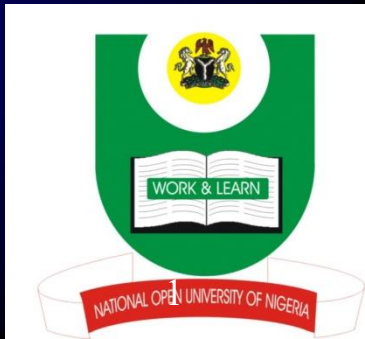
The Place of Course Materials Development in ODL

Olugbemiro Jegede



Focus

- Introduction
- Education and Development
- Educational Characteristics of DL
- Course Material Development
- Instructional Design: What, Why and How?
- Instructional Design Models
- 21st Century and Digital / E-Learning
- Webagogy
- Top Trends in Instructional Design

Collateral Learning and the Eco-Cultural Paradigm in Science and Mathematics Education in Africa

1995

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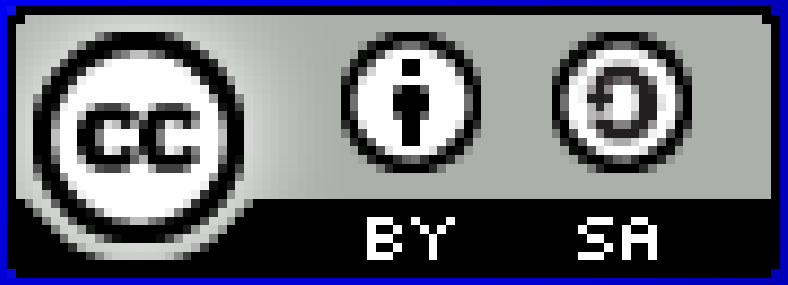

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Education and Development

To Survive the 21st Century

- Sub- Saharan Africa must engage in the following:
- Building strong economic foundation;
- Economic integration regionally and continently;
- Massive job creation;
- Embarking on effective food security measures;
- Health and environmental provisions;
- Innovations and creativity buoyed by education;
- Energy reforms and attention to combating climate change; and
- Massive investment in education, especially tertiary education.
- Mainstream ODE-L to enhance access to education

Educational Characteristics for DE

Instructional	Personnel	Management
Highly planned, organised and delivered	Design & development	Academic leadership
Interactivity	Subject matter experts	Humanizing & personalising
Flexibility	Site facilitators (RLO)	Contingency plans
Instructional feedback	Production	Free flow of communication
Advanced organisers/overviews	Student support	Scheduling instruction
Evaluation of instruction		Evaluation of systems

Learning Process

Need to Learn

Learning Resources

Knowledge Acquisition

- Print
- CD- Rom
- Internet
- Video
- Broadcast

Team

-Author
-Instructional Designer
-Etc.

Reflection

- Self
- Peers

Tutor

Practical Application

- Life Experience
- Work Place

Mentor/Tutor

Assessment

- Self Assessment
- Assessment Tasks

Assessor

Facilitation Team

Materials

Course Development → **Delivery Modes**

Developed from scratch

- new materials
- new format
- library search

Course adoption

- acquired
- minor revision
- 10% modified

Course adaptation

- Acquired/existing
- Major revision
- >30% modified/addition

Why ODL is different and must have its own Strategic Focus

Uniqueness of ODL

- The ODL institution is quite different
- Must be treated differently
- The characteristics of an ODL institution suggest that its setting up and management are more demanding
- Adequate, appropriate and well qualified human resource must be found
- Your materials are open to the world!

What is Instructional Design?

- Instructional Design (ID) is “a deliberate and orderly, but flexible, process for planning, analysing, designing, developing, implementing, and evaluating instruction in education or training settings”.

- It is often also referred to as instructional systems design or, alternatively, instructional systems development (ISD).

What is instructional design?

- The process by which learning products and experiences are designed, developed, and delivered.
- These learning products include online courses, instructional manuals, video tutorials, learning simulations, etc.
- Instructional designers are the 'architects' of the learning experience and the 'directors' of the Instructional Systems Design ISD process.

Different Terms

- The terms
  - instructional design,
  - instructional technology,
  - learning experience (LX) design,
  - curriculum design, and
  - instructional systems design (ISD),
- are sometimes used interchangeably.

The Role of ID

- helps to ensure learners are taught, in an effective, efficient, and motivational way, whatever knowledge, skills, and attitudes are important for successful job performance or desired human development.
- ID can be applied in any context in which people engage in purposeful learning,
  - education: Basic through higher education,
  - corporate settings,
  - healthcare organisations,
  - military,
  - governments.

The Origins of Instructional Design

- Began during World War II, the military needed to train a large number of untrained draftees in a very short period of time.
- In the words of Robert Gagné, they had to "transform farm boys into airplane mechanics in thirty days instead of two years."
- A number of psychologists and educators, including Robert Gagné, Leslie Briggs, and John Flanagan, were called on to conduct research and develop training materials for the military services.
- Training were mainly physical ones (e.g., operating military equipment), and the behavioral approach (e.g., breaking a task into small steps, providing practice and reinforcement) was ideal for the situation.

Instruction Vs Instructional Design

- Instructors often approach the design of instruction from a content perspective– that is, what to teach.
- Instruction – the process of helping others to learn something new
- Instructional designers approach the task from a problem-solving perspective that includes what to teach but pays much more attention to how to teach it in a way that is effective, efficient, and motivational.
- In education contexts, instructional design helps teachers better meet students' needs, motivate them, and accelerate their learning.

Mainstreaming of ID

- The success of the behavioral approach opened up research into behavioral objectives and programmed instruction during the 1950s and 1960s.
- Many of the psychologists responsible for the military training and research during the war continued to do pioneering work in the instructional design field (Reiser, 2001).
- But instructional design (aka learning design) has morphed considerably since then, due to advances in cognitive science, constructivism, learning sciences, and digital technologies.

Is Instruction the Solution?

The Guinness brewery, founded in 1759 in Dublin, Ireland produces Guinness Draught (a brand of stout beer). Guinness became the largest brewery in the world by 1886 and today it remains as the largest brewer of stout.

The instructional designers at the instructional systems design (ISD)start-up company in London, called Learning Systems Ltd solved a legal problem.

the senior instructional designers did a needs analysis - by visiting a local pub on how to keep the "head" on a glass of Guinness within the legal limits.

All the barmen were able to explain and demonstrate the correct procedure: the glass is held up close to the tap and at an angle so the beer runs down its side rather than splashing in; the barman watches constantly and changes the angle of the glass as it fills.

The instructional designers contacted the Guinness trainers and shared the outcomes of this analysis. They recommended that, rather than training the barmen, the company should do something to motivate them to do the task correctly.

ID Competencies and Skills

- In 1986, the International Board of Standards for Training, Performance, and Instruction (ibstpi), a not-for-profit corporation published the first set of instructional design competencies.
- The latest 2012 ibstpi Instructional Design Competencies are composed of 22 competencies clustered into five domains
  - Professional foundations
  - Planning and analysis
  - Design and development
  - Evaluation and implementation
  - Management

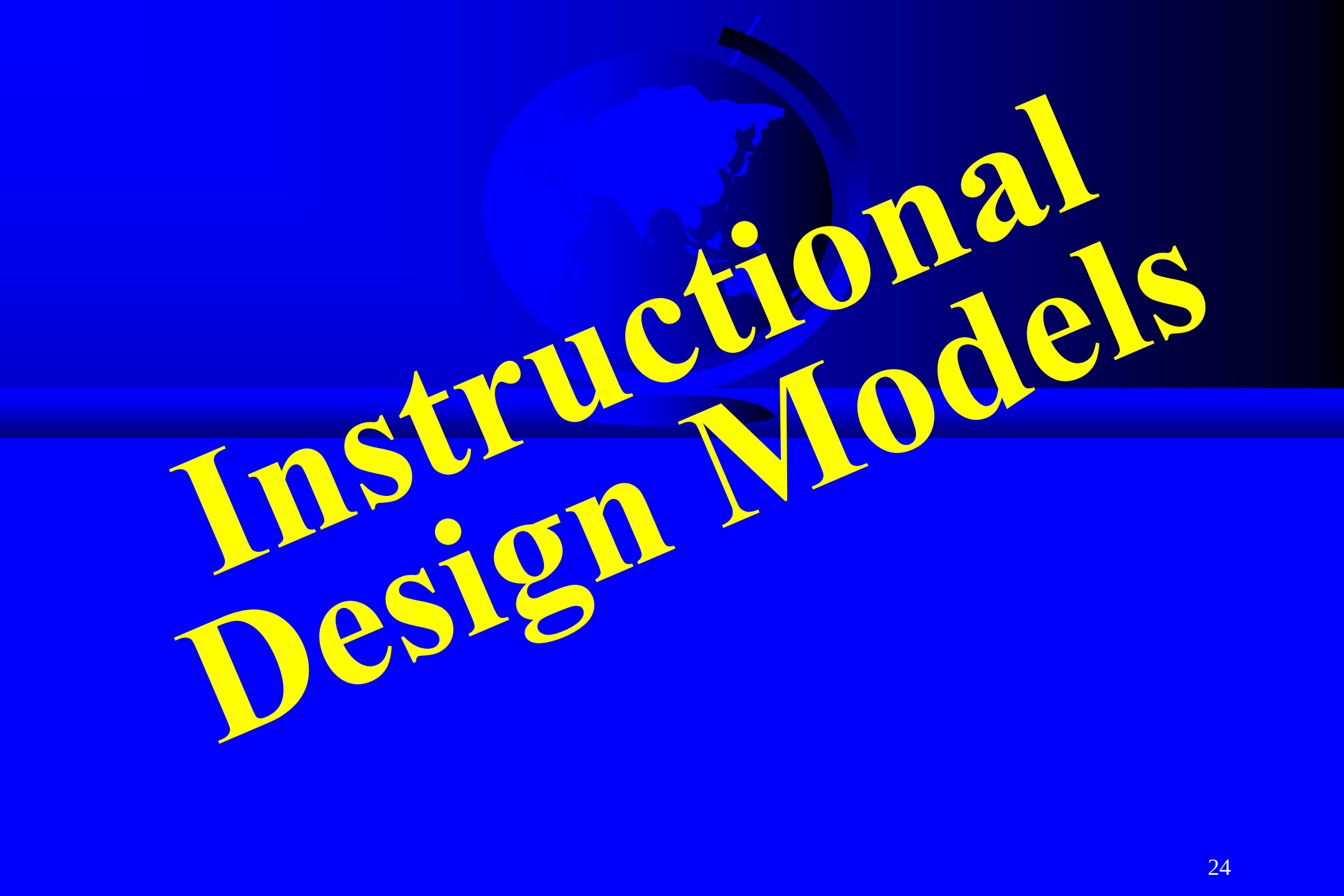
Top 10 ID Skills

- The Association for Talent Development (ATD), the International Association for Continuing Education and Training (IACET), and Rothwell & Associates (R&A), (ATD Research, 2015). One of the interesting findings was related to instructional design skills. The top ten instructional design skills identified were:

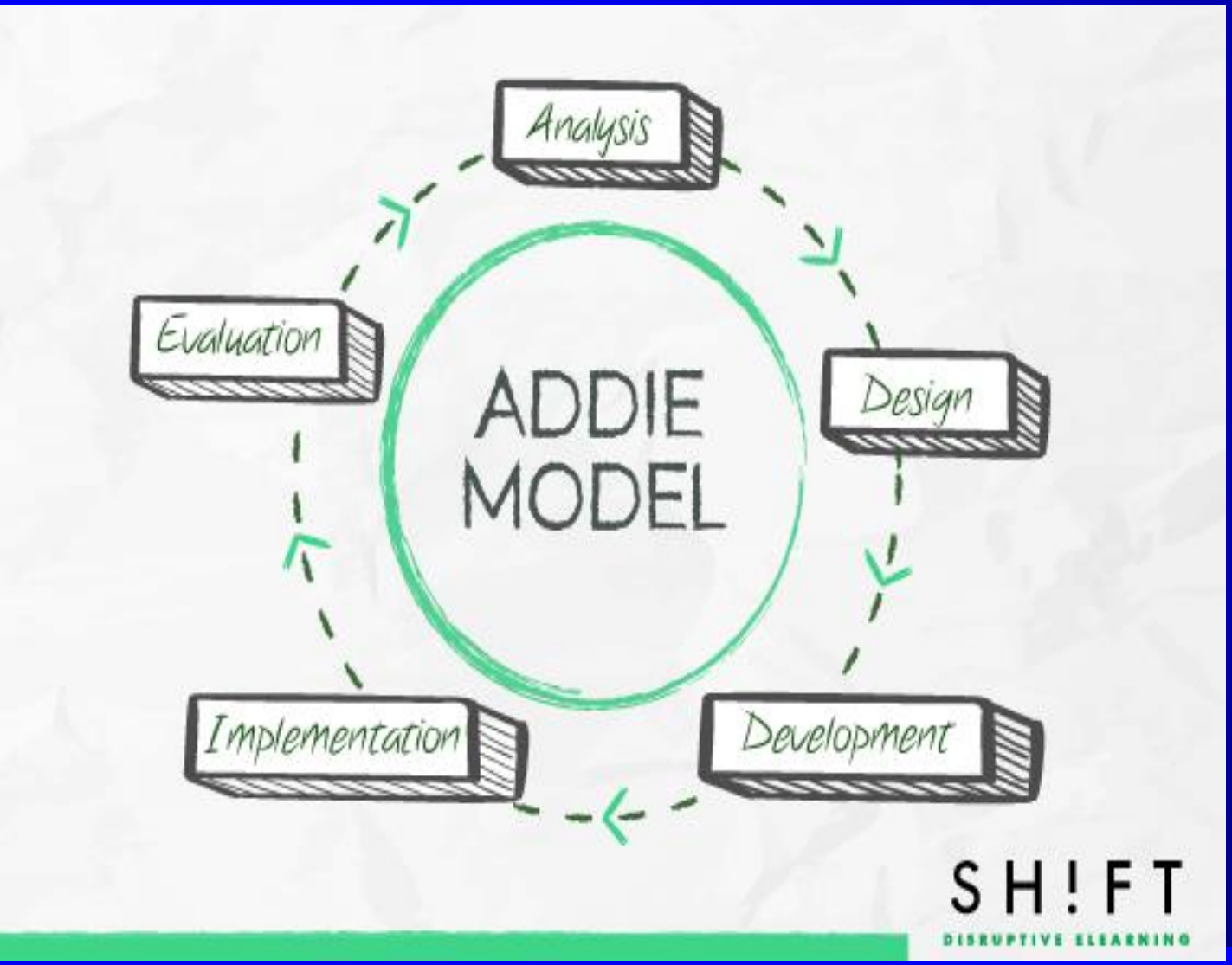
- Skill to listen and synthesize what's being said
- Analytical skills
- Knowledge of instructional design principles & practices
- Organization, prioritisation, time management skill
- Writing skills
- Interpersonal skills
- Attention to detail
- Project management
- Lifelong learner, the hunger to learn new things
- Customer service skills

Learning Engineers

- A recent trend (no more than 3 to 5 years old) towards the creation of a new profession (or at least a new name / title) of "learning engineer“ or ‘’Learning Architects’’.
- Either proposed as a replacement of the instructional designer or as a new partner of the instructional designer.
- It implies changes in the structure and modus operandi of the course design/development team.
- The new name "engineer" may be justified by the increasing technological and mathematical nature of the developer's work as ever more use is made of digital / online delivery, etc.

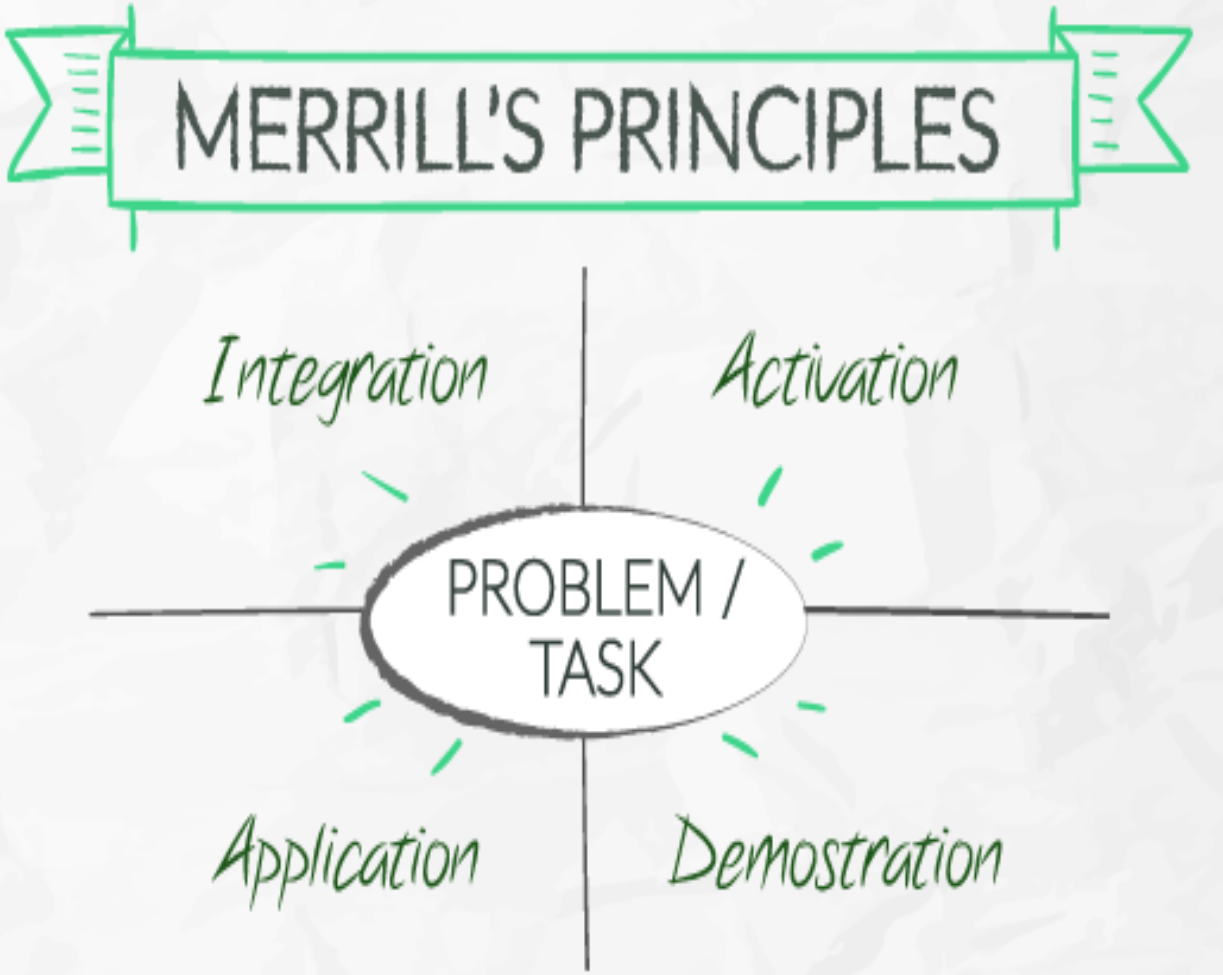

Instructional
Design Models

ADDIE Model



Since ADDIE was one of the first Design Models, there is much debate and discussion about its effectiveness and appropriateness for meeting the current needs of learners. However, the truth is that most designers still use ADDIE as a process for creating eLearning courses.

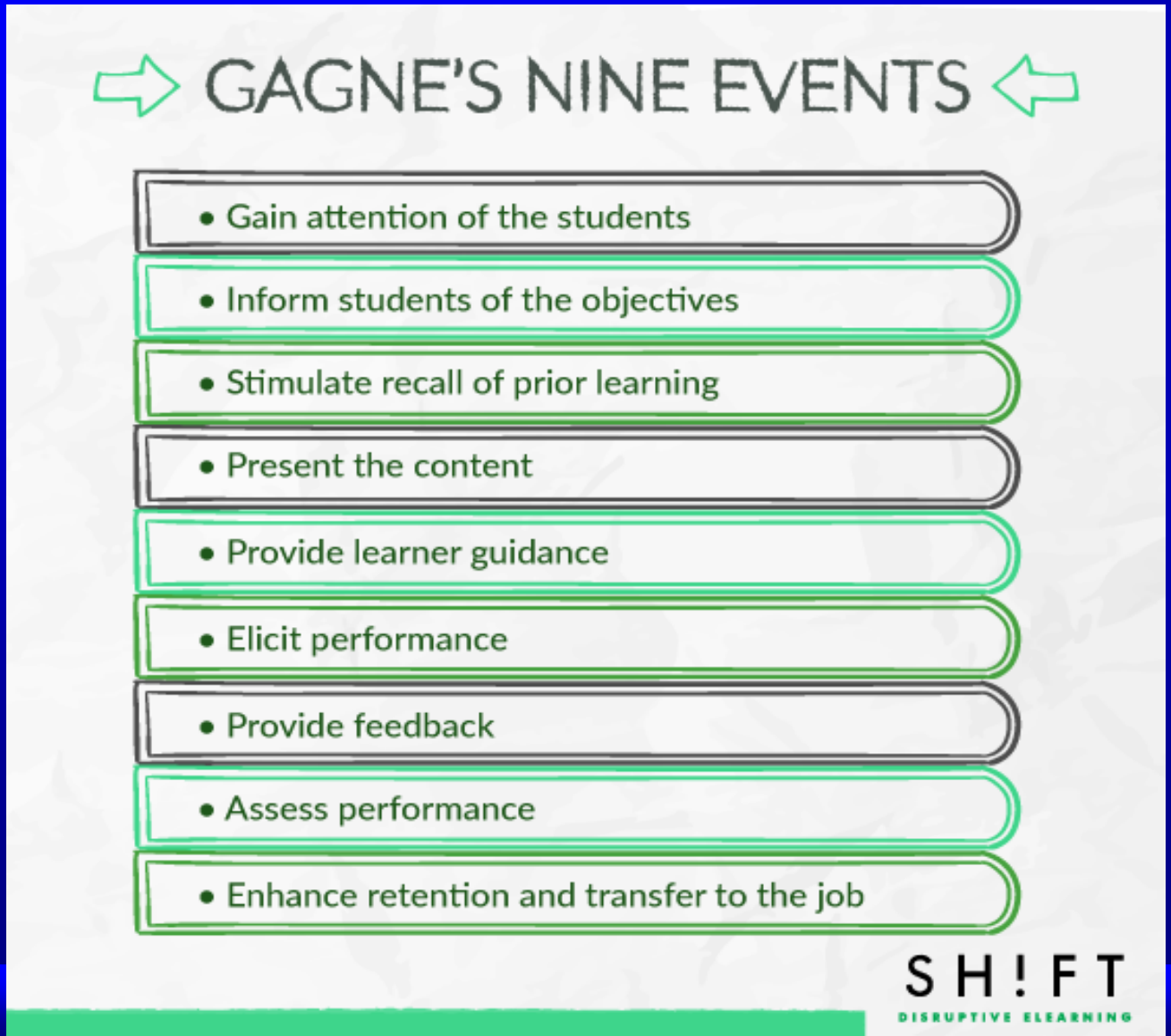
Merrill's Principle of Instruction



Bent on ingraining maximum knowledge from each course, MPI is remembered as the first principles of instruction. Proposed by David M... in 2002, this framework holistically integrates five principles of learning, namely:

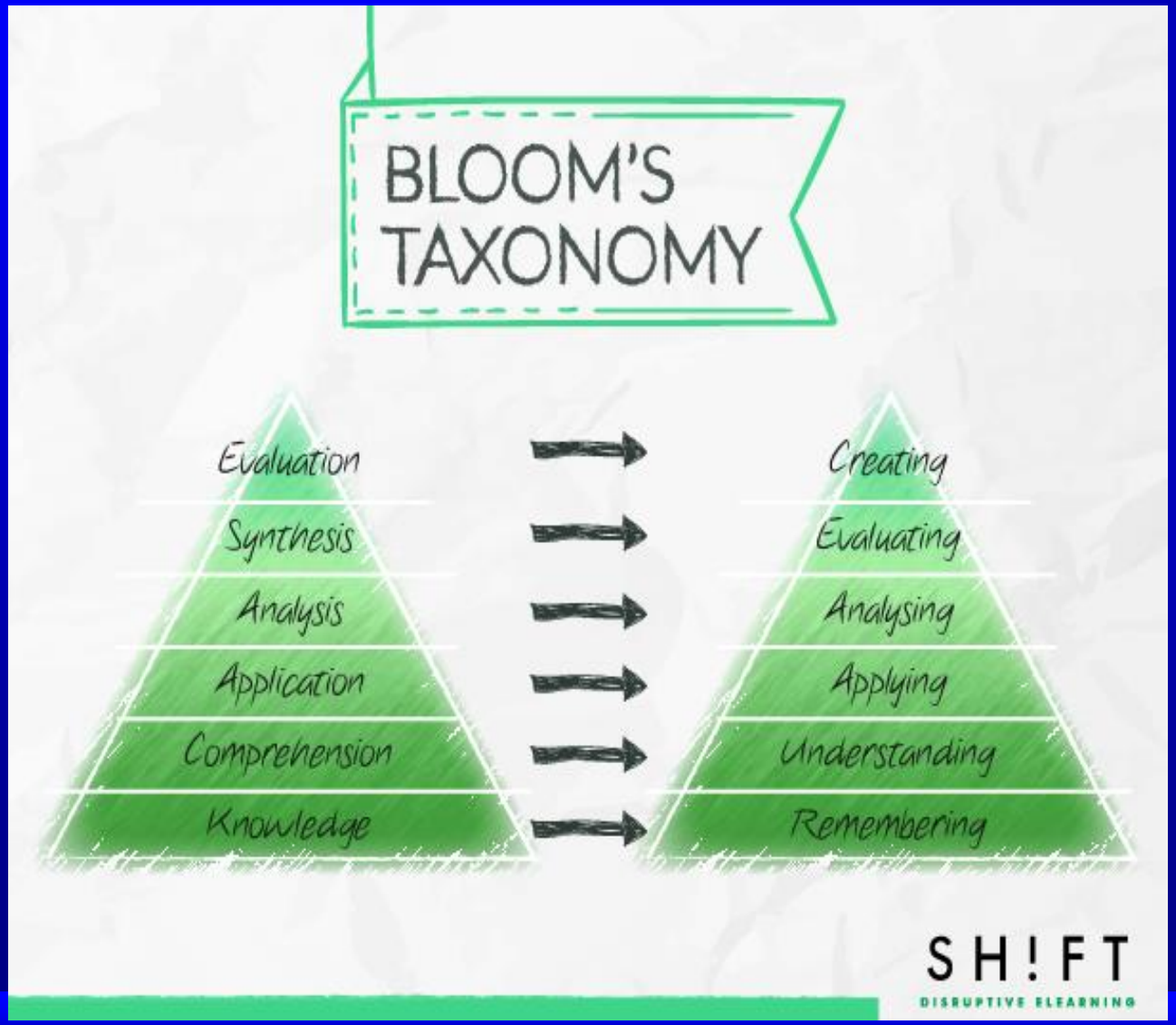
Task-centered principle
Activation principle
Demonstration principle
Application principle
Integration principle

Gagne's Nine Events Framework



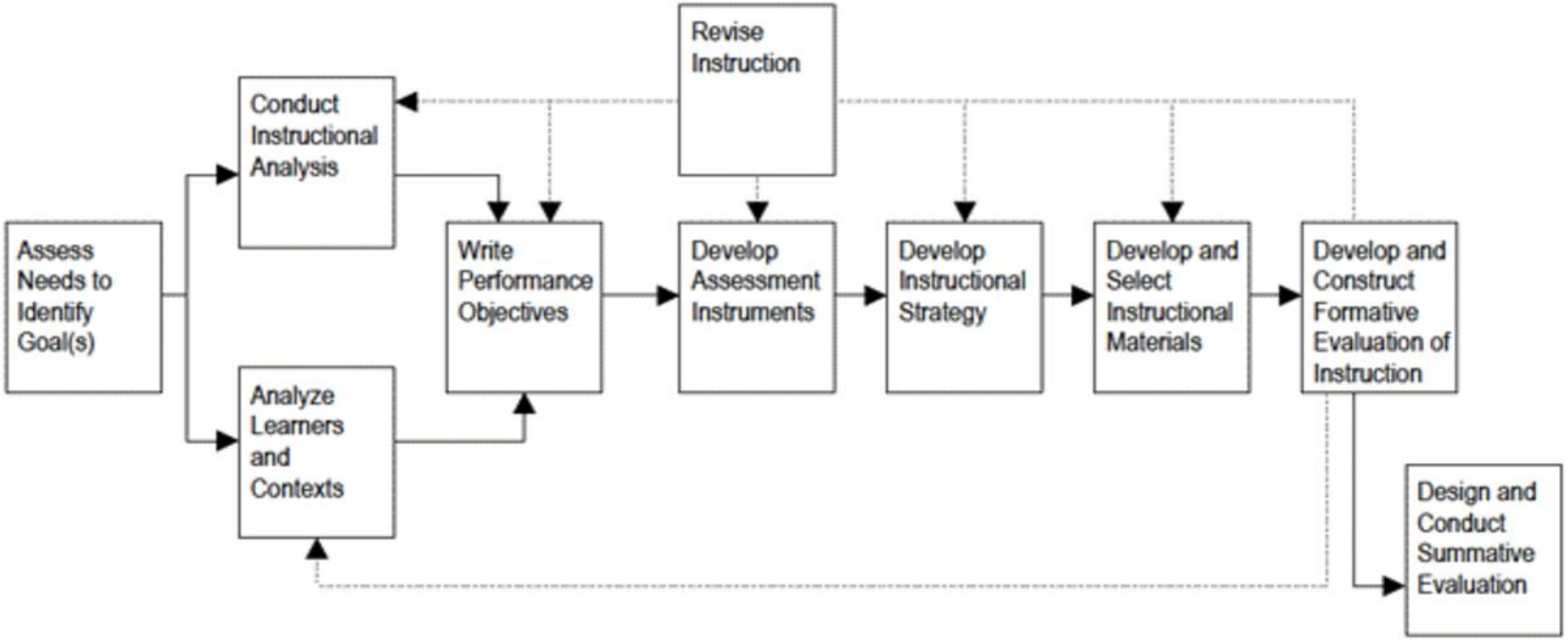
Robert Gagne proposed a framework comprising of a series of events based on the behaviorist approach to learning. These events follow a systematic instructional design process, creating a flexible model where events can be adapted to cater to different learning situations.

Benjamin Bloom's Taxonomy



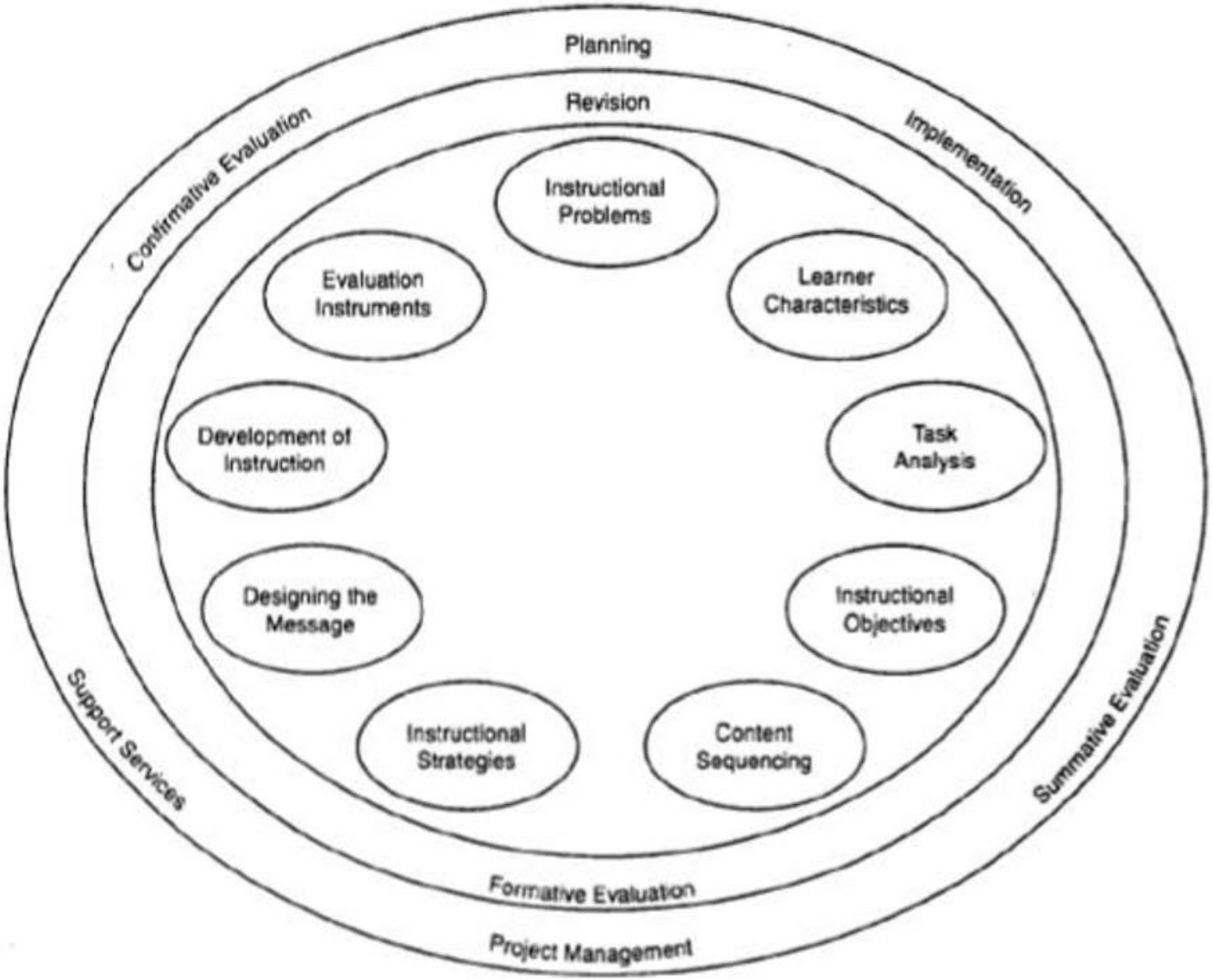
In 1956, Benjamin Bloom created a classification system of measurable verbs to describe and organize the different levels of cognitive learning. In 2001, the six dimensions were modified by Anderson and Krathwohl and are known as the "Revised Taxonomy." The graphic the original (left) and revised (right) Taxonomy. As you can see, there's a new category at the top (Creating), three categories were renamed, and the categories are expressed as verbs instead than nouns.

The Dick and Carey Model (from Dick & Carey, 2014)



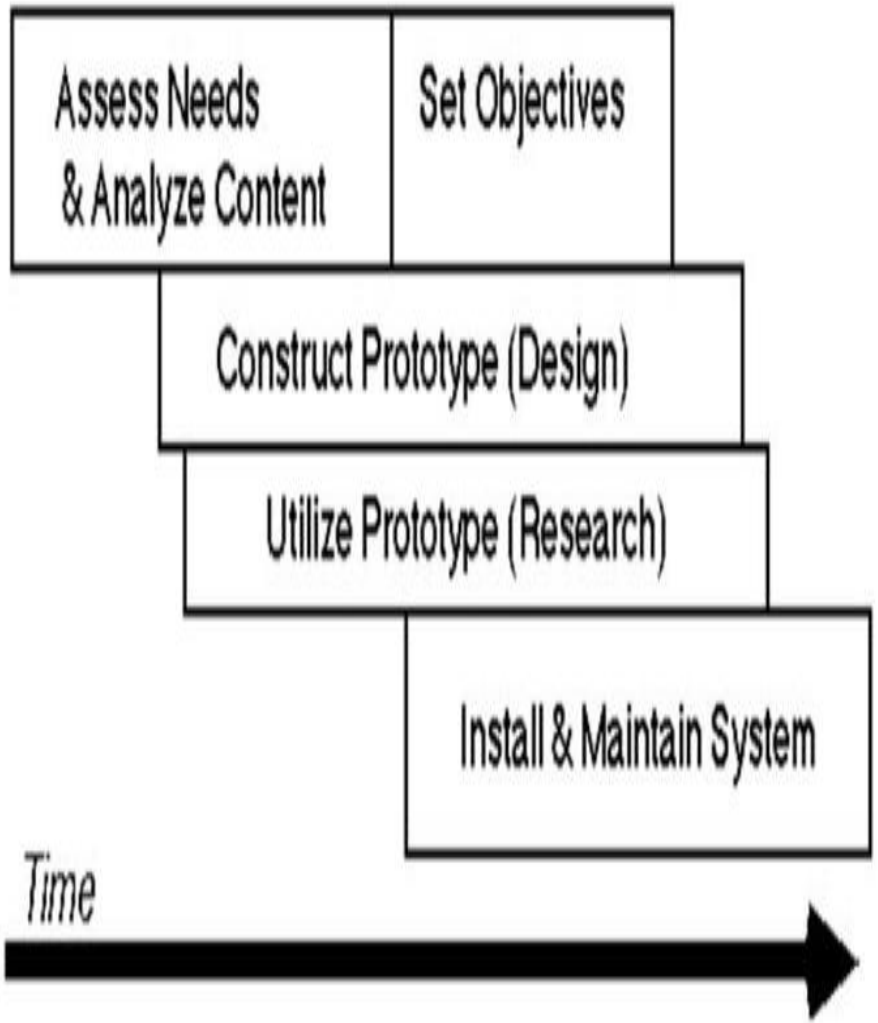
The Dick and Carey model is a well-known ID model that uses a systems approach to the design of instruction

The Morrison, Ross, and Kemp Model (2010)



The Morrison, Ross, and Kemp model has nine elements and eight processes that are ongoing throughout the life of an instructional design project: Planning, project management, support services, formative evaluation, revision, implementation, summative evaluation, and confirmative evaluation.

Rapid Prototyping

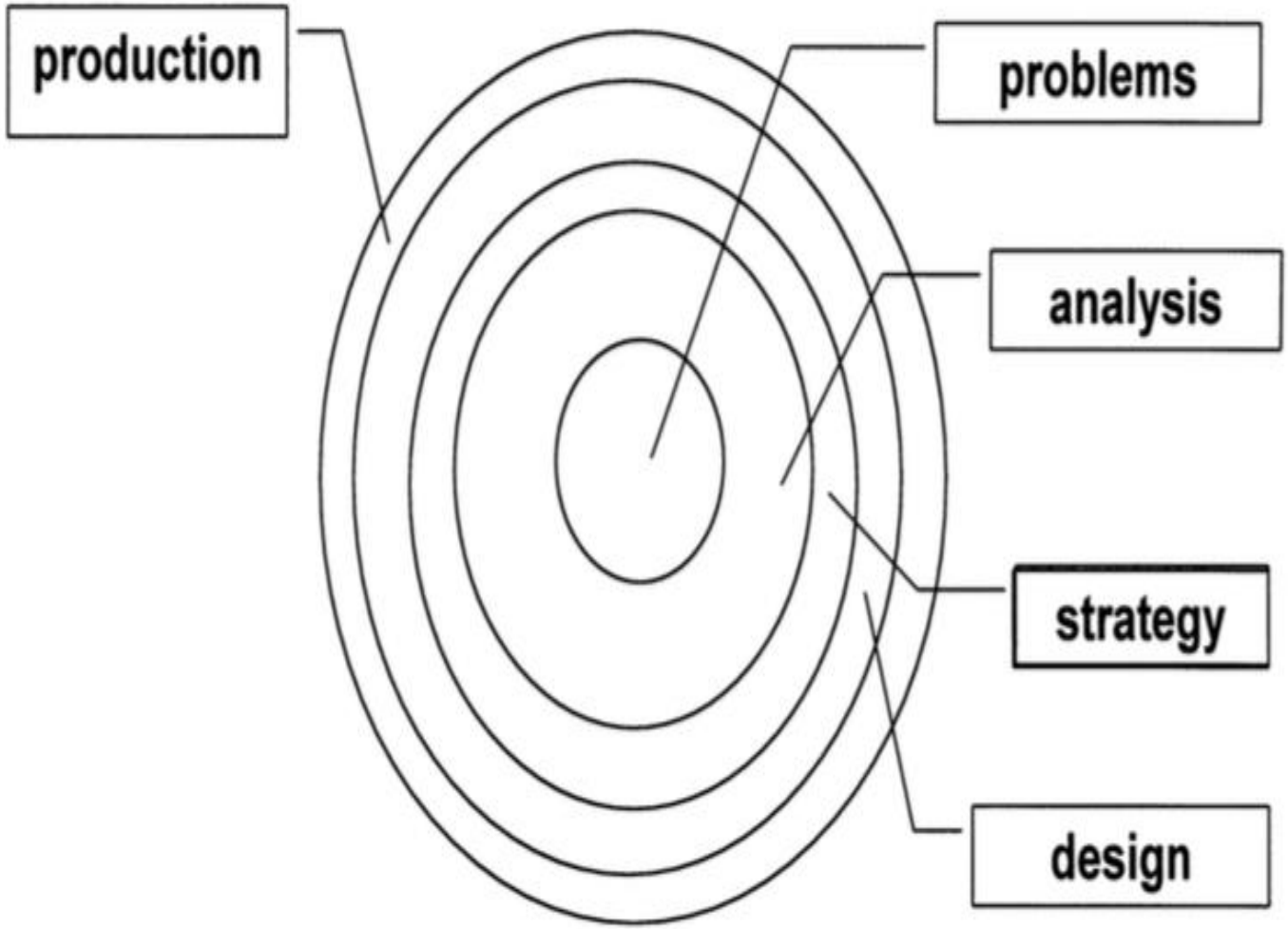


- Rapid Prototyping was proposed to replace the traditional approaches to ID which
- are too linear, too slow, overly analytical, and inflexible (e.g., Zemke & Rossett, 2002).
- Rapid prototyping was proposed to reduce the time and cost of an ID project, while increasing effectiveness and flexibility.
- It is a non-linear, iterative approach that is characterized by the "parallel processes of design and research, or construction and utilization" (Tripp & Bichelmeyer, 1990, p. 37).
- Basically, it produces the prototype of a part of the whole instruction and allows the client to see early in the process what the completed instruction will look like and how it will work (Piskurich, 2015
- Rapid prototyping is particularly effective for large-scale, technology-based projects.

Design Layering

- Brand (1994) describes ID as building multiple coordinated and integrated sub-designs, which he calls layers.
- According to Brand virtually all modern buildings are composed of six layers (the six Ss: site, structure, skin, services, space plan, and stuff).
- Based on the philosophy that designed artifacts can be characterised in terms of decomposable functional "layers," Gibbons and Rogers (2009) proposed a layered approach to instructional design. Specifically, they identified and described seven design layers of instructional design:
- Content, Strategy, Message, Control, Representation, Media-logic & Data management layers

The Pebble-in-the-Pond Model

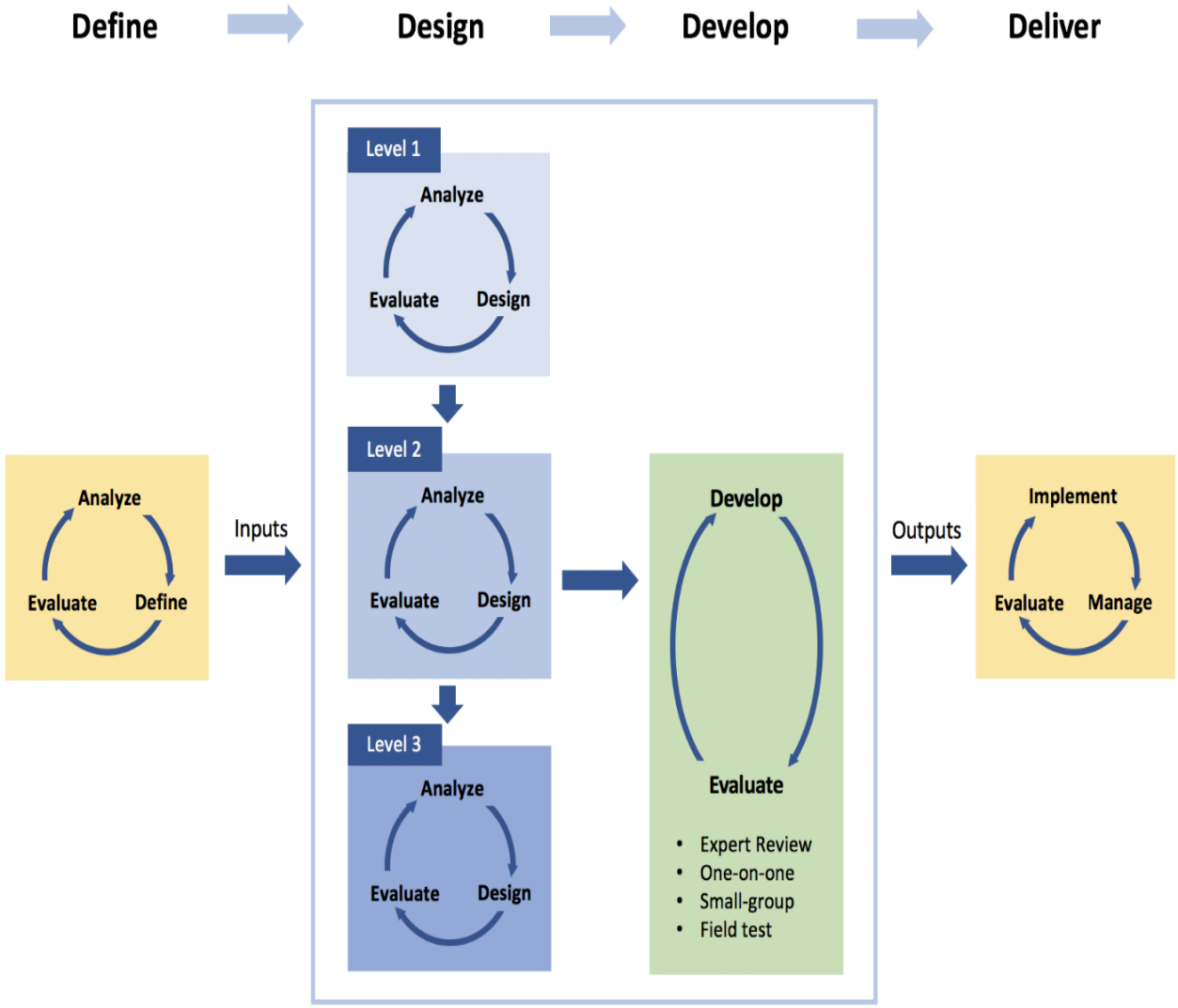


The pebble-in-the-pond model, developed by David Merrill (2002), consists of a series of expanding activities initiated by casting a pebble in the design pond.

It addresses some of the major objections to traditional ID models raised by Gordon and Zemke (2000) by developing the content first. The model is effective for designing problem-centered instruction.

Holistic 4D Model

Romiszowski & Reigeluth, 2019



Contrast s the prevailing fragmented approach that begins with an exhaustive hierarchical analysis process that breaks "what should be taught" down into tiny pieces and proceeds to design instruction for each of those pieces. The holistic approach begins the design process by creating a "fuzzy vision" of the instructional system (top-level design) and proceeds to work out progressively more details for each part of it in two more cycles (mid-level and lower-level design), so that each part is designed with the other parts in mind. It entails doing analysis within each part of this process rather than all at once at the beginning of the process, so that a) designers do not get mired in details during the initial envisioning process, b) information gleaned from an analysis activity is used immediately for designing while it is still fresh, and c) only useful information – and all necessary information – is analyzed.

It makes the ID *process* more creative and more efficient (less expensive and time-consuming) and makes rapid prototyping more effective and efficient.

Reasons to Pursue Digital Learning as part of ID

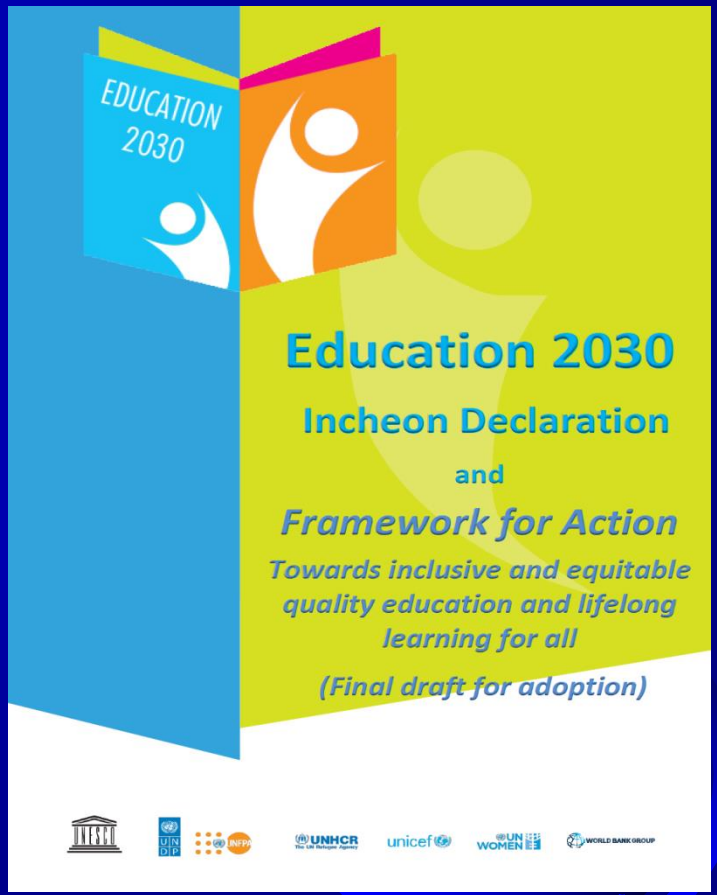
SDGs for the World

- On 25 September 2015, the United Nations General Assembly formally adopted the universal, integrated and transformative 2030 Agenda for Sustainable Development, along with a set of 17 Sustainable Development Goals and 169 associated targets.


SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD
1 NO POVERTY
2 NO HUNGER
3 GOOD HEALTH
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 RENEWABLE ENERGY
8 GOOD JOBS AND ECONOMIC GROWTH
9 INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE AND JUSTICE
17 PARTNERSHIPS FOR THE GOALS
THE GLOBAL GOALS
For Sustainable Development

Education 2030 Framework for Action (FFA)

- **UNESCO is entrusted to lead Sustainable Development Goal 4 (SDG4) - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all - through the Education 2030 Framework for Action (FFA).**



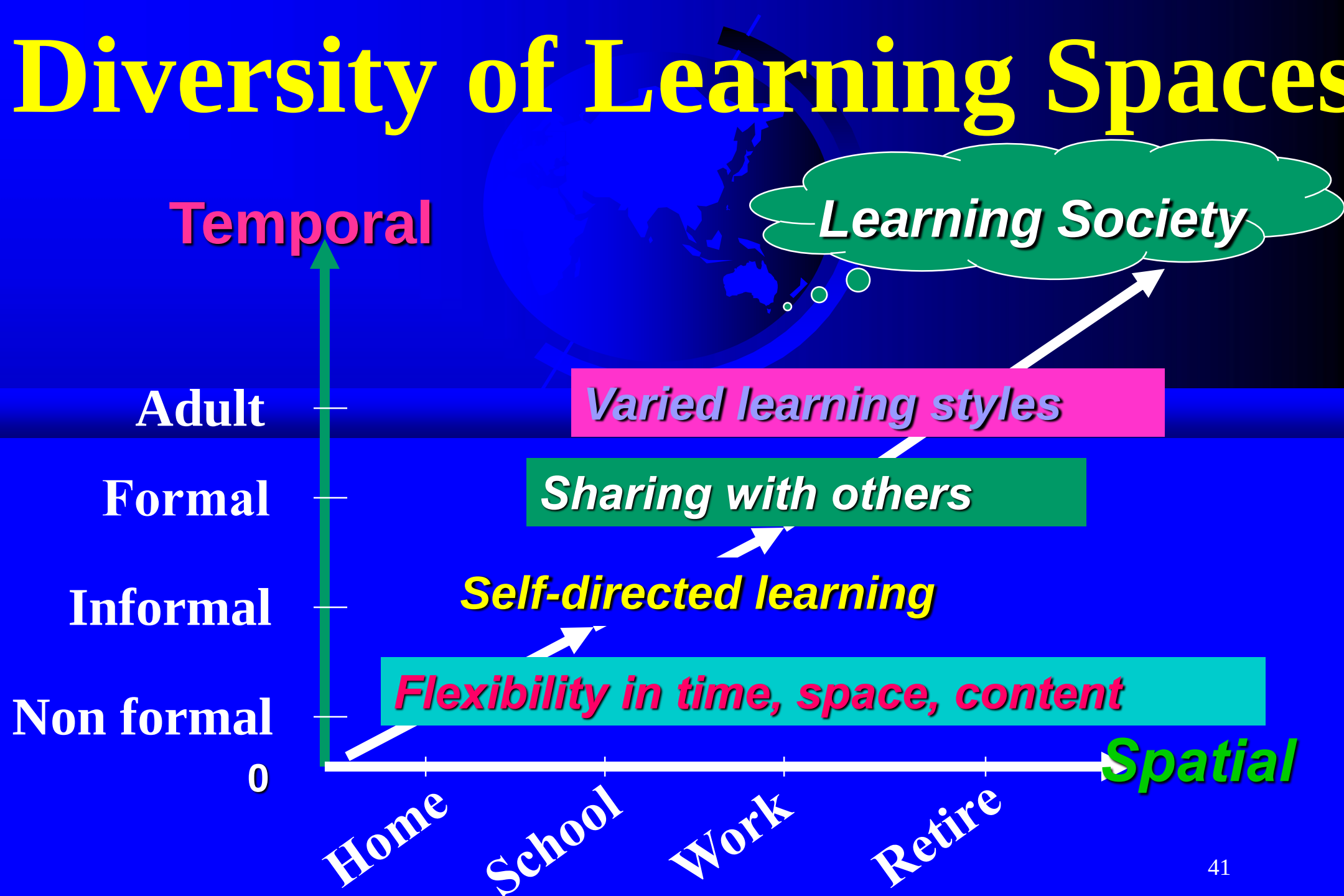
C21st World

- Technology will increasingly dominate domestic, economic and social life
- Financial and economic world will change into a plastic world
- Increase in demand for constant communication and use of telecommunication
- Society will become less personal, concentrate more on nuclear family
- Unrivalled demand for education

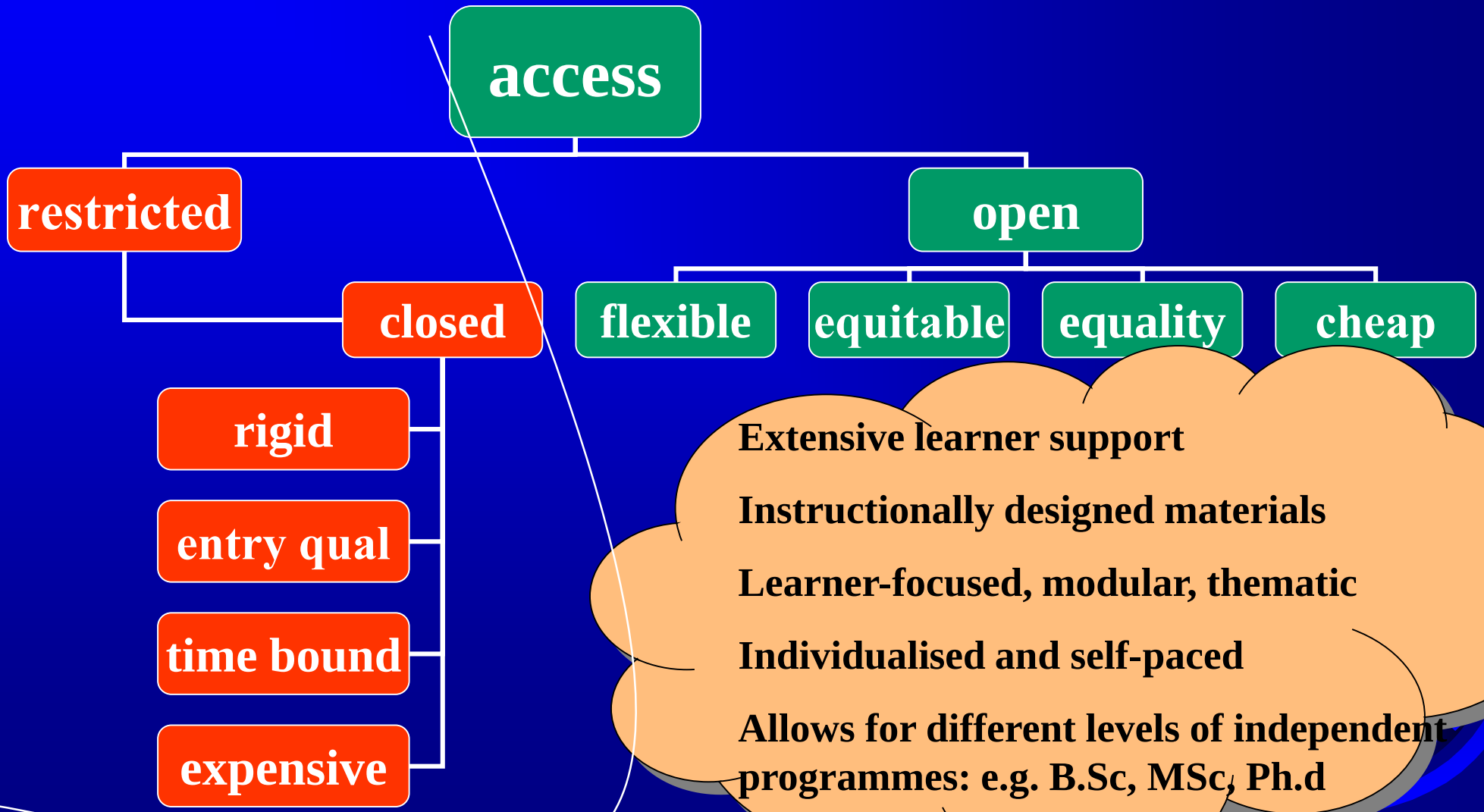
The Africa We Want 2063

- the AU Commission/the United Nations Economic Commission for Africa (UNECA)/the New Partnership for African Development (NEPAD) in a document called, ***The Africa We Want*** *says* by the year 2063 there should be
- 'created an Africa of our dreams that is prosperous, healthy, vigorous, creative and exciting' (Versi, 2015).
- To achieve this, as has been done in other parts of the world, Africa must re-focus on using education as the fundamental and virile instrument for continental, regional and national development.

Diversity of Learning Spaces

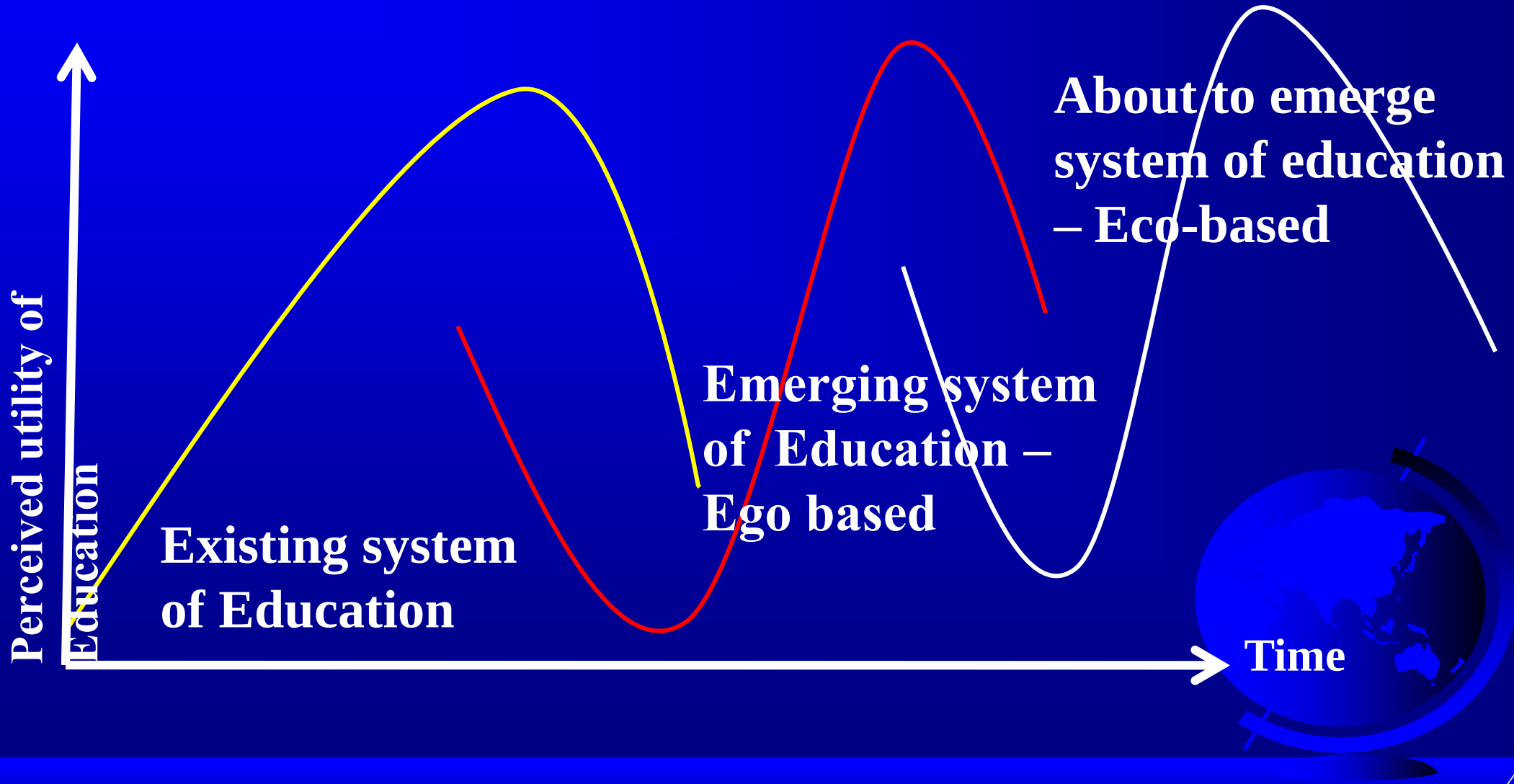


Open and Close

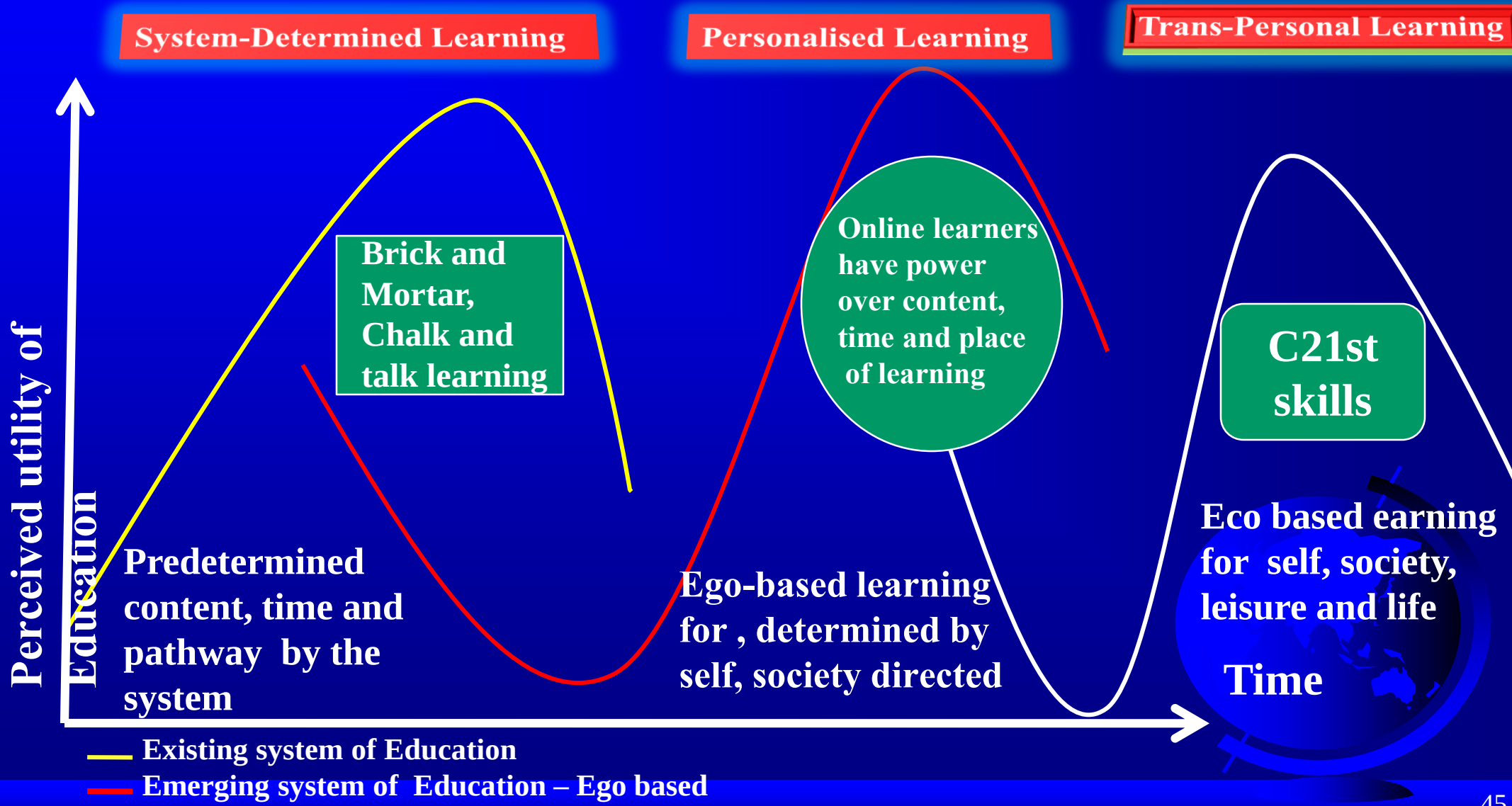


The Future of Learning

Waves of Change



Waves of Change in Learning



Education as a Disruptive Force

UNESCO Says

- "Education needs to fundamentally change if we are to reach our global development goals"
  - Press release 6, September 2016

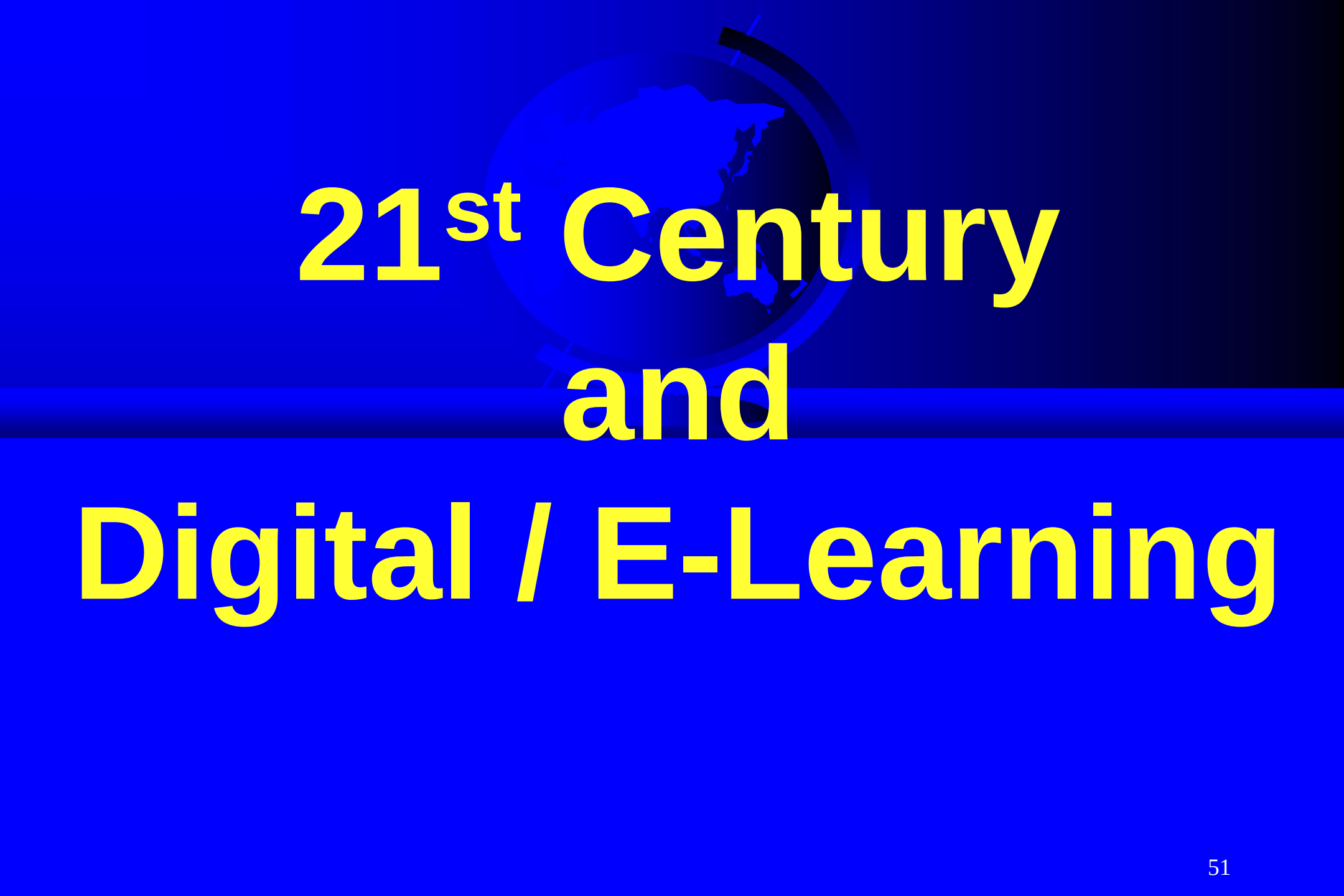
Change or Be Changed

- "change is (has) coming whether we like it or not. If we are not involved in shaping it, others will do it for us" (Eisenberg, 1998)

Irresistable Change

- The world is changing at a rate most humans cannot keep pace with
- The silent evolution of the brain is adding copiously to knowledge and information
- Four major changes are shaping the world
  - Space Exploration
  - The future of jobs and human capital development
  - Emergence of Artificial Intelligence
  - Use of education as disruptive force

hed by lack of quality, improper planning…….


21st Century
and
Digital / E-Learning

Global Data

- 30% of the world's young people are currently neither in employment, education nor training.
- ONE billion more youth will enter the job market in the next decade and only 40 per cent are expected to be able to get jobs that currently exist.
- The global economy will need to create 600 million jobs over the next 10 years
- Global priority is how to reverse the youth employment crisis.
- Otherwise, the socio-economic and socio-cultural cost, will be colossally high!

The C21st Way

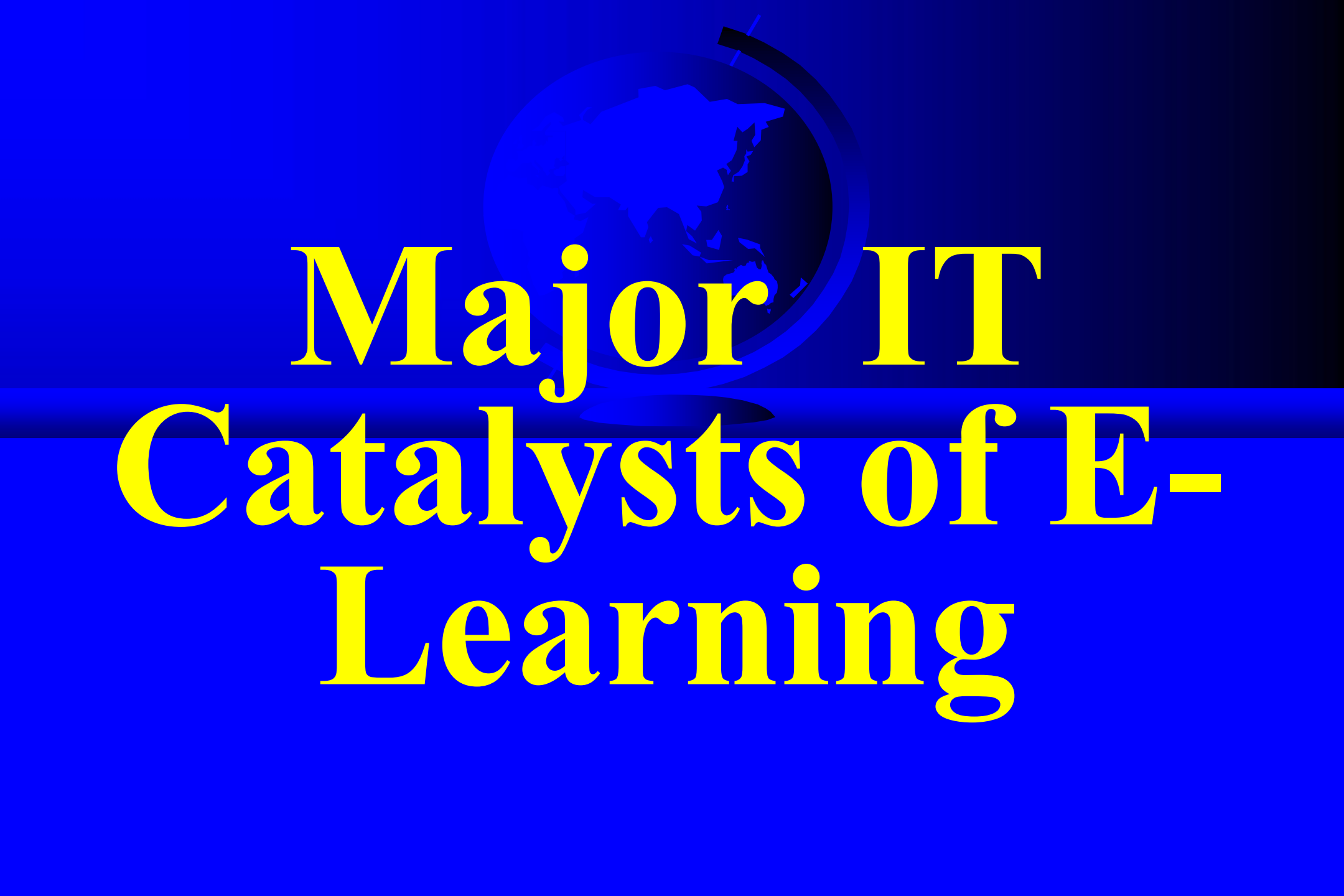
- Use the imperatives of the 21st century for education, learning and development needs; new focus on teacher educ and HE
- Embark on knowledge generation emphasis on ODeL research and initiatives
- Explore and exploit new learning tools and environment – enhance OER, social networks, MOOCs, Social Media
- Negotiate with digital networks to donate satellite space for learning activities

C21st Learners

- easily bored, require multiple stimuli
- know more about technology than teachers and parents
- access to information= acquisition of knowledge
- Please text, email, bbm, WhatsApp, etc
- Check my web, facebook, blog or twitter
- Gone through waves of change in learning

C21st Teachers

- not the boss but the facilitator
- ‘no longer sage on stage but guide on the side’
- learning with technology must begin with educating teachers
- must always operate within the students IT- driven learning environment
- Should be equipped to relate globally to other teachers and learners


Major IT
Catalysts of E-
Learning

From Web 1.0 to Web 2.0

- Web 1.0 gave rise to websites where users are limited to the passive viewing of content that was created for them.
- Web 2.0 is associated with web applications that facilitate participatory information sharing, interoperability, user-centred design, and collaboration on the World Wide Web.
- Examples of Web 2.0 include social networking sites, blogs, wikis, video sharing, sites, web applications.

From Web 2.0 to Web 3.0

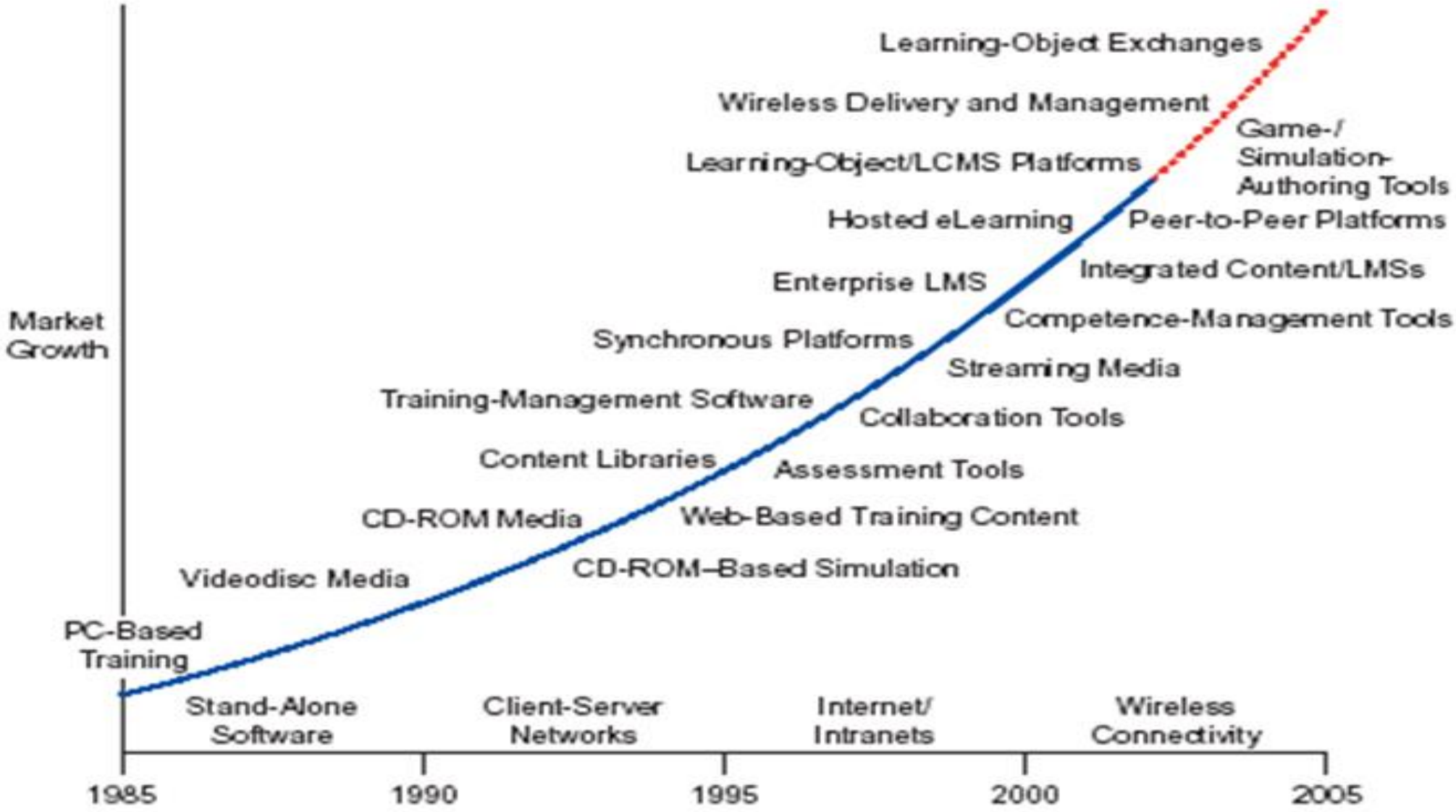
- Extension of *Web* 2.0.
- *Web 3.0* as connective intelligence; connecting data, concepts, applications and ultimately people.
- Five Main Features:
  - 1) Semantic Web
  - 2) Artificial Intelligence
  - 3) 3D Graphics
  - 4) Connectivity
  - 5) Ubiquity

From E-Learning 1.0 to E-Learning 2.0

- E-learning 1.0 systems were based on instructional packets, which were delivered to students using assignments.
- E-learning 2.0 places increased emphasis on social learning and use of software such as blogs, wikis, You tube, podcasts and virtual worlds
- To construct knowledge socially. Advocates say the best ways to learn something is to teach it to others.
- Open Education Resources in Education. OER Africa is foremost in this regard

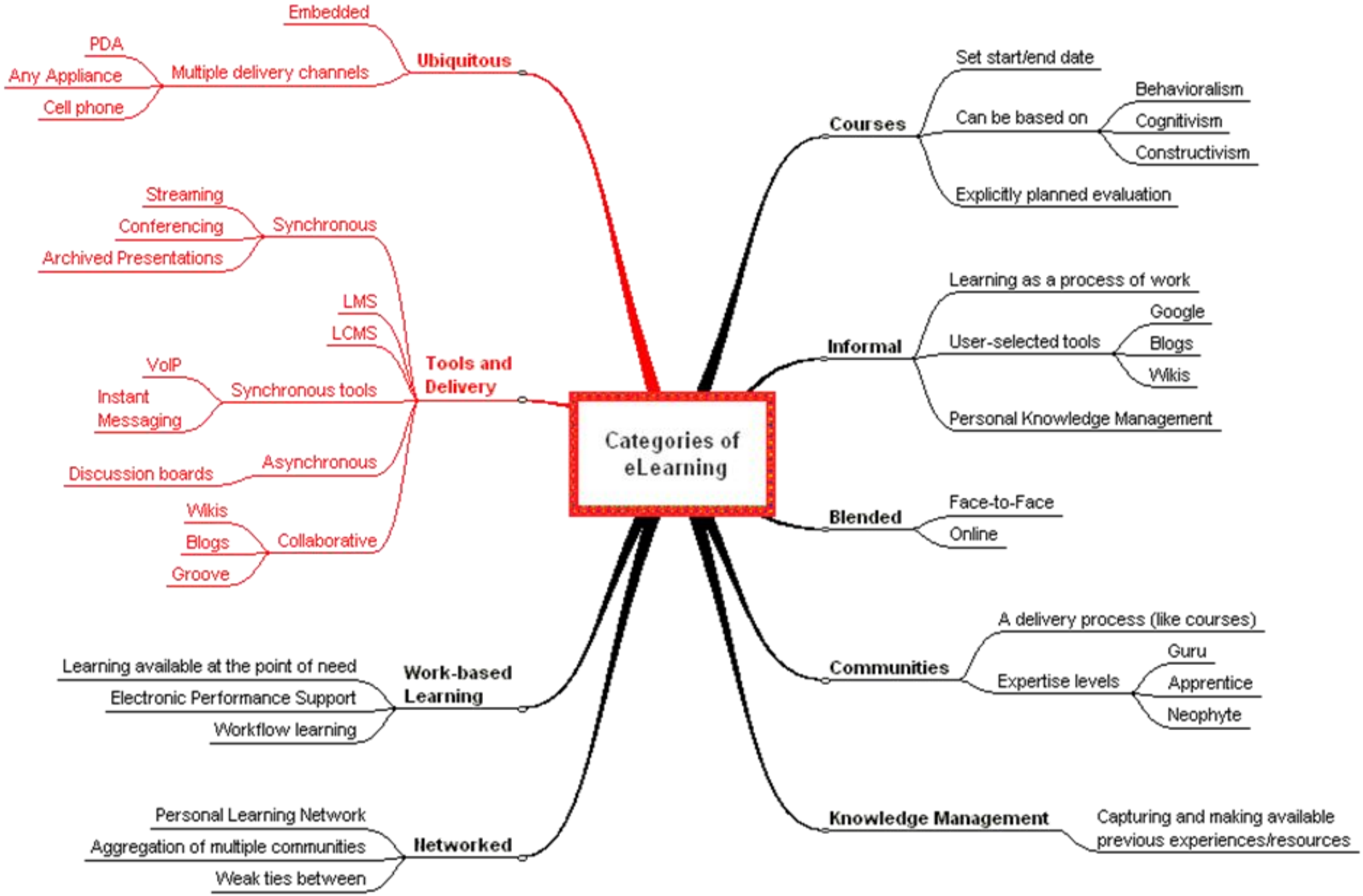
Conclusion

TECHNOLOGY EVOLUTION IN eLEARNING



LCMS = Learning-content–management systems; LMS = learning-management systems; CD-ROM = compact-disc read-only memory.

Source: SRI Consulting Business Intelligence (SRIC-BI)


Categories of eLearning
Ubiquitous
Embedded
Multiple delivery channels
PDA
Any Appliance
Cell phone
Tools and Delivery
Synchronous
Streaming
Conferencing
Archived Presentations
LMS
LCMS
Synchronous tools
VoIP
Instant Messaging
Asynchronous
Discussion boards
Collaborative
Wikis
Blogs
Groove
Courses
Set start/end date
Can be based on
Behavioralism
Cognitivism
Constructivism
Explicitly planned evaluation
Informal
Learning as a process of work
User-selected tools
Google
Blogs
Wikis
Personal Knowledge Management
Blended
Face-to-Face
Online
Communities
A delivery process (like courses)
Expertise levels
Guru
Apprentice
Neophyte
Knowledge Management
Capturing and making available previous experiences/resources
Work-based Learning
Learning available at the point of need
Electronic Performance Support
Workflow learning
Networked
Personal Learning Network
Aggregation of multiple communities
Weak ties between

7th Generation?

Emerging power

21st Century Social Media

Social media, e.g Facebook, Twitter, YouTube, Flickr, Tumblr, Pinterest, Google+, Instagram, Linkedin etc may now constitute 7th generation of models of technology in ODL

Thank you

Enjoy the rest of the Retreat