

Payson Center

For International Development & Technology Transfer



Learning How to Learn
with Technology

Apprendre à apprendre
avec l'Technologie

MFT
10.19.2000

This reports includes the conclusions, recommendations, and follow-up activities related to the course: “**Learning how to Learn with Technology**” delivered in Kinshasa during the week of July 26th to 30th in the School of Public Health (SPH), University of Kinshasa, Kinshasa, Democratic Republic of Congo as part of the USAID contract to support Kinshasa SPH activities.

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Course Objectives

The following objectives were outlined:

Knowledge Skills and Competencies

The knowledge, skills and competencies are divided in two parts. The first part was geared towards giving all learners enough information on Information Technologies so that instructional design topics would make sense.

Part I: All Learners

- **Basic Computer/Technology Concepts and Operation** - All learners will operate a computer system in order to use software successfully and will also evaluate the performance of hardware and software components of computer systems.
- **Personal and Professional Use of Technology** - Demonstrate skill in using productivity tools for professional and personal use, including word processing, database, spreadsheet, and print/graphic utilities.
- **Telecommunications and Information Access** - Demonstrate use of telecommunication and information resources to support learning.
- **Social, Ethical, and Human Issues** - All learners should possess knowledge and skill in making decisions concerning social, ethical, and human issues related to computing and technology.
- **Information Technology Management Tools** - Demonstrate knowledge of uses of computers for problem solving, data collection, information management, communications, presentations and decision making.
- **Information Technology Impact Analysis** - Identify changes in the social service delivery -environment created by information technology and changes in society at large as a result of technology use

Part II: Specialized Focus

Covers the following subjects:

- Instructional Design and Learning Principles
- Application of Technology in Instruction
- Information Technology in Learning Environment
- Instructional Design Phases
- Digital Media
- Multimedia Learning Tools
- Advanced Multimedia Learning Tools

Schedule *(for two groups divided by skill levels)*

The course was planned for two simultaneous groups at different skill levels.

<i>Day</i>	<i>Sessions</i>	<i>Topics</i>	<i>Skill Level</i>	<i>Learner Exercise</i>
Day 1	Session 1	<i>Information technology for development and technology transfer.</i> Showcase of IT solutions: EPI-INFO, SUMA, Greenstone Libraries, TALM/E-Class	All	Learners Baseline ICT Assessment on Current Knowledge, Skills, and Competencies. <i>MBTI Personality type assessment (optional)</i>
	Parallel Session 2A	<i>Essential computer skills.</i> Windows, Desktop, File structure, Programs, Drives, Settings, Peripherals, Ports.	Introductory Hands On Workshop	
	Parallel Session 2B	<i>The software landscape.</i> Alternatives to WINTEL/MS: Star Office, Linux, and Macintosh. <i>The hardware and network landscape.</i> Alternative wireless network configurations, ISPs, free email accounts, web hosting, e-commerce	Advanced	
	Session 3	Introduction to instructional design, personality types, learning styles and learning theories	All	Instructor distributes and discusses the results of the baseline assessment and learning style, and recommends learning strategy.
	Session 4	Information technology for instructional design.	All	Learners choose and present topic of focus for the course.
	Session 5	The 12 Phases of Instructional Design	All	Learners will be requested to produce vision, goals, and objectives for their chosen topic project.
Day 2	Session 6	<i>An overview of E-Class and TALM.</i> Presentation of Technology Assisted Learning Modules (TALM)	All	

		(TALM) prototypes and products		
	Session 7	<i>Creating a Multimedia Learning Tool.</i> Required software and hardware for manipulating: Text, Audio, Image, and Video (analog/digital).	All	
	Parallel Session 8A	<i>Using Presentation Tools for teaching.</i> Presentation design and creation using Star Office, Power Point.	Introductory	Learners determine the appropriate learning tool for their project and continued designing their project.
	Parallel Session 8B	<i>Multi-media Learning Tools:</i> Course design and creation using E-Class and Electronic Trainer.	Advanced	Learners determine the appropriate learning tool for their project and continued designing their project.
Day 3	Session 9	<i>Digitization of Media.</i> <i>Audio:</i> recording voice, sound effects. (wav, midi)	Hands-on Workshop	Learners work digitizing audio for their TALM project.
	Session 10	<i>Digitization of Media.</i> <i>Text:</i> Scanning, OCR, edition (txt, htm, html files)	Hands-on Workshop	Learners work digitizing text for their TALM project.
	Session 11	<i>Digitization of Media.</i> <i>Images:</i> Image edition using TALM toolkit software. (jpg, gif)	Hands-on Workshop	Learners work digitizing images for their TALM project.
	Session 12	Digitization of Media. Video: Still images, video capture. (quicktime)	Hands-on Workshop	Learners work digitizing video for their TALM project.
Day 4	Session 13	Putting it all together. Troubleshooting. Space requirements. Burning a CD.	Hands-on Workshop	Learners work putting together their media on their TALM project.

	Session 14	Learner Presentation Course Evaluation and Feedback	All	Learner Presentation and Feedback
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Course Implementation

All learners were given a reading packet containing reference materials covering the following subject areas:

- Models of Instructional Design
- Instructional Theories
- Learning Theories
- Instructional Design and Development
- Evaluation of Educational Software
- Audio
- Graphic
- Video
- HTML
- Presentation
- Multimedia Design
- Multimedia and Instructional Design

The packet also included information on Internet and the use of Information Technology for Higher Education. They were also given the Human Development Libraries (English and French versions), Food and Nutrition Library, and Medical and Health Library. The TALM Toolkit v1.9a was also distributed among all learners. Finally, all learners received a blank CD-R and a diskette.



The classroom had 10 desktop computers, 4 laptop computers, two laser printers, scanner, CD burner, Dazzle (video digitizing), and a projector.

Course Audience and MBTI Personality/Learning Style

Most learners (81%) were male senior faculty from the School of Public Health or the School of Medicine from the University of Kinshasa. Age average was 46 (for the 65% who answered). The MBTI was taken by 73% of the participants. Individual results were reported to each learner.

LIST OF PARTICIPANTS TO THE LTL COURSE July 26th - July 30, 2000. Kinshasa, DROC.

Dr. Okitolonda Wemakoy		Director ESP				
			MBTI	Gender	DOB	Age
From the University of Kinshasa						
1 Dr. Mpeye NYANGO	Recteur			Male		
2 Dr. Ni Vunda ZOLA	SGA		INTJ	Male		
3 Dr. Lwa Nkandi LUFUMA	DOJES			Male		
4 Dr. Da Pungu Diedonne MUTOMBO	VDE			Male		72
5 Dr. Mvumbi LELO	SAC		ESTJ	Male		53
6 Dr. Beni MALEO MUNGWA				Male		
From the ESP/UniKin						
7 Prof Mukungo MUNYANGA	SubDirector		ESTJ	Male		47
8 Prof. Kiyombo MBELA	Professor		ENTJ	Male		kiyombo@hotmail.com
9 Prof Tshefu KITOTO	Professor			Female		
10 Dr. Kambau SHANGOWZ	Professor		ISTJ	Male		50
11 Ass. Nyandwe KILOKA	Assistant Professor		ISTP	Male		40
12 Ass. Konde NKIAMA	Assistant Professor		ISTJ	Male		37
13 Ass. Kwilu NAPPA	Assistant Professor		INFP	Male		37
14 Ass. Mambu MONDO	Assistant Professor		ESTJ	Female		41
15 Ass. Kaba KINKODI	Assistant Professor			Male		
16 Ass. Didine KABA KINKODI	Assistant Professor		ESFP	Female		31
From the School of Medicine/UniKin						
17 Prof. Tumba Diong KASHALA	Professor		ISTJ	Male		58
22 Musalamapasi NDJAKALA			ESTJ	Male		58
23 Kikhela NGWETE				Male		
From the Ministry of Health						
17 Libange Ernest ETULA	Cabinet		ISTJ	Male		50
18 Mfuni TSHIAMANYANU			ESFJ	Male		51
19 Odon KASONGO BALEKA			ISTJ	Male		33
20 Bendu BUTURU			ISTJ	Female		52
21 Matinga AMAS SHELLA			ISTJ	Female		33
From the Ministry of Education						
22 Kidi Cho KATENGA			ESFJ	Male		46
23 Lushiku KALENGA			ISFP	Male		

Learners (73%) that answered to the question of previous computer use produced almost 42% of no previous computer use. This was particularly true for users coming from the Ministry of Health (100% had no previous computer experience).

Learners evaluation and satisfaction

The participants were asked to answer the "National Standards Questionnaire" as a self-evaluation of the baseline skills, knowledge and competencies before and after instruction. All of them reported gains at all levels, some even reported changes from 1-"No knowledge at all" to 5-"Could do it well and quickly". Most of the improvements were increases in two or three levels for different skills, knowledge and competencies. Not all course objectives were achieved for all learners due to the fact that almost half of the group lacked any previous skills, levels and competencies related to computer use. However, there was individual improvement for all learners.

The site was appropriate for the course. Senior faculty members were not disturbed or interrupted. The local counterparts that supported the Instructor's activities were knowledgeable, efficient and collaborative. The classroom was adequate in layout and in resources (computers, projector, peripherals, etc.) Even though the session design and time was slightly modified according to the circumstances, the Director of the School of Public Health not only supported the course, but also made arrangements for further continued practice. All the participants were required to present to the rest of the group, and by the end, all seemed very happy and proud of their accomplishments.

Other parallel activities



Parallel activities included enhancement of the local area network (LAN) was also expanded. The single Internet connection used by one computer was split between the desktop and Airport Base Station that has capabilities of connecting 10 laptops through PCMCIA Wireless LAN cards. The base station was tested successfully with a laptop approximately 7 mts. away. When tested to the farthest distance (approximately 150 mts.) the results were unsuccessful. Network supplies (cable, hub, and connectors) were purchased and installed to enable 6 other Internet workstations. In total, from one Internet connection, more than 16 access points were installed and theoretically available for use.

Further directions

Besides reporting the MBTI-Learning styles to each participant, this information should be used in the design of each individual project, or for team grouping.

Even though the language barrier was overcome with translators and very slow-clear English, the materials were not all translated in French, nor some of the presentations. This should be something to work on for the next course.

Due to several circumstances, the possibilities offered by Internet were not explored. Maybe in a follow-up course, the use of Internet for instruction should be covered.

Appendix 1: Detailed knowledge, skills and competencies

Part I: All Learners

Basic Computer/Technology Concepts and Operation

All learners will operate a computer system in order to use software successfully and will also evaluate the performance of hardware and software components of computer systems.

Cognitive

- Understand Moore's law.
- Use terminology related to computers and technology appropriately in written and oral communications.
- Be able to identify key parts of computer and understand its functions.

Psychomotor

- Demonstrate skills needed to start computer, check for basic connections, and implement basic troubleshooting techniques for a multimedia computer system.
- Operate a multimedia computer system with related peripheral devices.
- Successfully install and use a variety of software packages.

Affective

- Demonstrate knowledge of principles of personal productivity aided by computer applications.

Personal and Professional Use of Technology

Demonstrate skill in using productivity tools for professional and personal use, including word processing, database, spreadsheet, and print/graphic utilities.

Psychomotor

- Prepare a document on a word processor, save, print, and integrate a graph or image.
- Prepare a presentation slide, save, print, integrate graphic material into, and produce transparency.
- Prepare a spreadsheet budget, save, print, and integrate into report or graphic.
- Be able to scan, digitize a graphic image, and manipulate it within a simple graphic program.

Telecommunications and Information Access

Demonstrate use of telecommunication and information resources to support learning.

Cognitive

- Define and understand basic Internet concepts.
- Relate different levels of bandwidth access to telecommunication strategies.

Psychomotor

- Access the Internet.
- Send and receive electronic mail.
- Use Netscape or other WEB engines.
- Download information resources.
- Do a literature review from the Internet or CD ROM- based resources on an instructional-related subject.

Affective

- Review and critique appropriate websites for professional resources.

Social, Ethical, and Human Issues

All learners should possess knowledge and skill in making decisions concerning social, ethical, and human issues related to computing and technology.

Cognitive

- Demonstrate knowledge of equity, ethical, legal and human issues of computing and technology.
- Understand and express rules and legal implications of:
 - copyright
 - e-mail and Internet ethical practices
 - software piracy

Psychomotor

- Draft and evaluate an appropriate "acceptable use policy" for yourself or your organization.

Information Technology Management Tools

Cognitive

- Demonstrate knowledge of uses of computers for problem solving, data collection, information management, communications, presentations and decision making.
- Demonstrate knowledge of multimedia, hypermedia, and telecommunications activities to support production.

Psychomotor

- Execute and present applied database research resolving an important problem in the teaching and learning environment.
- Create a knowledge-and-change database.
- Evaluate, select, and integrate computer technology-based instruction in the plan of a development-oriented organization.

- Be able to demonstrate key technology-based products appropriate for your clients.

Information Technology Impact Analysis

Affective

- Identify changes in the social service delivery -environment created by information technology.
- Identify changes in society at large as a result of technology use

Part II: Specialized Focus

Instructional Design and Learning Principles

Cognitive

- Understand the relationship between basic cognitive processes in teaching and technology- enhanced instruction.
- Understand the impact of technology assisted and enhanced environment on teaching and learning.

Affective

- Apply current instructional principles, research, and appropriate assessment practices to computer use and related technologies.

Psychomotor

- Develop and integrate a technology plan into an appropriate teaching and learning intervention.

Application of Technology in Instruction

Cognitive

- Know information resources for assessing hardware and software strengths and weaknesses.
- Demonstrate knowledge of multimedia, hypermedia, and telecommunications activities to support service delivery.

Psychomotor

- Identify and use video, audio, and other computer enhanced or driven tools.
- Be able to demonstrate key technology-based products appropriate for your clients.
- Evaluate and use computers and related technologies to support the service delivery process.

Information Technology in Learning Environment

Cognitive

- Know information resources for assessing hardware and software strengths and weaknesses.
- Understand cost effectiveness of specific technology-assisted instruction and behavioral change methods.
- Know proper ratios for using computer-assisted tools at different levels.
- Integrate technology into instructional planning using templates and decision support tools

Affective

- Evaluate and use computers and related technologies to support the instructional process.
- Identify and use video, audio, and other computer enhanced or driven tools.
- Evaluate, select, and integrate computer technology-based instruction into the plan of a development-oriented organization.

Psychomotor

- Develop and integrate a technology plan into an appropriate teaching and learning intervention.
- Design and develop learning activities that integrate computing and technology for a variety of user populations.
- Use evaluation methodology to explore the impact of information technology on the educational process.

Instructional Design Phases

Cognitive

- The learner will be able to list the instructional design phases for carrying it out when presented with a TALM project .
- The learner will understand the rationale for each TALM phase, the sequence, and their interdependency.
- The learner will be able to discriminate the activities required to accomplish the first 5 phases of the TALM design process.
- The learner will understand the different steps required for the analysis of organizational needs.

Psychomotor

- The learner will be able to generate a form for collecting information related to the analysis of needs.
- The learner will be able to write, modify and sort need statements for the TALM.
- The learner will be able to write, modify and sort instructional goals for the TALM .
- The learner will be able to write a mission statement for the TALM .
- The learner will be able to design a survey for the creation of an audience profile.
- The learner will be able to profile the TALM audience
- The learner will be able to write, modify and sort multiple objectives for the TALM.

Digital Media

Cognitive

- The learner will be able to distinguish the different types of media.
- The learner will understand the different ways to create media (text, images, audio, video.)
- The learner will comprehend the hardware and software necessary for digitizing existing media.
- The learner will be able to distinguish and select between the different programs for editing media files.

Psychomotor

- The learner will be able to scan graphics and save them in digital format.
- The learner will be able to create and edit a graphic file, including: opening, saving, rotating, cropping, resizing, adding text, and adjusting brightness and contrast.
- The learner will be able to record and capture audio using their sound card.
- The learner will be able to edit an audio file, including: opening, saving, cropping, adjusting volume, and removing noise.
- The learner will be able to record and capture a video to their computer.
- The learner will be able to create a video file, including: opening, saving, cropping, resizing, adjusting volume, removing noise, and learn about video compression.

Multimedia Learning Tools

Cognitive

- The learner will discover the different types of Learning Tools, their applications, and appropriateness.

Psychomotor

- The learner will be able to determine which learning tool is most appropriate for their project.
- The learner will be able to organize information and create an effective digital presentation.
- The learner will be able to create and organize a computer-based course.
- The learner will understand the process for inputting media into different information systems and learning tools.

Advanced Multimedia Learning Tools

Psychomotor

- The learner will complete and present their multimedia-learning product.

Cognitive

- The learner will be able to evaluate multimedia learning tools and finished learning products.
- The learner will be able to recognize common icons across software packages.

Affective

- The learner will be more confident in employing information and communication technology as learning and teaching tools.