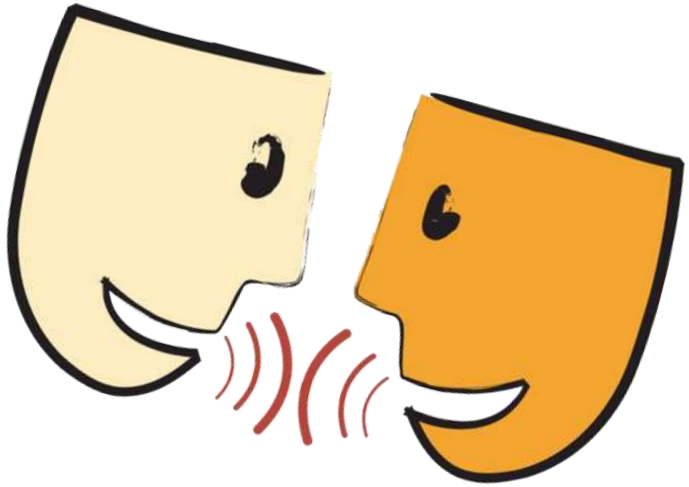
Perceived impact of Multidisciplinary Education

These impacts can be identified under the following sections:

- **Communication**
- **Mutual understandings between professions**
- **Confidence in role**
- **Impact on practice**



Communication



Multidisciplinary education is perceived to promote effective communication by providing:

1. **Shared experiences among different health professionals**
2. **Networks and support groups**

Mutual understandings between professions

One can identify the following potential outcomes:

1. **Greater understanding of roles**
2. **Less intolerance**
3. **Enhanced professional knowledge**

Confidence

It does enhance professional and personal confidence

1. **Learning beyond boundaries**
2. **Developing a critical approach**
3. **Being confident in talking to other professionals**
4. **Enhancing knowledge & increasing skills**

Impact on practice

It appears to provide the opportunity to:

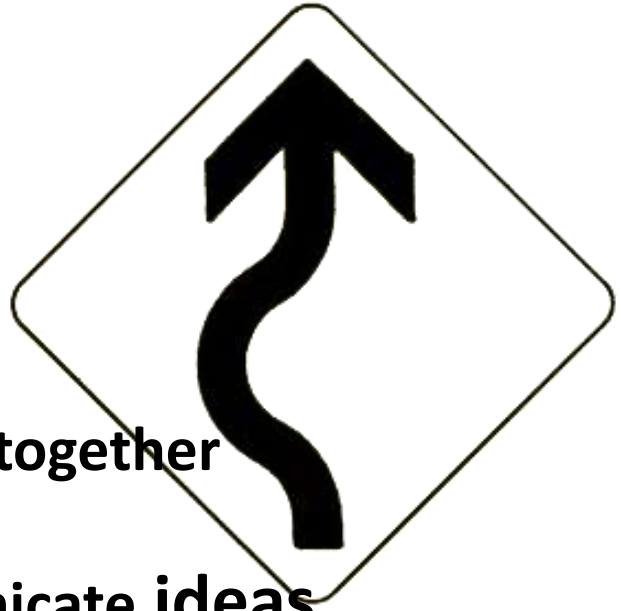
1. **Apply research & knowledge to clinical practice**
2. **Encourage the sharing of knowledge with colleagues**
3. **Become more informed practitioners**
4. **Enhance mutual understanding**
5. **Promote collaborative practice**

Challenges for Multidisciplinary Education

If the rewards are great.....

so too are the challenges.....

Challenges for Multidisciplinary Education



1. **Lack of funding**
2. **Access to library and IT facilities**
3. **Bringing different health professionals together**
4. **Finding a common language to communicate ideas**
5. **Trusting research you have not skills to access yoursel**
6. **Understanding the concepts underlying a discipline other than your own**

Advanced e-learning tools and Multidisciplinary

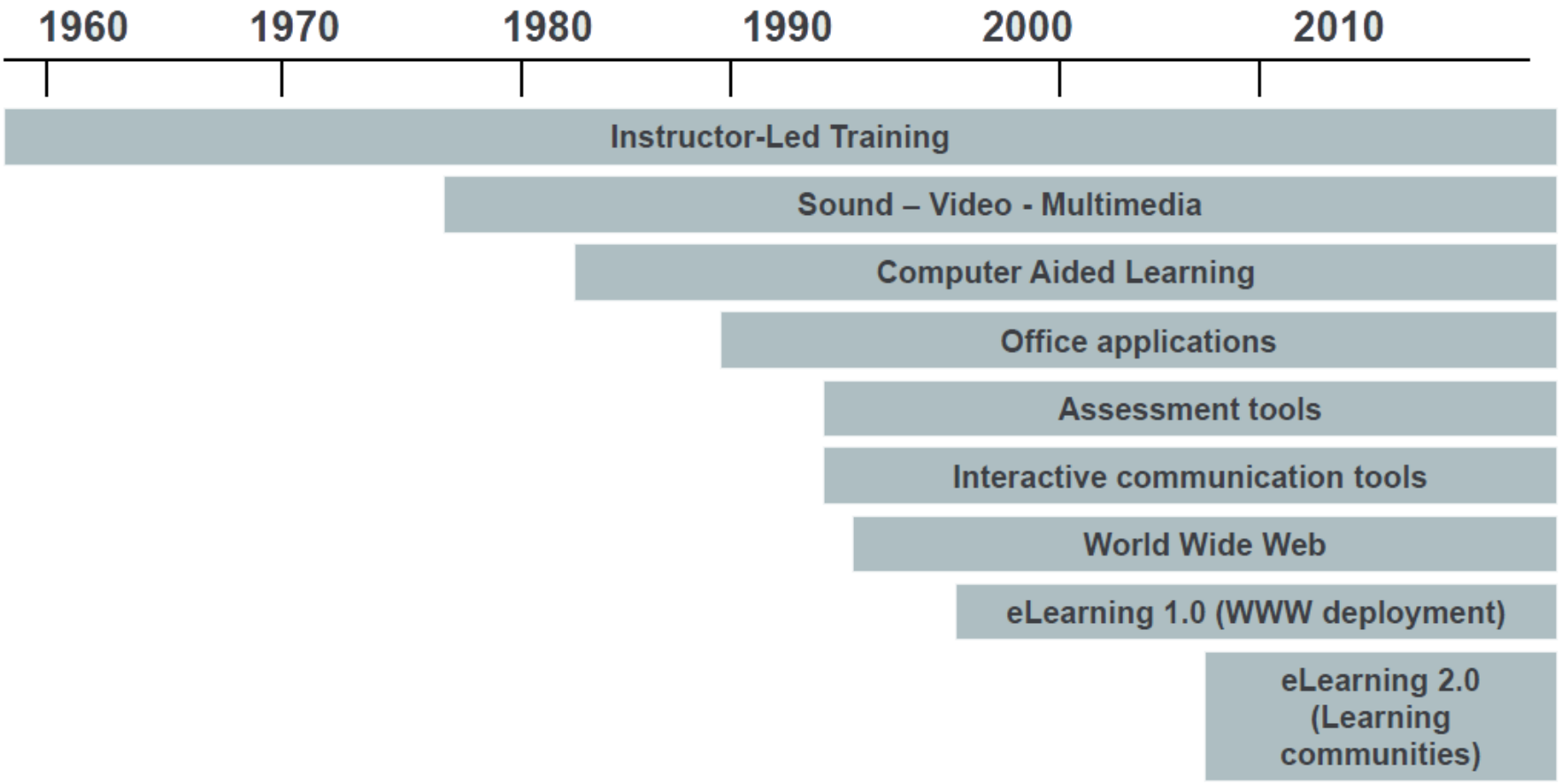
Online learning will rapidly become one of the most cost-effective ways to educate the world's expanding workforce.....

Jack Messman

Pricewaterhouse Cooper

The evolution of Learning Technologies

A rough estimate:



Web 1.0 vs Web 2.0

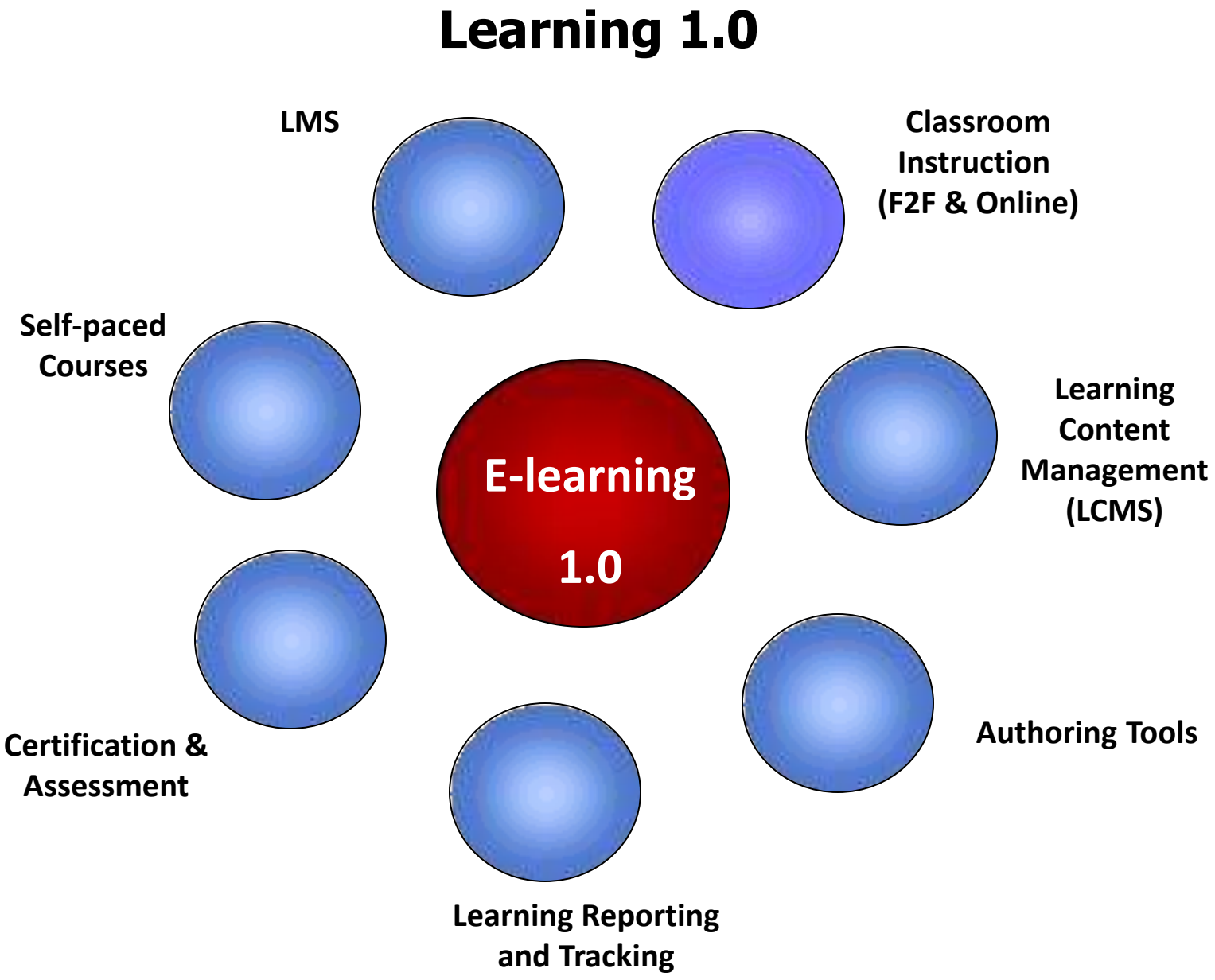
Web 1.0

Student as Consumer

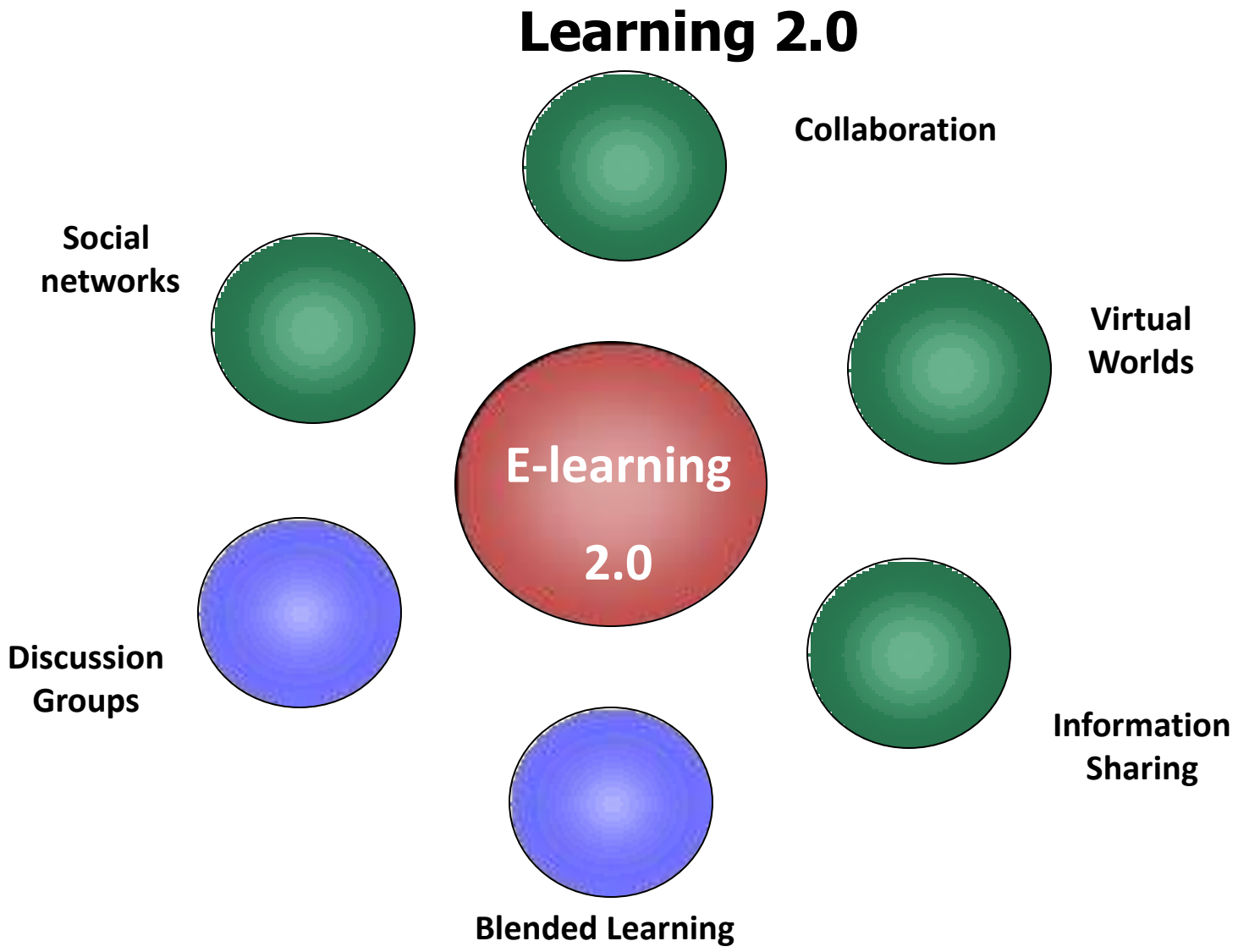
Web 2.0

Student as a contributor, sharing and collaborating

Web 1.0 vs Web 2.0



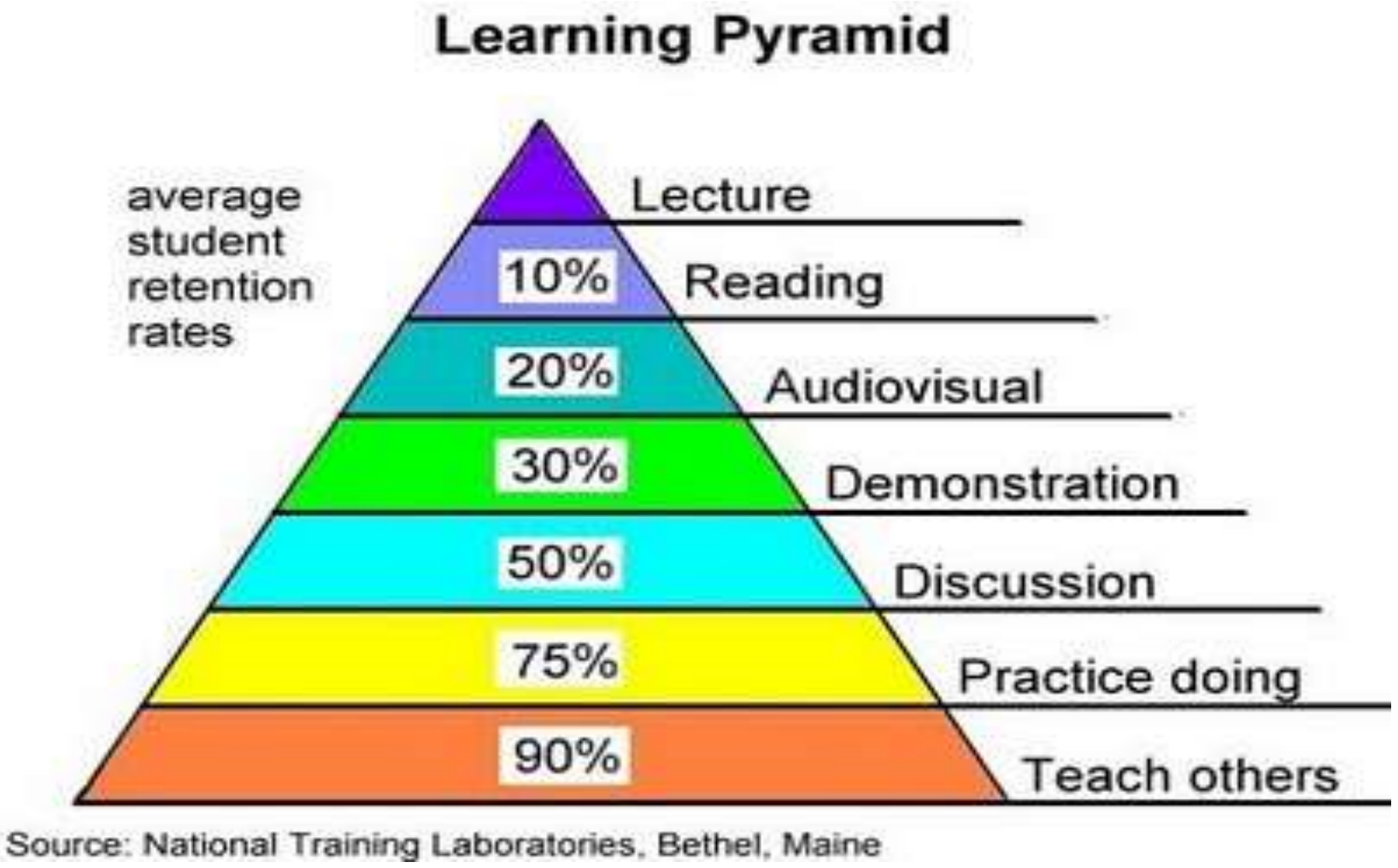
Web 1.0 vs Web 2.0



So, What exactly is Web 2.0?

Web 2.0 is a term describing the trend in the use of World Wide Web technology and web design that aims to enhance creativity, information sharing, and, most notably, collaboration among users.

Learning Ways

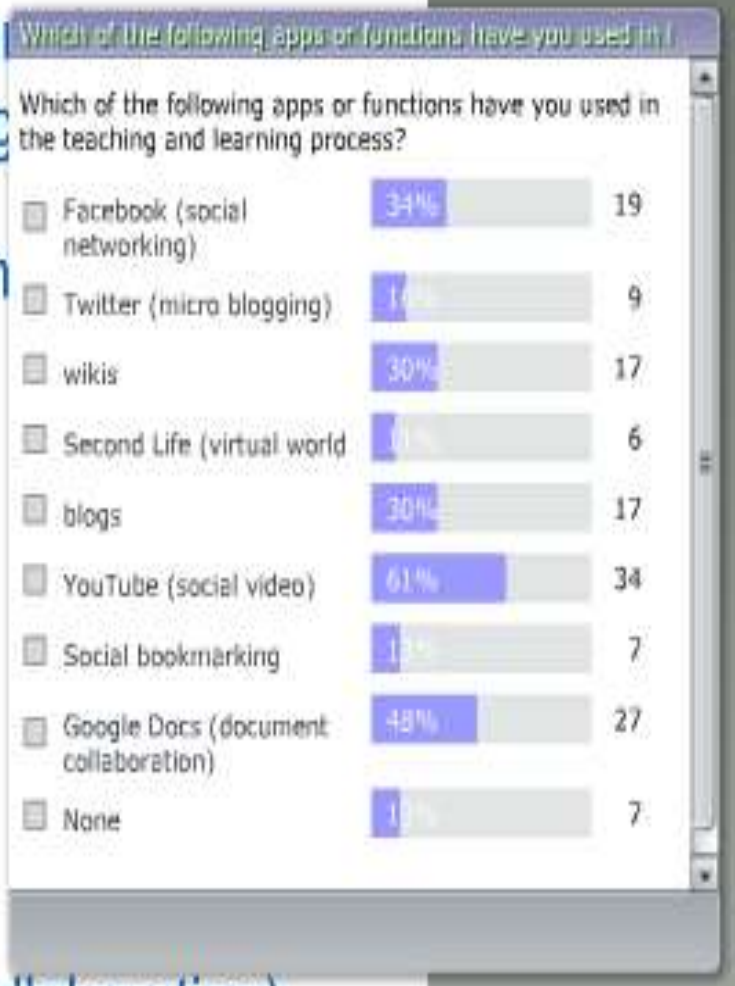



The Web 2.0 Toolbox

The Web 2.0 Toolbox

Which of the following apps or fu
used in the teaching and learning

- Facebook (social networkin
- Twitter (micro blogging)
- wikis
- Second Life (virtual world
- blogs
- YouTube (social video)
- Social bookmarking
- Google Docs (document collaboration)
- None



Blog

A blog (a contraction of the term "Web log") is a Web site, usually maintained by an individual, with regular entries of commentary, descriptions of events, or other material such as graphics or video.

On My Mind 18 Apr 2011 04:04 pm

And What Do YOU Mean by Learning?

So, the biggest learning news coming from the Richardson household last week has, as is more often the case than not, little to do with the classroom and everything to do with doing. Two quick stories, both involving my 13-year old daughter Tess:

Story 1

Three weeks ago, Tess decided (on her own) to go out for the track team, something she had never done before. As soon as the coach saw her walk into practice, saw her thin, 5' 11" frame, he pointed her over to the high jump pit and said "have at it." And Tess started learning how to jump. Two things have "jumped" out at me in the interim. First, her high jump learning life has been made up of 98% failure, something my daughter does not deal with especially well when it comes to athletics. I've been trying to point out to her that failure, in some cases lots of failure, is a necessary step to success, especially in getting over the high bar. She's trying to make her body do things it's never had to do before (just ask her heretofore non-existent ab muscles), and it's going to take some time to find the rhythm of the run, the jump, the flip and the

more

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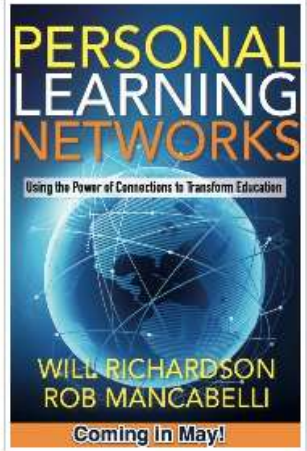
24 COMMENTS »

Comment by Brian Crosby
2011-04-18 21:33:48

Yeah, sometimes I watch my own students (not as often as I used to unfortunately) and I think the goal should be getting them to spend more time on, "So then knowing that leads me to want to learn more about this, and this, and this." And though I don't think that is the whole story, I think it's a much bigger part of the story than we get to even ponder anymore. Makes it worth fighting the good fight me thinks!

Reply to this comment



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Wiki

A wiki is a collection of web pages designed to enable anyone who accesses it to contribute or modify content, using a simplified markup language.

Pointer (computing)

From Wikipedia, the free encyclopedia

Main page
Contents
Featured content
Current events
Random article
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Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact Wikipedia

Toolbox

In computer science, a **pointer** is a programming language data type whose value refers directly to (or "**points** to") another value stored elsewhere in the computer memory using its address. For high-level programming languages, pointers effectively take the place of general purpose registers in low-level languages such as assembly language or machine code, but may be in available memory. A pointer **references** a location in memory, and obtaining the value at the location a pointer refers to is known as **dereferencing** the pointer. A pointer is a simple, less abstracted implementation of the more abstracted reference data type. Several languages support some type of pointer, although some have more restrictions on their use than others.

Pointers to data significantly improve performance for repetitive operations such as traversing strings, lookup tables, control tables and tree structures. In particular, it is often much cheaper in time and space to copy and dereference pointers than it is to copy and access the data to which the pointers point.

Pointers are also used to hold the addresses of entry points for called subroutines in procedural programming and for run-time linking to dynamic link libraries (DLLs). In Object-oriented programming, pointers to functions are used for binding methods, often using what are called virtual method tables.

While "pointer" has been used to refer to references in general, it more properly applies to data structures whose interface explicitly allows the pointer to be manipulated (arithmetically via *pointer arithmetic*) as a memory address, as opposed to a magic cookie or capability where this is not possible.[*citation needed*] Because pointers allow both protected and unprotected access to memory addresses, there are risks associated with using them particularly in the latter case. For general information about references, see reference (computer science).

Editing Pointer (computing)

From Wikipedia, the free encyclopedia

Main page
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Current events
Random article
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B I Advanced Special characters Help Cite

```
[[Image:Pointers.svg|thumb|180px|Pointer ''a'' pointing to the memory address associated with variable ''b''. Note that in this particular diagram, the computing architecture uses the same [[address space]] and [[#Formal_description|data primitive]] for both pointers and non-pointers; this need not be the case.]]

In [[computer science]], a '''pointer''' is a [[programming language]] [[data type]] whose value refers directly to (or "'''points''' to") another value stored elsewhere in the [[computer memory]] using its [[Memory address|address]]. For [[high-level programming language]]s, pointers effectively take the place of [[general purpose register]]s in low-level languages such as [[assembly language]] or [[machine code]], but may be in available [[Virtual memory|memory]]. A pointer '''references''' a location in memory, and obtaining the value at the location a pointer refers to is known as '''dereferencing''' the pointer. A pointer is a simple, less abstracted implementation of the more abstracted [[reference (computer science)|reference]] data type. Several languages support some type of pointer, although some have more restrictions on their use than others.
```

Micro-blogging

Micro-blogging **is a form of blogging that allows users to write brief text updates (usually 140 characters) and publish them, either to be viewed by anyone or by a restricted group which can be chosen by the user.**

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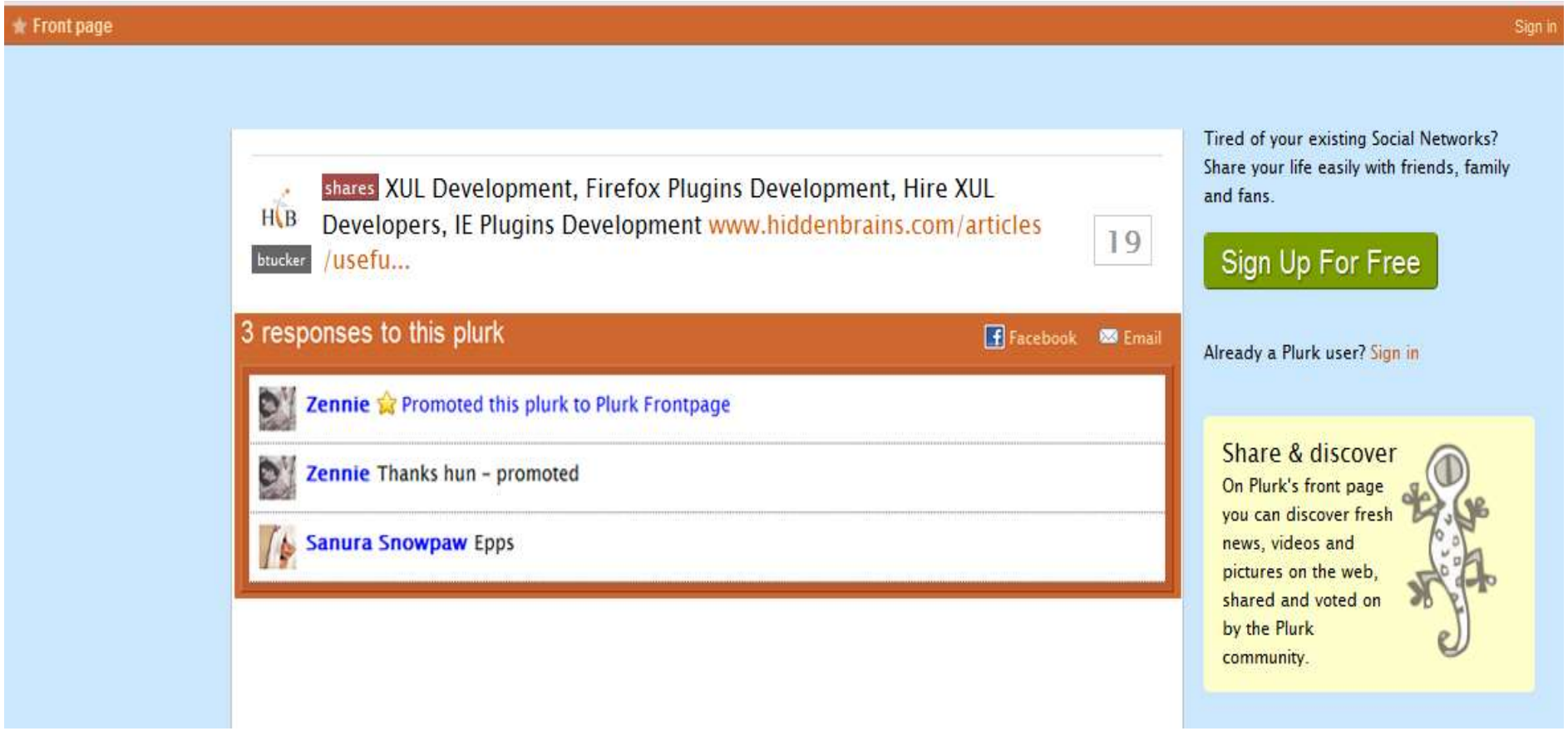
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Ian H. Witten, Eibe Frank, and Mark A. Hall *Morgan Kaufmann, Amsterdam, 3. edition, (2011)*

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Java and XML: Solutions to Real-World Problems

Brett McLaughlin *O'Reilly, Sebastopol, CA, 3. edition, (2006)*

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Collaborative Personal Ontology Evolution

Magnus Herold *Albert-Ludwigs-University, Freiburg, Germany, Diploma Thesis, December 2005.*

to eventually_useful diploma_thesis by dbenz on Jan 28, 2011, 11:35 AM

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Applying UML and Patterns : An Introduction to Object-Oriented Analysis and Design and Iterative Development 3rd Edition

Craig Larman *Prentice Hall PTR, October 2004.*

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entry of flint63: spam

Data Mining: Practical Machine Learning Tools and Techniques

by: Ian H. Witten, Eibe Frank, and Mark A. Hall

Amsterdam: Morgan Kaufmann (2011).

Citation format (all formats): plain

Abstract

This highly anticipated third edition of the most acclaimed work on data mining and machine learning will teach you everything you need to know about preparing inputs, interpreting outputs, evaluating results, and the algorithmic methods at the heart of successful data mining. Thorough updates reflect the technical changes and modernizations that have taken place in the field since the last edition, including new material on Data Transformations, Ensemble Learning, Massive Data Sets, Multi-instance Learning, plus a new version of the popular Weka machine learning software developed by the authors. Witten, Frank, and Hall include both tried-and-true techniques of today as well as methods at the leading edge of contemporary research. It provides a thorough grounding in machine learning concepts as well as practical advice on applying the tools and techniques to your data mining projects. It offers concrete tips and techniques for performance improvement that work by transforming the input or output in machine learning methods. It includes downloadable Weka software toolkit, a collection of machine learning algorithms for data mining tasks-in an updated, interactive interface. Algorithms in toolkit cover: data pre-processing, classification, regression, clustering, association rules, visualization.

Social network service

A social network service focuses on building online communities of people who share interests and activities, or who are interested in exploring the interests and activities of others.

People

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31 Papers
0 Jobs
0 Research Interests
0 Universities
0 Departments
0 Journals
0 Mailing Lists

Sabna c

Nanyang Technological University
Graduate Student
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RSS (Real Simple Syndication)

A web page with a .xml file type that can be subscribed to and read by a newsreader (aggregator). The aggregator will find the new content and display it when it becomes available.

In essence, it is content that comes to you, instead of having to search for it. It will save you an infinite amount of time.

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RSS Feed

RSS (Real Simple Syndication)

RSS (Real Simple Syndication or Rich Site Syndication) is an XML formatted document designed for sharing site content over the web. An RSS Document contains a list of items describing the content on a web site.

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- Most Recent Updates
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- Education
- Income and Wages
- Industry Data
- Occupational Data
- Unemployment/Labor Force
- Labor Market Review
- Job Postings and Starting Wages Report

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Online Web 2.0 tools supporting Multidisciplinary education

Delicious: A place to store your bookmarks online, tag them and share them with your colleagues and/or students.

Google: A powerful web-based search engine, so to find any information, you just “Google” it!

Online Web 2.0 tools supporting Multidisciplinary education

Google Docs: To create, store and share documents, spreadsheets and presentations online, and where you can work on your own or collaboratively.

Online Web 2.0 tools supporting Multidisciplinary education

Wikipedia: This huge online encyclopedia has been written collaboratively by volunteers around the world.

Camtasia studio: Record your screen to create training, demo, and presentation videos, aka screen casts.

Online Web 2.0 tools supporting Multidisciplinary education

LinkedIn: A public social network aimed at the professional community.

PBwiki: A wiki solution suitable for both business and education.

Online Web 2.0 tools supporting Multidisciplinary education

Google Scholar: A simple way to search broadly for scholarly literature.

Edublogs: Blogging for teachers and students, made easy.

Online Web 2.0 tools supporting Multidisciplinary education

TeacherTube: A place where you can host, tag and share instructional videos.

Course Lab: A powerful, yet easy-to-use, e-learning authoring tool for creating interactive e-learning content.

Online Web 2.0 tools supporting Multidisciplinary education

LibraryThing: An easy, library-quality catalogue that also connects you with people who read the same things.

Audacity: A sound editor and recorder suitable for podcasting.

How does Web 2.0 support Multidisciplinary?

Web 2.0 offers a lot of learning tools that support multidisciplinary by providing:

1. Collaborative learning
2. Information sharing
3. Communication
4. Group projects
5. Engagement
6. Participation
7. Content Development


Mobile Learning
Mobile as a learning tool

“

Mobile Learning

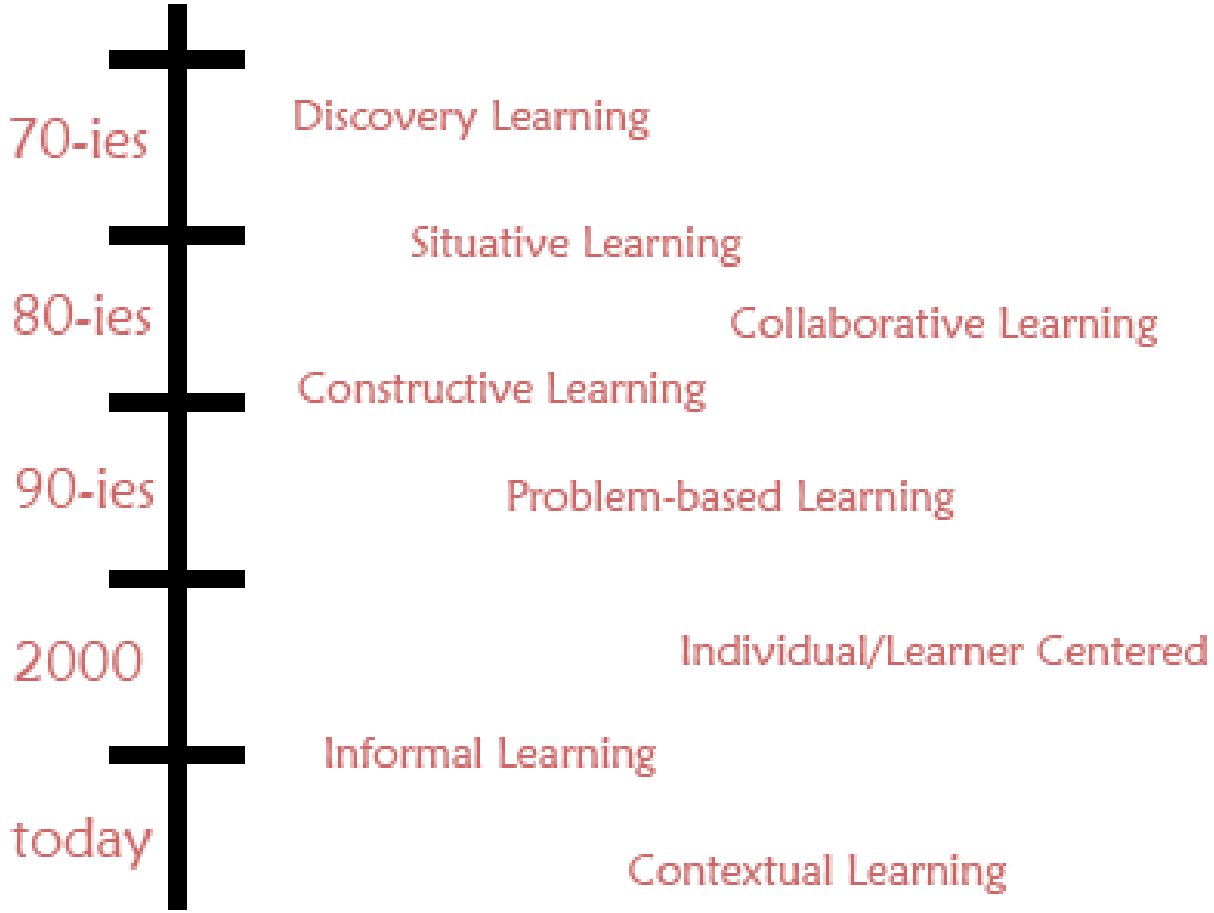
is also referred as

m-Learning...

Evolution of theory of Learning

The evolution in education and training at a distance can be characterized as a move from d-Learning (distance learning) to e-Learning (electronic learning) to m-Learning (mobile learning).

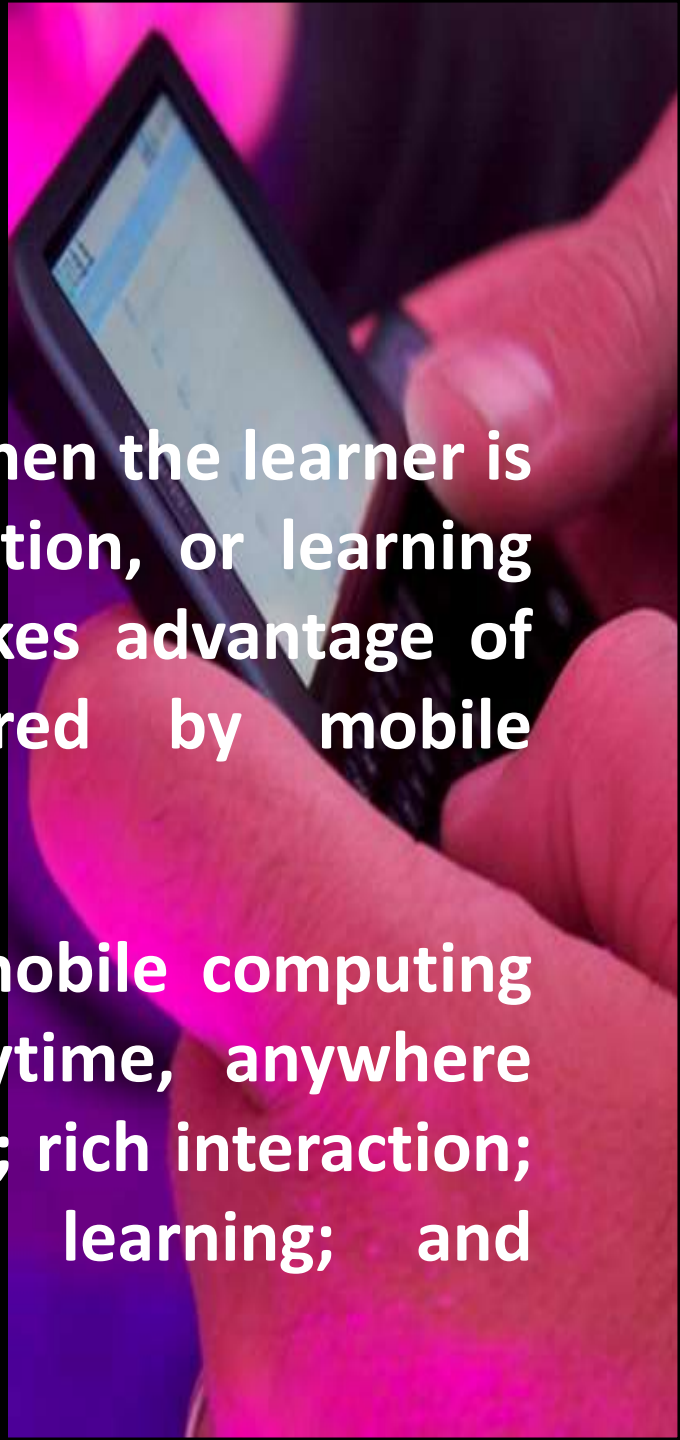
Evolution of theory of Learning



* Source : Ferscha. A. (2002) Wireless Learning Networks


so What is m-Learning?

So what is m-Learning?

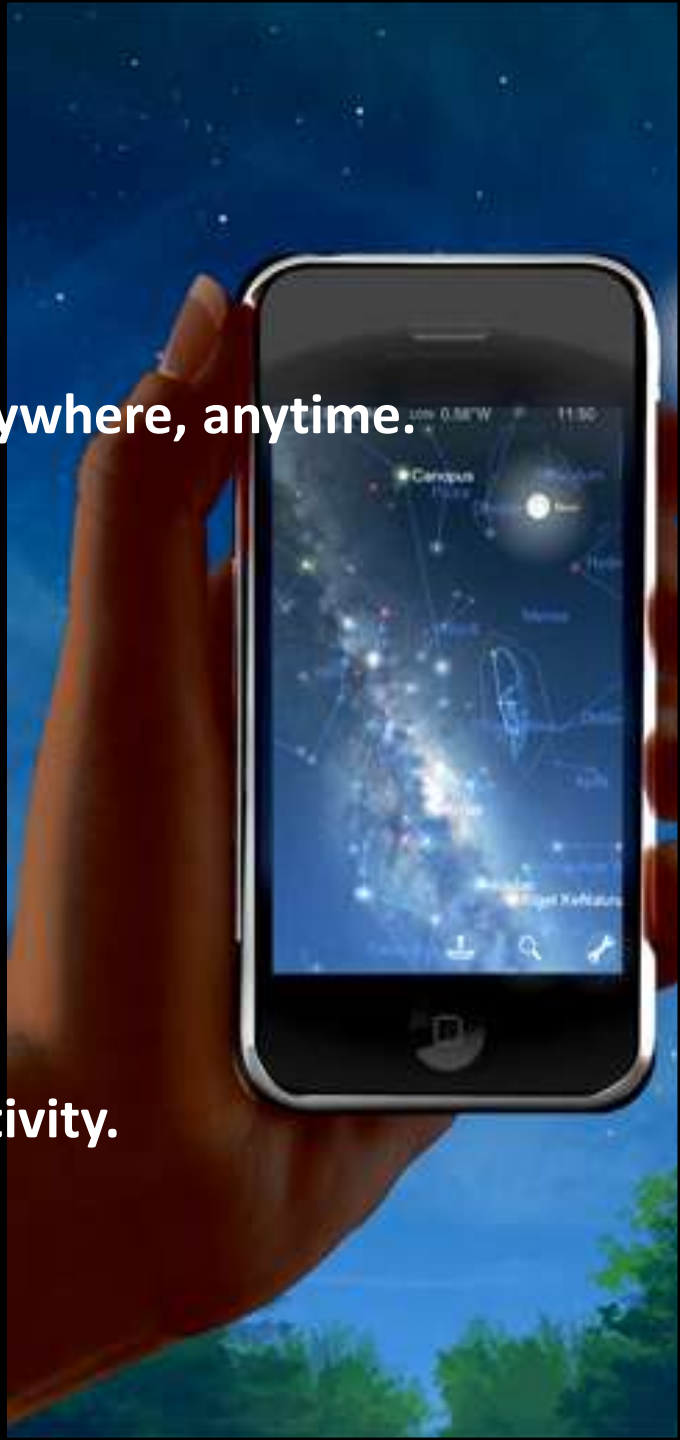


Any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies.

m-Learning is the intersection of mobile computing and e-Learning, that includes anytime, anywhere resources; strong search capabilities; rich interaction; powerful support for effective learning; and performance based assessment.

Why mobiles for Learning?

1. Small handheld devices enable learning anywhere, anytime.
2. Develop once push anywhere.
3. Young people's social use of technologies.
4. innovations in mobile technology.
5. For schools it means 1:1 is achievable.
6. Stimulates enjoyment in learning...'fun' activity.



7th Mass Media

1. Printing Press
2. Recordings
3. Cinema
4. Radio
5. Television
6. The Internet
7. Mobile


Mobile is the only mass media
That can do EVERYTHING the
Previous six can do.

Why **mobiles** for **Learning?**

"We shape our tools and then our tools shape us."

Marshal McLuhan

How m-Learning is used to support learning

- It provides Communication and Collaboration.

  Real-time chat and data sharing, students make groups…

- Allow capturing and integrating data.

  Mobile library, network database, data collection, data synthesis…

- Flexible physical access.

  Students use local databases, interactive, primitive and just-in-time instruction…

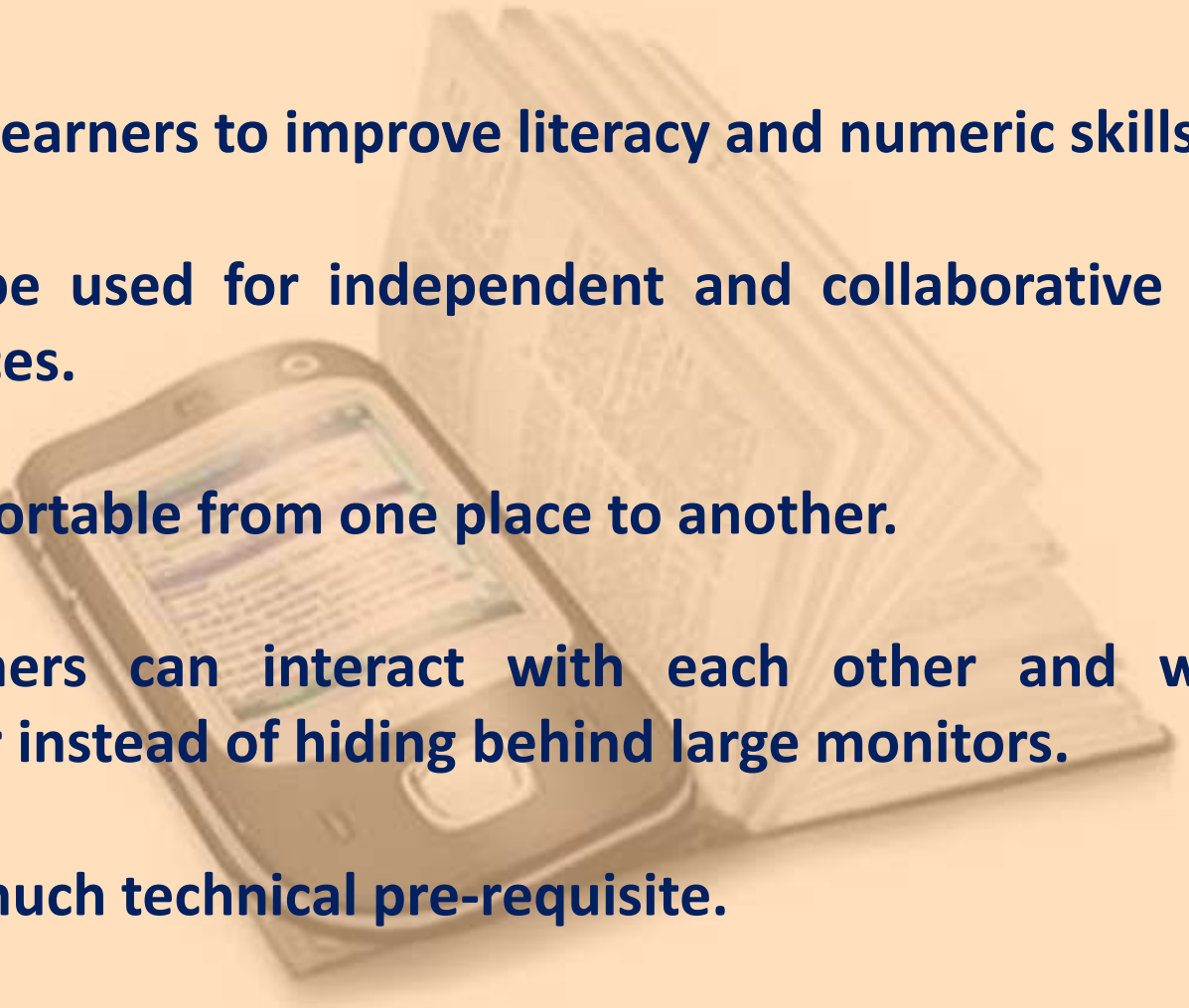
e-Learning vs m-Learning

e-Learning vs m-Learning

e-Learning	m-Learning
Lecture in classroom or internet labs	Learning anywhere, anytime
e-mail to e-mail	Instantaneous messaging
Private location	No geographic boundaries
Travel time to reach to internet site	No travel time with wireless internet connectivity

SRS

Benefits of m-Learning



1. **Help learners to improve literacy and numeric skills.**
2. **Can be used for independent and collaborative learning experiences.**
3. **It is portable from one place to another.**
4. **Learners can interact with each other and with the instructor instead of hiding behind large monitors.**
5. **Not much technical pre-requisite.**
6. **Provides real time and location independency.**

Top 7 Challenges to m-Learning

If the rewards are great.....

so too are the challenges.....

Top 7 Challenges to m-Learning

1. **Scattered approach to enterprise mobile**
2. **Lack of mobile ready content**
3. **Mistrust of “social”**
4. **Personal vs company issued phones**
5. **Security**
6. **Info vs Learning—Changing learning’s role**

Ubiquitous Learning

Various Definitions

- “No clear definition of u learning due to rapid changes of the learning environments. Until now, researchers have different views in defining the term "u-learning". Hwang (2008),
- The terms "anywhere and anytime learning" and "learning with ubiquitous computing technology”
- A learning paradigm which takes place in a ubiquitous computing environment that enables learning the right thing at the right place and time in the right way.

Relationship for learning Environment

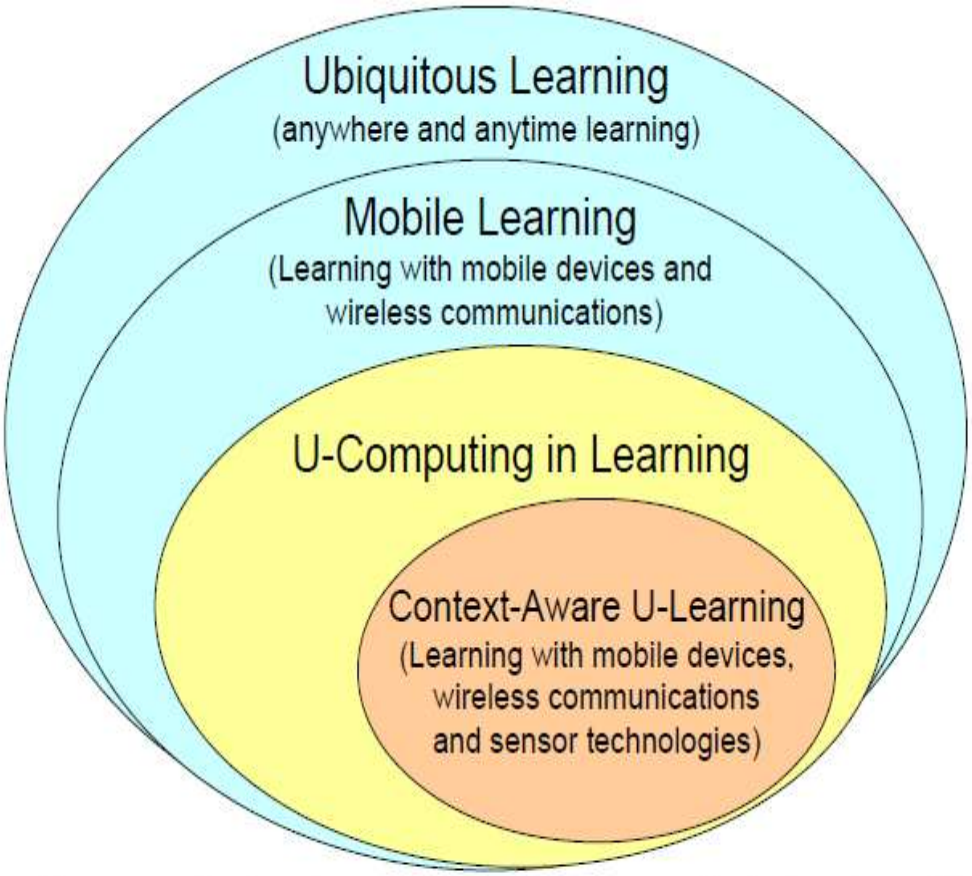
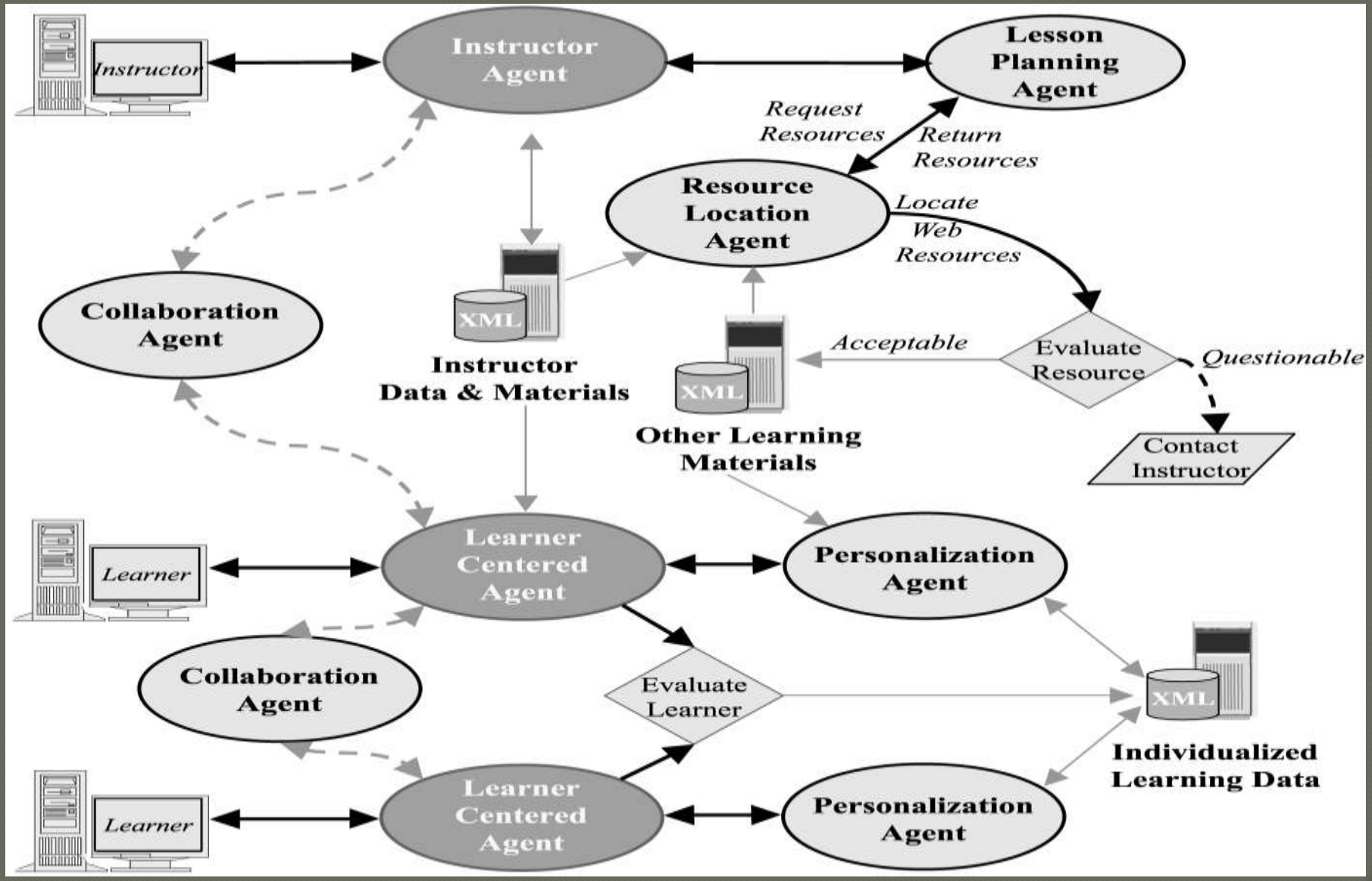


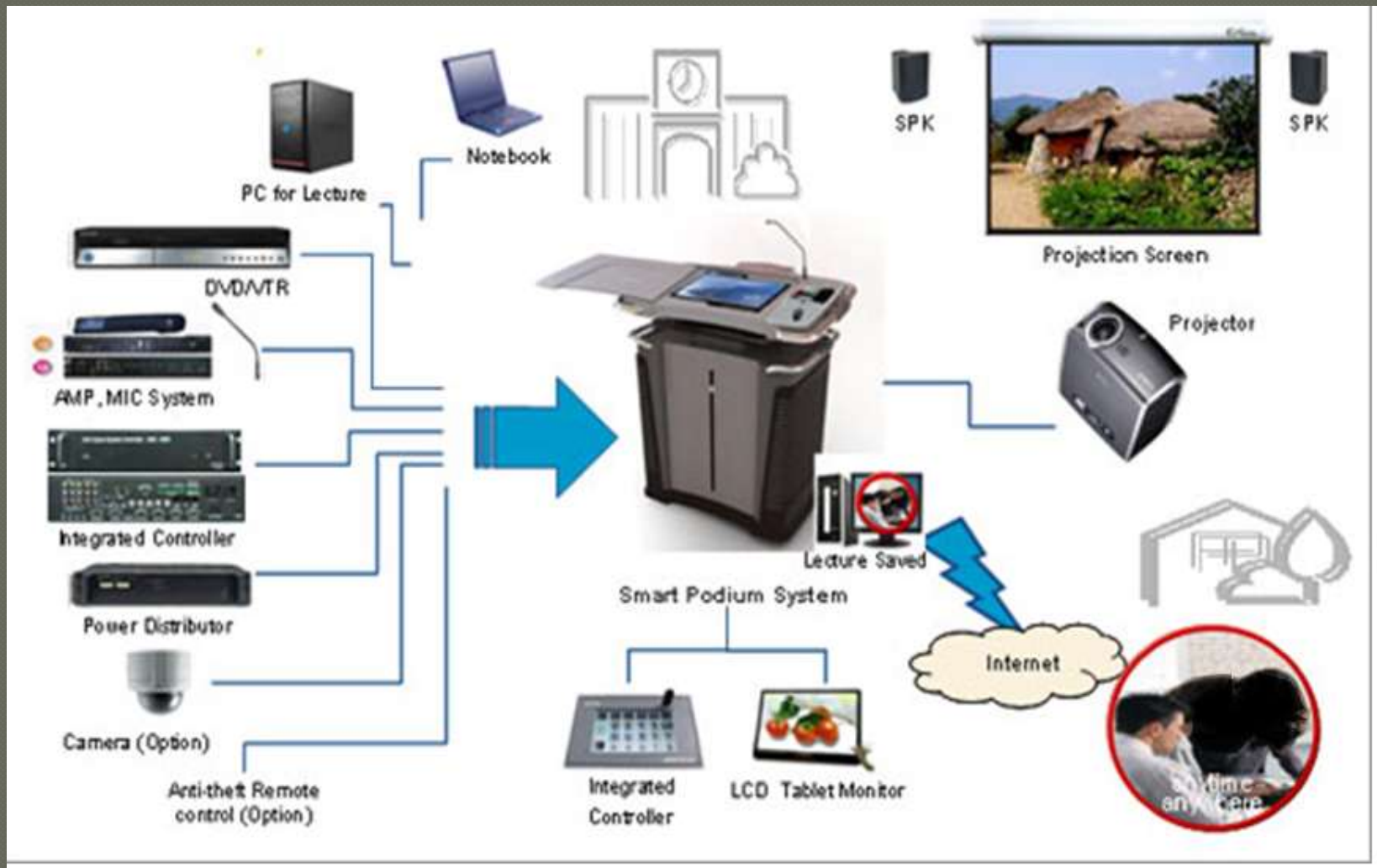
Figure 1. Relationships amongst u-learning, mobile learning, u-computing in learning and "context-aware u-learning"

Components of U Learning Environment

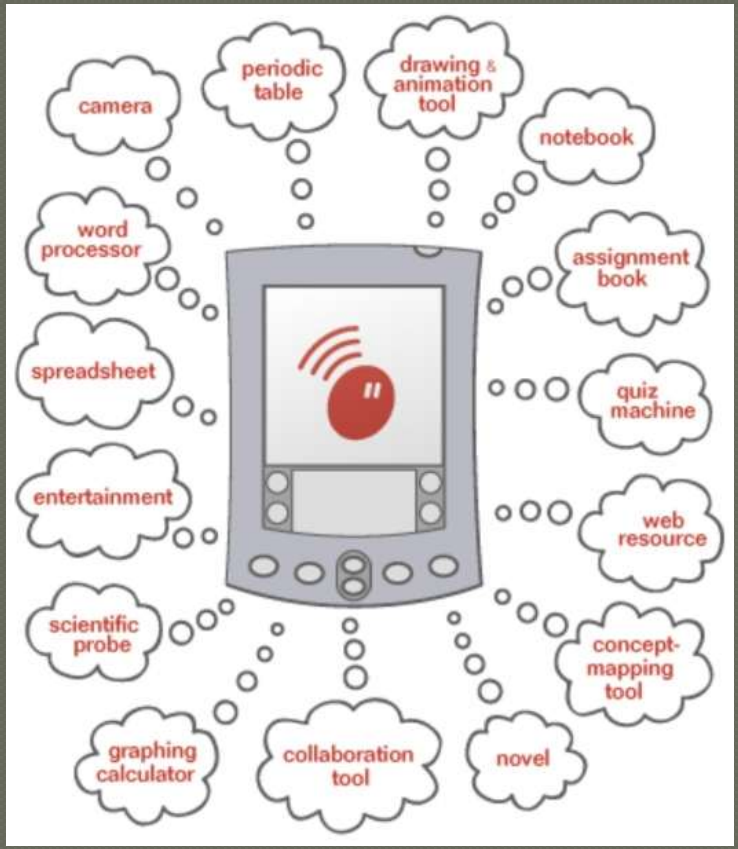
- 1. A set of sensors that is used to detect personal contexts (e.g., the location and body temperature of the learners) and environmental contexts (e.g., the temperature and humidity of the learning environment).
- 2. A server that records the contexts, and provides active and passive supports to the learners.
- 3. A mobile learning device for each learner with which the learner can receive support or guidance from the server, as well as being able to access information on the Internet.
- 4. Wireless networks that enable communication among the mobile learning devices, the sensors and the server.

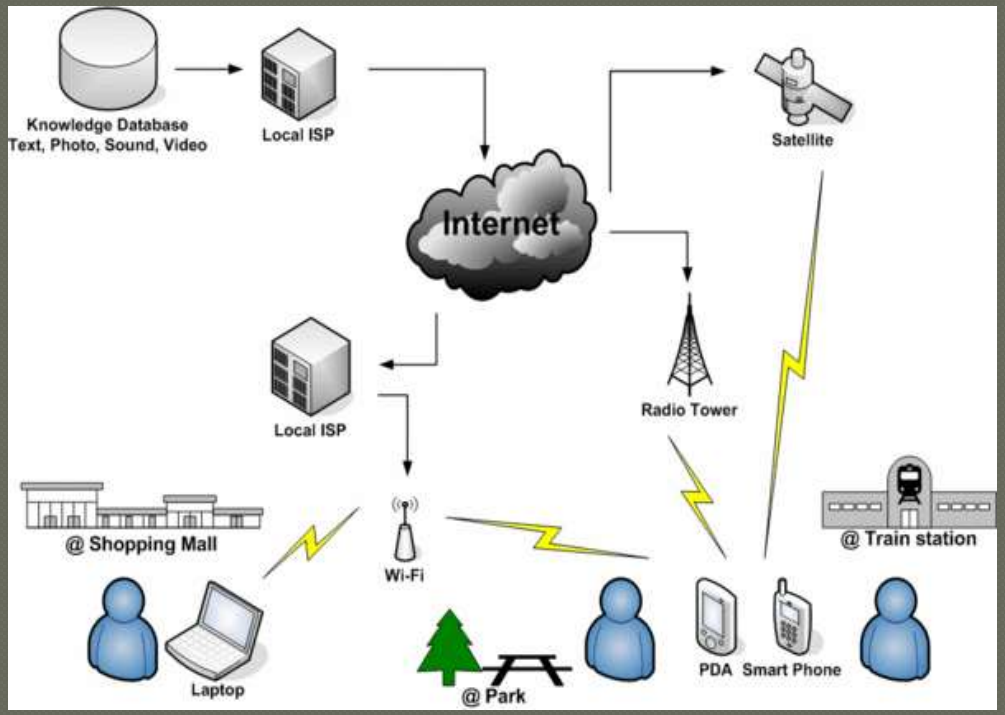

Instructor
Instructor Agent
Lesson Planning Agent
Request Resources
Return Resources
Resource Location Agent
Locate Web Resources
Collaboration Agent
XML
Instructor Data & Materials
XML
Other Learning Materials
Acceptable
Evaluate Resource
Questionable
Contact Instructor
Learner
Learner Centered Agent
Personalization Agent
Collaboration Agent
Evaluate Learner
XML
Individualized Learning Data
Learner
Learner Centered Agent
Personalization Agent

U learning and E learning classroom

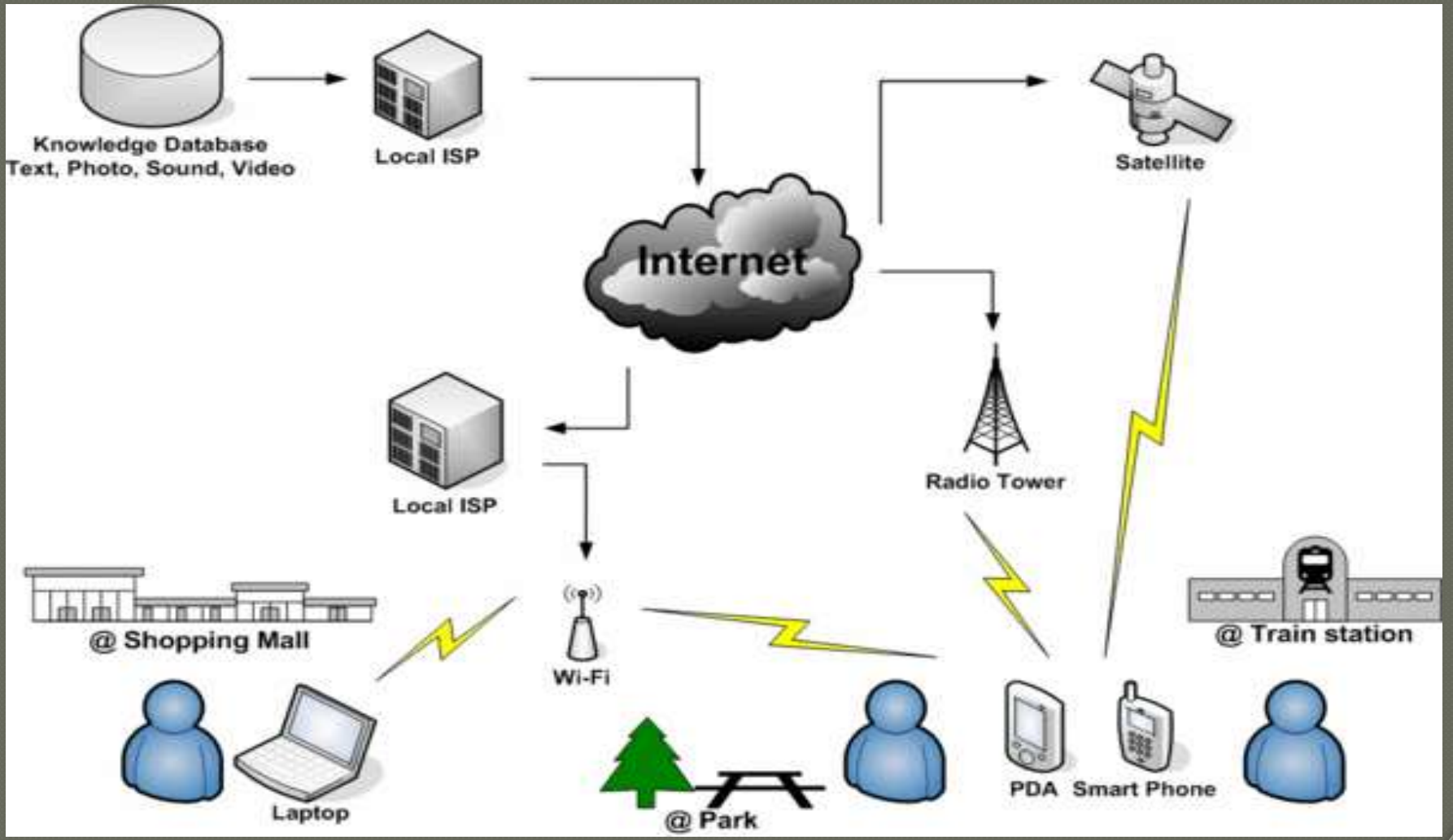


Mobile learning: Technology that will take the classroom into the world.





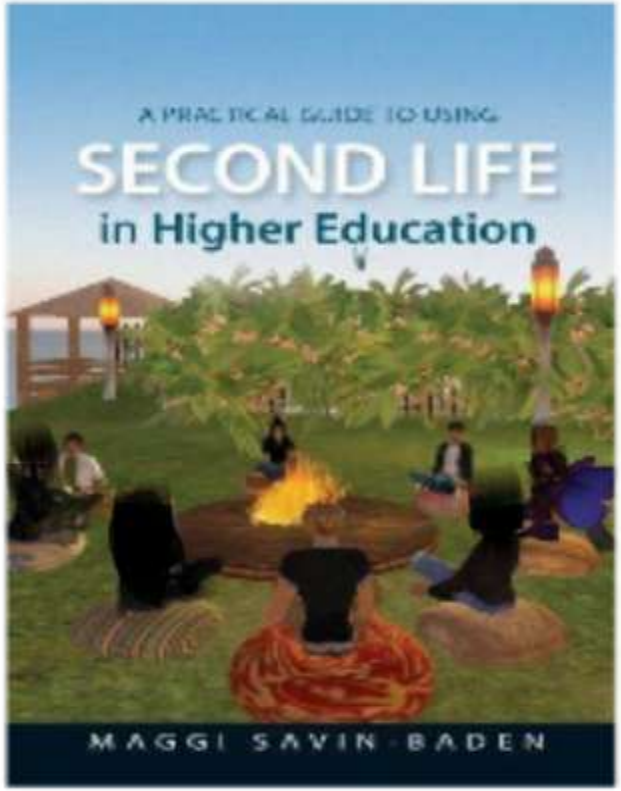
Mobile learning", has different meanings for different communites



Second life

Advanced e-learning strategies and

Multidisciplinary education



Advanced e-learning strategies and

Multidisciplinary education

Example

Mass Casualty Incident Simulation

Q&A