

Making It Happen:

Using Distance Learning to Improve
Reproductive Health Provider Performance

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Phyllis Long

Nancy Kiplinger

PRIME II

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***Acronyms used in
this publication***

DL	distance learning	HIV	human immuno-deficiency virus
FP	family planning	IUD	intrauterine device
FP/RH	family planning/reproductive health	MOH	Ministry of Health
GRMA	Ghana Registered Midwives Association	PHC	primary health care
HA	health attendants	RH	reproductive health
		STI	sexually transmitted infection

Introduction

“The Ministry of Health (MOH) wants to improve the performance of the primary health care providers in the management of hormonal contraceptive side effects. The providers are spread throughout the country and it is disruptive to patient care to release them from the work place for training.” Can distance learning help solve this problem?

More and more, training managers and trainers are considering distance learning as an alternative to traditional classroom instruction because it improves access to training, provides quality learning achievement and reduces training time (Hannum 1998). Distance learning programs can be as effective as traditional classroom instruction. Distance learning can provide effective learning of the knowledge, skills and attitudes appropriate for the jobs of health care providers.

This publication is for training managers, trainers of health providers, decision-makers, and those who fund and support training activities. It examines distance learning as an effective training approach for reproductive health (RH) providers in developing countries. In addition to describing the components of distance learning, this publication will provide illustrative examples for training health workers, outline steps for starting a distance learning program and suggest additional resources. It will help readers plan and implement effective distance learning.

Overview

Overview of Distance Learning

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What is distance learning?

Distance learning (DL) refers to any training approach 1) where learners and trainers are not together in a classroom for most of the training time, and 2) that presents content in a pre-produced instructional package. Distance learning programs use a variety of methods and media to deliver instruction to learners and to connect participants for interaction.

Distance learning programs can take a variety of forms. The PRIME Project, a USAID-funded initiative that seeks to improve RH care worldwide by training and supporting primary providers, has employed several such programs. Consider, for example, the 3 widely divergent programs PRIME is conducting in Africa as described in *Figure 1, Examples of PRIME distance learning programs in Africa*, on page 6.

Why use distance learning to meet reproductive health learning needs?

Distance learning increases access, promotes flexibility for training programs, assures quality learning, empowers learners and can be cost-effective.

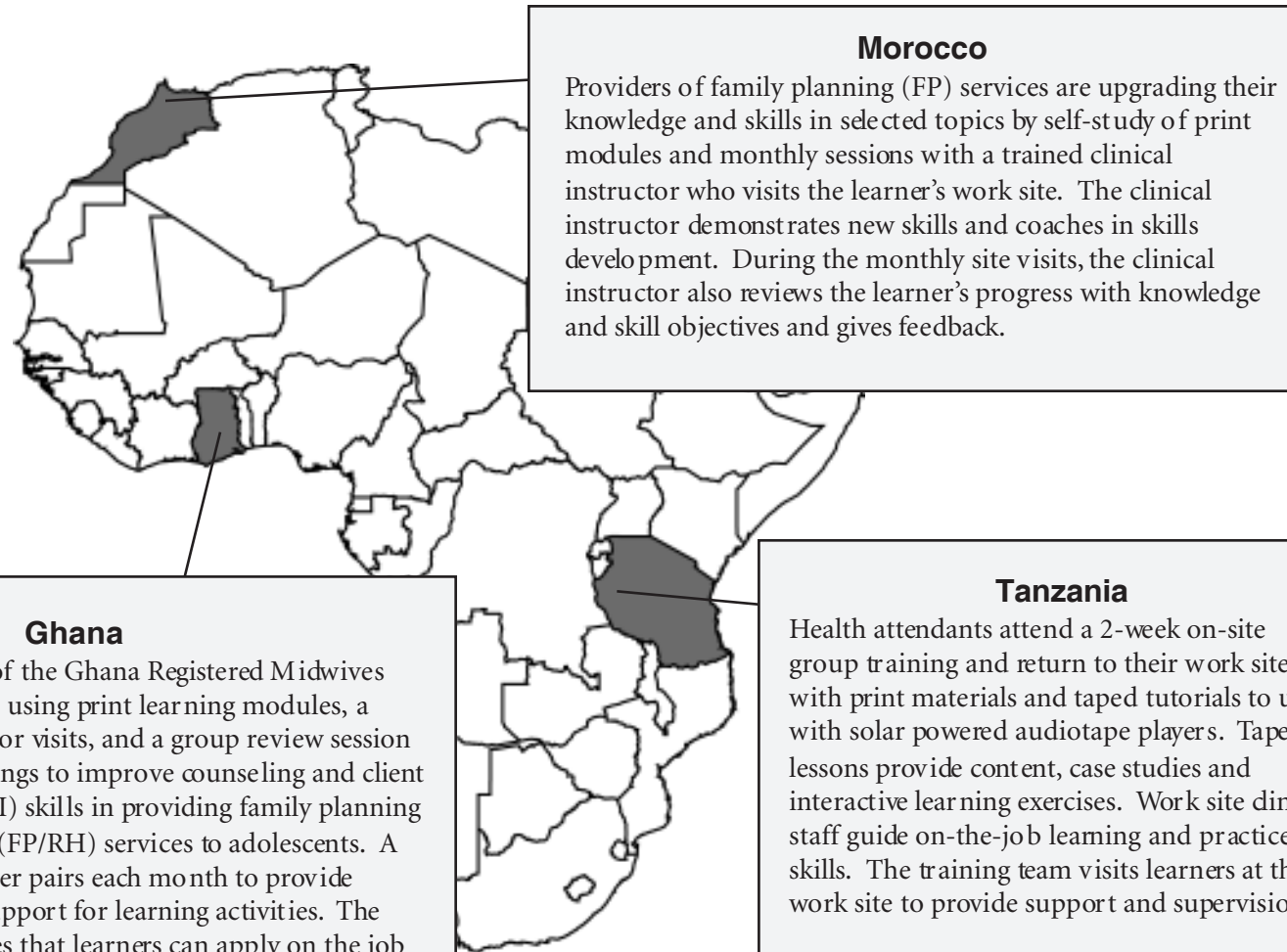
Because DL can be delivered anywhere at any time, it increases learner access to learning opportunities, permitting training for learners who might not otherwise be able to travel to a training site. In addition, much DL is self-paced, allowing the learner to continue work and family responsibilities. For example, a Moroccan health care provider recently promoted to a managerial role might need advanced training in health facility management. Unable to leave her home or her job to travel to the university for

extended training, this new manager can access training by enrolling in a DL course offered by the National Institute of Health Administration.

Distance learning empowers learners by facilitating the development of knowledge and skills that promote self-confidence, independence and life-long learning. Distance learners develop valuable problem-solving skills by managing their own learning, and they assume responsibility for their own learning as they:

- Identify their own learning needs
- Seek information or clarification
- Initiate communication with teaching staff
- Organize their time
- Prioritize learning tasks

Figure 1: Examples of PRIME distance learning programs in Africa



Morocco

Providers of family planning (FP) services are upgrading their knowledge and skills in selected topics by self-study of print modules and monthly sessions with a trained clinical instructor who visits the learner's work site. The clinical instructor demonstrates new skills and coaches in skills development. During the monthly site visits, the clinical instructor also reviews the learner's progress with knowledge and skill objectives and gives feedback.

Ghana

Private sector members of the Ghana Registered Midwives Association (GRMA) are using print learning modules, a learning partner, facilitator visits, and a group review session at GRMA monthly meetings to improve counseling and client provider interaction (CPI) skills in providing family planning and reproductive health (FP/RH) services to adolescents. A facilitator visits the learner pairs each month to provide guidance and ongoing support for learning activities. The modules include activities that learners can apply on the job to ensure transfer of learning, as well as self-assessment instruments to evaluate the learning process.

Tanzania

Health attendants attend a 2-week on-site group training and return to their work site with print materials and taped tutorials to use with solar powered audiotape players. Taped lessons provide content, case studies and interactive learning exercises. Work site clinical staff guide on-the-job learning and practice of skills. The training team visits learners at the work site to provide support and supervision.

Distance learning increases flexibility for the training program by:

- Eliminating or shortening the need for classroom space
- Freeing training staff from a fixed time and place for work and encouraging self-scheduling to meet the needs of learners
- Fostering clinical or other skill training at the time and pace of the work site
- Providing a channel for updating learning content after the DL infrastructure is developed

The success of DL in assuring quality education is acknowledged worldwide (Herrick, Jenkins and Carlson 1998). Distance learning content designed by experts, refined by pre-test and validated by field test, provides consistent, clear instruction that fosters acquisition of knowledge and desired skills. Integrating clinical skill or other skill training and ongoing support for the learner facilitate the development of competence and confidence in clinical performance.

Even though the cost of starting a DL program is generally higher than the cost of starting a traditional classroom learning program, largely due to the need for more development time and more costly materials, DL programs can be cost-effective over time. Designing and developing

instructional materials and developing a delivery system, while costly initial investments, are not routinely recurring expenses. Therefore, as enrollment in a DL program increases, the cost per student decreases.

The primary costs of DL are:

- Design, development, and production of instructional materials
- Delivery of instructional material to students
- Administrative structure necessary for support of learners and training team

In comparing the costs of DL and traditional classroom training, one must factor in the hidden costs associated with the traditional classroom approach—the costs incurred by learners and their employers for time away from work and for travel to the training site. See *Figure 2, Types of costs of traditional and distance learning approaches*, for the types of costs of traditional and DL approaches.

Figure 2: Types of costs of traditional and distance learning approaches

Distance Learning	Traditional Training
Design and development of instruction, materials	
Training staff	
Administrative infrastructure	
Distribution of instruction/communication (media and technology)	Training site (rental/maintenance)
Support for learners (travel, communication by facilitators)	Learners' time away from work
Support for facilitators and clinical site	Learners' travel to site, lodging

What are the components of a distance learning program?

There are 5 primary components of a DL program—the participants, the distribution and communication system, the learner support system, the instructional package, and the integration of clinical or other skill training.

Participants

The participants include learners, the design team, the training team and the administrative staff.

- **Learners** - potential learners in DL programs are pre-service students and in-service health workers

- **Design team** - includes specialists in content and instructional design. This team prepares the instructional package and develops the plans for implementation, monitoring and evaluation. Distance learning programs that utilize computer or audio-video technologies will also require technology specialists to maintain the distribution system and provide orientation and technical support to all users
- **Training team** - may include facilitators and/or clinical instructors. The team's responsibilities include facilitating transfer of both knowledge and clinical learning, as well as providing support for the learners. Because the role of trainer is different in DL, this publication uses the term "facilitator" to identify the person responsible for guiding the learner through the DL program, facilitating learning, coordinating or providing clinical instruction and assessing learning progress
- **Administrative support staff** - provide support services for the participants, manage communication and information systems, implement evaluation processes, and coordinate activities to ensure smooth functioning of the program

Distribution and communication system

A system for presenting instruction to learners and supporting communication among participants is essential for bridging the distance among learners and between learners and the training team. Distance learning is distributed via learning media. Learning media can include simple delivery systems such as the postal service or telephone, as well as complex delivery systems, such as the Internet, computers and 2-way television. Learning media are the "tools" of DL and serve several purposes: presenting learning content, instruction and facilitating the interaction of DL participants. See *Figure 3, Uses of learning media for presenting instruction and facilitating interaction in distance learning.*

Learner support system

A planned system of support ensures that learners receive the help they need to feel connected to their learning experience. Learner support is the responsibility of all DL program staff. The design team builds support into learning content and activities for self-study by providing examples, feedback and samples of correct responses to case studies. Facilitators give support by responding to learners' needs and questions and providing encouragement.

Administrative staff provide support by communicating with learners and keeping them informed of their progress or changes in the program. The program can offer opportunities for learners to interact with other learners, co-workers and supervisors to practice skills, share experiences and work together on projects.

Instructional package

The instructional package consists of all the materials the learner needs to accomplish the training objectives:

- Learning objectives for knowledge and skills (lets learners know what knowledge and skills they will acquire)
- Directions for using the materials and mastering the objectives
- Content, and/or references and resources needed to complete the objectives (may include courses, modules or texts already available)
- Information on how to demonstrate, practice and evaluate knowledge and clinical or other skills
- Learning activities
- Self-assessment exercises
- Clinical checklists and directions for practicing clinical or other skills
- Schedule or calendar for program activities
- Information about how to get help

Integration of clinical or other skills training

Distance learning programs combine planned, on-site clinical or other skill training with instruction delivered to distance learners. Linkage with clinical or other practice sites allows the DL program to integrate clinical performance objectives.

Distance learning programs also afford great flexibility in clinical skills training. Their introduction may occur at any stage of the DL program—at the beginning, integrated throughout, or only after successful completion of the knowledge objectives. Clinical skills training can occur in group sessions at a single site with multiple instructors or with individual instructors at multiple sites.

Figure 3: Uses of learning media for presenting instruction and facilitating interaction in distance learning

Learning medium	Advantages	Limitations	Requirements
Print <ul style="list-style-type: none"> • Books, journal articles • Manuals, modules • Posters, charts, maps • Workbooks, study guides • Job aids/checklists • Newsletters 	<ul style="list-style-type: none"> • Efficient delivery of content • Learner-paced • Learner can individualize • Easy to update • Lasting reference • Reliable • Affordable 	<ul style="list-style-type: none"> • Difficult to create interaction • Cannot show motion 	Program and learner: <ul style="list-style-type: none"> • Prompt postal or delivery service
Audio <ul style="list-style-type: none"> • Audiotape with supporting materials 	<ul style="list-style-type: none"> • Available • Inexpensive • Learner-paced • Human voice to talk learner through content • Study guide can supplement audio and provide interactive exercises 	<ul style="list-style-type: none"> • Interaction can occur but is limited 	Program: <ul style="list-style-type: none"> • Recording, duplicating equipment Learner: <ul style="list-style-type: none"> • Tape player • Reliable power source
<ul style="list-style-type: none"> • Radio presentation: drama, stories 	<ul style="list-style-type: none"> • Engaging • Familiar • Accessible 	<ul style="list-style-type: none"> • Difficult to create interaction • Learners cannot review unless they make a recording at time of broadcast 	Program: <ul style="list-style-type: none"> • Broadcast studio access • Technical help Learner: <ul style="list-style-type: none"> • Radio • Reliable power source
<ul style="list-style-type: none"> • Radio presentation with supporting print materials and listener telephone call-in or letters to the program host 	<ul style="list-style-type: none"> • Engaging • Familiar • Accessible • Offers some interaction 	<ul style="list-style-type: none"> • Interaction can occur but is limited 	Program: <ul style="list-style-type: none"> • Broadcast studio access • Technical help Learner: <ul style="list-style-type: none"> • Radio • Telephone • Reliable power source • Prompt postal service

Uses of learning media for presenting instruction and facilitating interaction in distance learning (continued)

	Advantages	Limitations	Requirements	
Television	<ul style="list-style-type: none"> • Pre-recorded videotape 	<ul style="list-style-type: none"> • Expensive to produce • Limited shelf life • Difficult to create interaction 	Program: <ul style="list-style-type: none"> • Technical capacity for filming, editing and duplicating videotapes • Production studio Learner: <ul style="list-style-type: none"> • VCR, TV, reliable power source 	
	<ul style="list-style-type: none"> • Educational network TV 	<ul style="list-style-type: none"> • Fixed time 	Program: <ul style="list-style-type: none"> • TV broadcast studio • Technical support Learner: <ul style="list-style-type: none"> • TV and reliable power source 	
	<ul style="list-style-type: none"> • TV broadcast (commercial or public) 	<ul style="list-style-type: none"> • Stimulates thought, emotion • Demonstrates behavior 	<ul style="list-style-type: none"> • Cannot be interrupted for notes or questions • Is passive 	Learner: <ul style="list-style-type: none"> • TV and reliable power source
Computer	<ul style="list-style-type: none"> • Individual computer with computer-based training package 	<ul style="list-style-type: none"> • Learner-paced/controlled • Print-based learning materials can supplement • Use for simulation case study • Can show motion/animation • Storing content in databases makes it simpler to update content • Interactive programs give instant feedback 	<ul style="list-style-type: none"> • Start-up can be costly • Unfamiliar to some learners • Workstations for learners limit access to scheduled place and time • Maintenance required 	Program: <ul style="list-style-type: none"> • Technical capacity in computer programming Learner: <ul style="list-style-type: none"> • Computer or workstation with computer at central location • Computer competence • Technical support • Software • Reliable power source
	<ul style="list-style-type: none"> • Computer on network or with Internet access 	<ul style="list-style-type: none"> • Learner-paced/controlled • Can provide instruction and interaction • Rapid private and public communication • Access to resources 	<ul style="list-style-type: none"> • Start-up can be costly • Unfamiliar to some learners • Workstations for learners limit access to scheduled place and time • Bandwidth limits use of video and animation • Maintenance required 	Program: <ul style="list-style-type: none"> • Technical capacity to develop computer-based instruction Learner: <ul style="list-style-type: none"> • Computer competence • Technical support • Server, modems • Reliable telephone service • Reliable power source

Uses of learning media for presenting instruction and facilitating interaction in distance learning (continued)

	Advantages	Limitations	Requirements
Computer (continued) <ul style="list-style-type: none"> • Computer with interactive video/videodisc 	<ul style="list-style-type: none"> • Learner controlled • Full-motion video • Integrates video with computer • Computer mediates learner's interactions (response and feedback) • Learner controlled and paced 	<ul style="list-style-type: none"> • Interaction pre-programmed with content • Production cost high 	Program: <ul style="list-style-type: none"> • Technical capacity to develop interactive videodisc instruction Learner: <ul style="list-style-type: none"> • Specialized computers/video-disc player • Reliable power source • Computer competence • Technical support
<ul style="list-style-type: none"> • Multimedia computer (integrates audio, video, graphics and data in a computer workstation) 	<ul style="list-style-type: none"> • Interactive simulations • Easy access to information • Can present different levels of information that respond to learner need • Immediate, 2-way interaction 	<ul style="list-style-type: none"> • Program production is complex and expensive • Workstations for learners limit access to scheduled place and time 	Program: <ul style="list-style-type: none"> • Development/production capacity Learner: <ul style="list-style-type: none"> • Specialized computers • Reliable power source • Technical support
Telephone <ul style="list-style-type: none"> • Conference call allows interaction between 2 or more people 	<ul style="list-style-type: none"> • Easy to use • Familiar • Immediate, 2-way interaction 	<ul style="list-style-type: none"> • Lack of visual cues to establish interpersonal relationship • May intimidate some learners • Decreased spontaneity 	Program: <ul style="list-style-type: none"> • Audiobridge to connect multiple lines Learner and training team: <ul style="list-style-type: none"> • Telephones and/or microphones • Reliable power source
Audiographic conferencing <ul style="list-style-type: none"> • Telephone conference with visual images transmitted by additional telephone line 	<ul style="list-style-type: none"> • Illustration of concepts with images • Low cost 	<ul style="list-style-type: none"> • Hardware intensive • Lack of visual cues to establish interpersonal relationship • May intimidate some learners • Decreased spontaneity 	Program: <ul style="list-style-type: none"> • Additional phone lines • Investment of time to plan, prepare and present content Learner: <ul style="list-style-type: none"> • Telephone, reliable power source
<ul style="list-style-type: none"> • Telephone/fax 	<ul style="list-style-type: none"> • Available • User friendly 	<ul style="list-style-type: none"> • Quality varies 	Program and learner: <ul style="list-style-type: none"> • Fax machine

Uses of learning media for presenting instruction and facilitating interaction in distance learning (continued)

	Advantages	Limitations	Requirements
Audiographic conferencing (continued) <ul style="list-style-type: none"> • Electronic blackboard telephone ▶ • Audio/still video or slow scan ▶ • Audio/computer, keyboard and graphics tablet (used like overhead projector) ▶ 	<ul style="list-style-type: none"> • Real-time writing • Resembles familiar traditional conference format • 2-way graphics 	<ul style="list-style-type: none"> • Small viewing area with content • Production cost high 	Program and learner: <ul style="list-style-type: none"> • Electronic equipment • Additional phone lines • Technical support
	<ul style="list-style-type: none"> • Convenient • Portable • Low cost 	<ul style="list-style-type: none"> • Small viewing size (TV) • Still image 	Program and learner: <ul style="list-style-type: none"> • Electronic equipment • Additional phone lines • Technical support
	<ul style="list-style-type: none"> • Real-time writing • Immediate 2-way interaction • Good visual quality 	<ul style="list-style-type: none"> • Viewed on computer monitor • Difficult for many viewers to interact with sender 	Program and learner: <ul style="list-style-type: none"> • Computers • Computer competence • Technical support
Interactive TV video-conferencing <ul style="list-style-type: none"> • Cable TV with audio-conferencing ▶ • Video distributed by microwave to small geographic area, audio by telephone or microwave radio ▶ • Satellite TV transmission with audio-conferencing ▶ 	<ul style="list-style-type: none"> • Face-to-face interaction • Allows distant learners to access a classroom presentation and participate 	<ul style="list-style-type: none"> • Expensive • Requires scheduled time for learner, presenter, site 	Program: <ul style="list-style-type: none"> • Technical support on site Program and learner: <ul style="list-style-type: none"> • Cable TV system • Reliable power source
	<ul style="list-style-type: none"> • Lower cost method of distribution than cable TV 	<ul style="list-style-type: none"> • Limited geographic “reach” • Access is also limited by learner’s need to have a TV or access to central TV 	Program: <ul style="list-style-type: none"> • Technical support on site Program and learner: <ul style="list-style-type: none"> • Specialized hardware • Telephone/radio • Reliable power source
	<ul style="list-style-type: none"> • Versatile: can transmit data, voice, video • Multiple reception stations can use the same satellite 	<ul style="list-style-type: none"> • Reception area limited to area served by satellite • Requires complex technical infrastructure, costly investment in specialized equipment, highly trained personnel to maintain the system 	Program: <ul style="list-style-type: none"> • Complex technical infrastructure • Specialized equipment Learner: <ul style="list-style-type: none"> • TV reception equipment • Telephone • Reliable power source • Technical support

Steps

Steps for Building a Successful Distance Learning Program

Begin with a vision	17
Develop a preliminary list of specific distance learning program goals	17
Assess needs and resources	17
Decide if distance learning is appropriate	19
Design the program	19
Develop a work plan	24
Design an administrative framework	24
Field-test the program	27
Implement and monitor the distance learning program	27
Evaluate the process and results	28

1. Begin with a vision

Successful distance learning programs begin with a vision. To clarify the vision and determine if DL will fulfill identified training needs, invite input from representatives of the groups who will be key in developing the program: teaching staff in the content

area, providers, potential learners, work site supervisors, instructional design specialists, administrators of training institutions, financial officers and evaluation specialists. It is essential to get input from all stakeholders in a DL program.

2. Develop a preliminary list of specific distance learning program goals

To develop distance learning program goals, consider:

- What learning gaps will the DL fill?
- Who are the learners?
- What will the learners be able to do upon completion of the program?
- How many topics/tasks will the program include?

- How will the program integrate clinical or other skills transfer?
- What credential or certificate will the learners receive upon completion?

Use this initial statement of program goals to guide the next step, the needs assessment.

3. Assess needs and resources

Perform a targeted assessment of needs and resources. Data from this assessment will reveal if the stated goals and vision are realistic and provide the basis for plans to achieve those goals. Assessment data will also form the basis

for evaluation of the program. *Figure 4, Distance learning needs and resources assessment*, presents the areas to assess and the necessary data to obtain.

Figure 4: Distance learning needs and resources assessment

Areas to assess	Examples of data needed
Learning needs	What is the task to be performed? What knowledge and skills are needed? Are there national standards/core competencies to guide outcomes?
Learner characteristics	What is the current level of knowledge, skills and performance? What is the learning background and experience of potential learners? Where are the learners? Are they currently part of the workforce?
Resources	Is there a teaching staff knowledgeable in content? Are there people with experience in: DL, instructional design, clinical training mentoring, information management? What technologies are available? Are there production, distribution or technology specialists? Does the course content exist for classroom use? What learning resources (books, media) are available? Where are the clinical training sites? What amount of clinical experience is available? Do the clinical sites meet national service standards? What administrative/support structures exist?
Official and unofficial support	Is there organizational commitment and support for a DL program? Is there financial commitment for development for implementation? What competition exists from other sources of learning? Is DL an acceptable method of learning? Will the learning be recognized as equivalent to traditional learning where a credential is required?

4. Decide if distance learning is appropriate

Use findings from the assessment to decide if a DL program is appropriate for the identified needs and resources. Distance learning is appropriate for training that:

- Precedes clinical skill acquisition, i.e., pre-service courses in health sciences
- Combines knowledge and clinical skill objectives, i.e., provision of FP services, sexually transmitted infection (STI)/HIV counseling, pregnancy care, infection prevention, primary health care

Distance learning may be more challenging to implement effectively when training consists predominantly of learning specific clinical procedures, such as pelvic exam, Norplant® Implants or intrauterine device (IUD) insertion, emergency obstetric care, etc.

5. Design the program

Based on the assessment findings, verify or adjust the original program goals to match the existing needs and resources. Agreement on the specific goals of the learning program will allow the design team, training team, and administrative support staff to see how their contributions fit into the entire picture.

Determine a realistic number of topics
To determine the extent of the planned DL program, consider how much time the learner will have available for independent study. As a general guideline, a full-time worker cannot devote more than 8 hours per week to a DL

program. Consider also the number of clients available for practice opportunities, the number of experiences and clinicians available for mentoring/coaching and the time/number of repetitions learners will need to achieve competence.

Agree on the main learning objectives
Use the assessment findings and decisions reached about the number of topics to plan a DL program that meets a real need and is feasible. Include the learning objectives that are most important and attainable with the resources and time available.

Choose learning media for instruction, communication and distribution

Carefully consider the learning media for presenting instruction, facilitating communication, and distributing the learning program in order for the learner to make progress. Choose DL media and technology based on:

- Appropriateness for the learning objectives
- Availability
- Cost
- Learner familiarity and comfort
- Cultural appropriateness

To meet learning needs and to make the best use of resources, DL programs combine a variety of approaches for presenting instruction, assuring communication and distributing the learning program. The media you select to support interaction among learners and training staff may be the same as those selected for instruction, or they may include different media. For example, a program may rely on print-based materials for instruction, supplemented with recorded sound or video presentations; it may use planned telephone calls for communication/interaction or visits by the facilitator for support; or the program and periodic examinations may be distributed through the mail or by courier.

How and when learners need to interact with the instructional material are primarily what determine the appropriateness of a given DL approach. Program designers refer to DL interactions as either asynchronous or synchronous. Each type has its own advantages and limitations.

Asynchronous, or delayed, interactions are ones in which the communication is not taking place among all participants simultaneously, such as sending mail or e-mail. Asynchronous interactions allow learners to access the content and communicate with teaching staff and other learners at a time of their own choosing. Delayed interaction allows learners time to reflect and prepare their communication thoughtfully, a benefit for the learner who needs to build self-confidence. Delayed interactions, however, also result in delayed feedback, a drawback for the learner who needs more guidance.

Synchronous, or real-time, interactions allow learners and teachers to communicate with each other at the same time. Technologies that deliver instruction or allow communication in real time require learners and trainers to schedule a specific time and/or place for interaction. An advantage of real-time interaction is that the learner receives immediate feedback.

The interaction that best facilitates achieving specific learning objectives should guide the selection of appropriate DL media. The job tasks of RH providers incorporate knowledge and skill objectives. An example of each type of objective in a program for trainees learning to provide the IUD would include:

- Knowledge objective - Communicate the benefits and risks of the IUD to a client
- Skill objective - Load the IUD into the insertion device and perform the insertion while interacting with the client with gentleness and patience

For each different type of objectives, *Figure 5, Matching learning objectives with distance learning media*, lists recommended strategies and the types of interactions DL can provide to support this learning (Thach and Murphy 1995).

Note: Skill objectives sometimes include an “attitude” component, a personal opinion, belief, value, or feeling, expressed behaviorally. Certain behaviors may indicate positive or negative attitudes. Encourage appropriate client-provider interaction (CPI) behaviors by reflective activities, such as journal writing, and by synchronous or

Figure 5: Matching learning objectives with distance learning media

Type of learning objective	Recommended strategies	Distance learning media characteristics
Knowledge	<ul style="list-style-type: none"> • Learner interaction with content or with content and other persons • Presentation of content in print, lecture, video, audio, discussion • Group discussion • Group projects 	Independent of time, place
Skill	<ul style="list-style-type: none"> • Learner interaction with training staff, other learners, facilitator, real equipment, models, clients • Task practice using simulations, role plays, models • Supervised practice in the work place 	Real time

asynchronous group discussions, team projects and other types of learner interaction with content and other persons.

After selecting the DL medium or media appropriate for the objectives, next determine if the technology supporting the medium is available and if learners and teaching staff will be able to use it. Determine if the medium is:

- Available locally
- Affordable for the program
- Affordable for the learner
- Known and currently used by learners; if not:
 - Is it simple to learn how to use it?
 - Will help be available for users?

While the cost of acquiring and installing a system of technology is a one-time investment, there are additional costs incurred in operation and maintenance. Consider carefully the cost of the ongoing use of a technology, the cost of expansion to more users, and the cost of upgrading and/or replacing. Also factor in the cost of preparing instruction for a particular type of technology. *Figure 6, Production time per hour of instruction*, estimates the amount of time required to produce 1 hour of instruction, by type of learning medium (Rowntree 1992). The actual cost of preparing instruction for delivery to distance learners varies greatly depending on the level and quality of technical resources.

Figure 6: Production time per hour of instruction

Medium	Preparation Time
Lecture	2 to 10 hours
Telephone	2 to 10 hours
Audiotape + print	3 to 10 hours
Broadcast TV	100 hours + technical time
Computer-aided	200 hours + technical time
Interactive video	300 hours + technical time

Plan integration of clinical or other skills learning

To integrate clinical or other skill training in the DL program, consider the learner's needs, the skills to be mastered and the opportunities for supervised skills practice. Training in clinical and other skills can be conducted during short group training sessions before, during or after the completion of related knowledge objectives, or by a clinical instructor in individualized training sessions with learners at a service or practicum site.

Previous experience will influence learners' need for skill training, or in some cases, retraining. Some new learners (pre-service) have a need for confidence building when learning new skills, whereas many in-service providers have already developed a level of clinical skill on which to build.

Certain skills, such as IUD insertion, pelvic exam and infant resuscitation, are examples of skills that require precision performance. Introduce these skills through the use of models. Consider teaching these skills in a workshop following mastery of the related knowledge objectives through DL. Allow the learner to achieve the appropriate level of skill using models, then perfect these skills through

supervised repetition working with clients. Learning other skills, such as interviewing and counseling, coaching and supportive supervision, managing contraceptive side effects, and preventing infection, requires observation and practice with feedback, but performing these skills primarily requires knowledge-based critical thinking and interpersonal skills. Teach these skills through role plays followed by practice with clients, either after learners complete the related knowledge objectives through DL, or intersperse the training with the learning of content. An alternative is for learners to learn new clinical knowledge and skills at the beginning of the DL program and then master the skills through on-the-job practice with feedback from an on-site clinical instructor.

6. Develop a work plan

Select a team to develop and implement the distance learning program. Involve all team members in creating the work plan and deciding how the work will move forward. The work plan will define roles and responsibilities for team members and a timeline to guide planning and implementation activities. *Figure 7, Tasks for developing and implementing distance learning*, summarizes the major tasks the team must accomplish and the requisite skills to develop a

DL program. Because the required activities occur at different times during the process, individuals will be able to work on several tasks, according to their skills.

Note: Depending on the size of the DL program, a single person may perform these tasks. However, the team approach makes it more likely that all components are thoroughly addressed.

7. Design an administrative framework

The group of individuals who develop and implement a DL program share many similarities with a winning sports team; individual players will bring particular skills to the game and will also know how to coordinate and cooperate with their teammates. In the same way, each member of the DL team needs to understand the roles of the other team members and how individual tasks fit into the team's work. The training team's goal is to enable learners to accomplish the course objectives, while the administrative framework for the DL program supports and facilitates the team's work.

Design an administrative framework that facilitates teamwork by providing:

- A coordinator who leads the work of the

team, oversees progress, guides team members and ensures good communication among members and sub-groups

- Autonomy within work groups once tasks have been identified
- Clear identification of roles, responsibilities and expectations
- Procedural guidelines for accomplishing the work
- Communication channels indicating what information is sent where, how and when
- A process for making and communicating decisions that affect the team or the work process
- A procedure for the resolution of problems
- Secretarial and other support as needed

Figure 7: Tasks for developing and implementing distance learning

Task	Development phase	Implementation phase	Skills needed
Develop instruction ►	<ul style="list-style-type: none"> · Develop objectives · Identify prerequisites · Identify/develop resources · Design instructional package · Develop learning activities, self-assessment tools, feedback · Develop assessment tools · Pre-test materials · Revise materials · Field-test and/or pilot instruction before scaling up 	<ul style="list-style-type: none"> · Revise instruction on a regular basis using feedback from monitoring and evaluation of learner achievement 	<ul style="list-style-type: none"> · Instructional design · Technical content specialty
Distribute instruction ►	<p>Develop systems to:</p> <ul style="list-style-type: none"> · Distribute the instruction to learners and facilitators · Channel learning activities to facilitators · Ensure interaction among all participants 	<ul style="list-style-type: none"> · Orient all users to distribution system · Solve problems with distribution 	<ul style="list-style-type: none"> · Depends on method of distribution
Support and guide learners ►	<ul style="list-style-type: none"> · Design a system for support of learners · Recruit learners · Plan orientation of learners 	<ul style="list-style-type: none"> · Establish regular communication with learners to review progress, motivate, facilitate logistics · Assess learning and give feedback · Help learners solve problems 	<ul style="list-style-type: none"> · Knowledge of task, content · Good interpersonal skills

Tasks for developing and implementing distance learning (continued)

Task	Development phase	Implementation phase	Skills needed
Support facilitators ▶	<ul style="list-style-type: none"> Recruit, orient and train facilitators (or reorient trainers to new roles as facilitators) 	<ul style="list-style-type: none"> Provide materials, technical assistance, mentoring, help solve problems Monitor performance of facilitators 	<ul style="list-style-type: none"> Management of learning environment, supervision
Manage information ▶	Develop systems to: <ul style="list-style-type: none"> Enroll learners Track learner progress Document completion of lessons, courses, etc. Document official communications 	<ul style="list-style-type: none"> Keep learner information up to date 	<ul style="list-style-type: none"> Recording Managing information
Monitor and evaluate ▶	<ul style="list-style-type: none"> Plan for ongoing monitoring Ensure that learning, support and distribution activities are progressing according to plan Plan for evaluation of effectiveness of all systems and outcomes of learning; determine evaluation criteria Develop monitoring and evaluation instruments Develop schedule for monitoring and evaluation Analyze baseline assessment data 	<ul style="list-style-type: none"> Monitor activities according to plan Evaluate outcomes and process as planned 	<ul style="list-style-type: none"> Evaluation Use of assessment tools

8. Field-test the program

Before rolling out the program on a grand scale, field-test the intervention with 8 to 12 learners. Try out the instructional materials with a small but representative group of learners. Ask questions about applicability and usability of the materials. Make revisions based on the field test.

Remember that DL introduces new roles and responsibilities for learners and teaching staff. Support and facilitate this stressful role change with patience, frequent feedback and shared

problem solving. Evaluate the effectiveness of learner and facilitator orientation and support. Monitor the learning process and outcomes, using the monitoring and evaluation instruments that the team has developed. Document all problems, as well as the strategies and steps used for resolution, to determine what works well and what needs revamping. Use the collected data to revise the instructional materials, the monitoring and evaluation instruments, and to make adjustments to the process.

9. Implement and monitor the distance learning program

Implement the field-tested and revised DL program. Monitor all aspects of the program to determine what works effectively and to identify any problems. Use the findings to make adjustments in the program as needed.

Document the events/effects of the intervention in written reports, using data collected through interviews with participants and compiled during the monitoring process. Interviews can provide insights from a variety of perspectives, including learners, the training team (including clinical instructors) and administrative support staff. Collect monitoring data on a regular

schedule to capture timely information because training program content and activities change and are progressive. Important categories of information to address in monitoring tools include whether objectives/tasks:

- Are clearly defined
- Have adequate instructions
- Are allotted adequate time and resources
- Are accompanied by a adequate learner support or help

10. Evaluate the process and results

An essential component to any distance learning program is evaluation. It is very important to plan the evaluation during the development stage so the necessary instruments are ready and data can be collected on schedule. The best time to evaluate the program is immediately after the first group of learners has completed the training and then again 6 to 8 months after training. Compare these post-training assessments to the baseline assessment prior to training. The purpose of the follow-up evaluation is to:

- Assess the level of achievement of the goals and objectives
- Demonstrate acceptable outcomes
- Justify the expense
- Identify problems
- Improve the program

Be sure to involve all program participants—donors, teaching staff, technology and support staff, administrators, and learners—in planning the evaluation to ensure gathering information relevant to each perspective (Rowntree 1992). For example, donors and administrators want

information about cost; learners and the training team want to know how learner achievement compares to national standards; and facilitators want feedback on the effectiveness of their support activities.

Suggested categories for evaluation:

- Program goals and objectives
- Instructional package
- Clinical learning experience
- Distribution and communication system
- Learner support system
- Information management system
- Administrative framework
- Learner perceptions about the DL process
- Problems identified by learners, teaching and support staff
- Learner selection criteria
- Facilitator/clinical instructor orientation and training
- Costs

Challenges

Distance learning challenges and opportunities

Communication across a distance	31
New role for the learner	31
New role for the facilitator	33
Dependence on a delivery method	34
Support for a largely invisible program	34

Developers of DL programs should be aware of both the challenges and the opportunities inherent in DL interventions. Challenges must be addressed for DL to be successful. The

opportunities created by DL have the potential to enrich learning and make it more accessible. The following section describes some of these.

Communication across a distance

Individuals use visual cues to communicate. When they cannot see each other, interaction often remains at a cautious level and messages are frequently misinterpreted.

The distance learner lacks spontaneous communication with a teacher and classmates in the same room. The distance training team cannot see when learners are confused or bored. The use of unfamiliar technology for 2-way communication may create additional distance.

To overcome the potential communication gaps, establish planned interactions to achieve specific goals (Wagner 1997). Promote effective communication to reduce isolation and increase motivation among all participants. *Figure 8, Planned interaction in distance learning*, describes several types of interactions to further the goals of the intervention.

New role for the learner

Successful learners are self-directed and assume responsibility for their own learning. They decide when, where and how much to study. Lack of structure in a DL program may not be a problem for some learners, but others may find the new responsibility of self-paced study stressful. New distance learners often lack experience in managing their own learning and

may resist the change to a more active learning role. One challenge for DL programs is helping learners develop the attitudes and skills required to learn at a distance.

Distance learners require both guidance to make the most of the DL experience and support that encourages persistence (Sherron 1998).

Figure 8: Planned interaction in distance learning

Planned Interaction	Goals	Examples
Learners with content ►	<ul style="list-style-type: none"> · Encourage active learning · Motivate learners 	<ul style="list-style-type: none"> · Ask learners to use information to solve problems, create examples, make diagrams · Ask learners to observe procedures at their work site or conduct interviews with co-workers to validate content · Create interesting instruction by supplying sufficient examples, illustrations and opportunities to interact with and apply the content · Design short units of study · Demonstrate relevance to real life work
Learners with facilitator and training team ►	<ul style="list-style-type: none"> · Increase learner participation · Practice communication skills · Clarify content objectives, expectations · Give and receive feedback · Assess program · Reduce isolation 	Schedule regular communication by: <ul style="list-style-type: none"> · Postal mail · E-mail · Telephone call · Teleconference · Face-to-face meeting, e.g. at a central study center or site visit to work place
Among learners ►	<ul style="list-style-type: none"> · Increase participation · Reinforce learning · Reduce isolation · Motivate · Share views, ideas, values 	<ul style="list-style-type: none"> · Joint learning activities · Shared assignments · Assigned feedback on classmate presentation
Among all participants: learners, training team, administrative staff ►	<ul style="list-style-type: none"> · Reduce isolation · Provide support · Nurture a sense of teamwork · Build a learning community 	<ul style="list-style-type: none"> · Regular news or updates from administration · Announcement · Invitation for feedback

Inadequate support is a common cause of failure to complete a DL program (Carr, Fullerton and McHugh 1995).

Plan a support system that helps the learner succeed and complete the program:

- Provide orientation with detailed instructions about how to accomplish the objectives, how to use the technology and how to get help
- Give basic instructions about how to organize tasks and study independently
- Provide intensive learner support to ensure learners can access the content and follow the directions for accomplishing learning tasks
- Begin the program with a success-oriented learning activity that introduces the learner to interaction with the content, technology and the facilitator. Successful completion of this first activity builds learner confidence
- Plan ongoing learner support to decrease isolation, provide feedback and encouragement
- Support learner-to-learner interaction, where possible

New role for the facilitator

Facilitators are central to the success of distance learning. They add the human dimension, providing support for learning and encouragement for persistence in the program (Care 1996). Facilitators support learning by:

- Giving feedback on learning exercises
- Providing explanations and clarification
- Guiding learners in critical thinking through the use of case studies
- Helping learners reflect on their skills and achievements
- Serving as a resource or role model for learners (Price 1997)

Just as novice distance learners may find their new role challenging, training staff often find their role difficult, frequently citing the following reasons:

- Lack of daily personal contact with learners
- Isolation from the training institution
- Added expense from telephone, fax or travel required to interact with learners

The biggest failure in DL is the failure to adequately train and support the training team (Gibson and Gibson 1995). Orient all training staff in DL approaches and provide ongoing support with frequent communication and feedback.

Dependence on a delivery method

Distance learning programs rely on electronic technology and other means to deliver instructional content. Without this instruction, progress in the program slows or stops. The operation of a DL program is vulnerable to interruption by events outside the control of the institution, such as postal strikes, telephone service failure, electrical power loss, the malfunction of computer or television

equipment, or roads that become impassable during the rainy season.

To meet the challenge, make a back-up plan to cover interrupted distribution. Orient learners, teachers and all support staff in the use of the delivery system and how to get help when needed. Provide ongoing support for users of the technology.

Support for a largely invisible system

Demonstrating results from the efforts and resources invested is a challenge for any distance learning program. Unfortunately, there is little to show for the considerable financial investment used to develop and implement a DL program. Learning materials, communication systems, and distribution mechanisms are small parts of the investment that might be visible. The large human component of the DL program will be off-site and not apparent to observers who want to see a program.

Meet this challenge by involving and informing stakeholders and program supporters at each step of development. Clearly articulate the program goals and the rationale for each

component of the program to enhance understanding of what is needed to reach the goals. Publish reports regularly and plan newsletters and newspaper articles to maintain visibility and support.

Support from regulatory authorities is necessary for learning programs that train workers for licensing. Distance learning programs must meet the standards of training institutions and be able to demonstrate an effective and secure system for evaluating learner competence, ensuring that certificates awarded represent learning achievement.

LESSONS

Lessons Learned

Distance learning programs have contributed to improved RH provider performance in the PRIME project's training initiatives. The following brief sketches highlight specific training challenges and the use of DL to meet training goals.

Health attendant FP/RH pilot training project in Tanzania	36
Primary health care comprehensive skills for trainers program, South Africa	38

Health attendant FP/RH pilot training project in Tanzania (Mtawali 1998; Muhuhu 1997)

Context ▶	Rural health units in peripheral areas of Tanzania needed additional skilled health care providers to meet the nation's expanded FP/RH service delivery goals. Through a baseline assessment, health attendants (HA) were identified as a potential cadre of health worker appropriate to receive training and to provide selected FP/RH services in their community health units.
Circumstances ▶	The circumstances this project needed to consider/address included: <ul style="list-style-type: none">· Learners had a low literacy level· Learners could not be away from the job for an extended training period because they were often the only provider in their service site· Remote location with difficult access· Lack of reliable electricity
Learners ▶	Health attendants are locally recruited workers, who already provide many FP/RH services in rural health units; they have elementary school education, and most have received only on-the-job training in health care.
Instructional package distribution ▶	At the beginning of the program the learner received the following materials: <ul style="list-style-type: none">· Reproductive Health Handbook (a job aid and reference specifically written for low literacy readers; includes information for providing services, procedural guidelines, service standards, skills assessment tools)· Audiocassettes (taped messages that present content, make applications, give interactive clinical examples)· Solar-powered cassette tape player and batteries (received by the health facility)· Notebook containing skills checklists, tools for monitoring learning progress, space for recording questions and problems
Clinical training integration ▶	<ul style="list-style-type: none">· 2-week group session - FP clinical skills· 6-week on-the-job training - supervised practice of FP clinical skills, self-study with tapes· 2-week group session - safe motherhood clinical skills· 6-week on-the-job training - supervised practice of skills and self-study with tapes

Health attendant FP/RH pilot training project in Tanzania (continued)

Support and communication	▶ Training team, during 2-week group training and by visits to work site District supervisor, visits to work site Local health unit clinical officers and staff provided on-the-job support during each 6-week practice session
Findings	▶ Strengths: <ul style="list-style-type: none">• Health attendant level of knowledge and skills outcomes met performance expectations• Methods selected for presenting instruction and facilitating interaction/communication met the instructional goals and support needs in this setting. The HAs liked the taped tutorials on selected reproductive and child health skills and found the messages reassuring. One participant stated, “The narrator is reassuring even if my response is not similar to what was expected”• Combination of methods (group training, self-study guided by taped tutorials, print materials and planned support) contributed to success• Sunlight is an economical and reliable source of power where electricity is not available• The taped tutorials developed for this project have potential usefulness for other training situations Challenges: <ul style="list-style-type: none">• Support role of training team was limited due to constraints of time, other work responsibilities• Lack of funds and transport decreased the number of planned support visits• Additional training and orientation was necessary for the new role for individuals providing on-the-job support and supervision
Lessons learned	▶ <ul style="list-style-type: none">• Involving stakeholders at all levels of developing, implementing and evaluating the program enhanced local ownership and promoted sustainability• A systematic needs assessment related to RH service delivery led to the development of appropriate training materials• The strategy of combining training methods supported transfer of knowledge and skills in inter-related RH topics by reinforcing on-the-job application of skills• Effective supportive follow-up of trainees requires adequate budgeting, involvement of all personnel in planning and clear performance expectations

Primary health care comprehensive skills for trainers program, South Africa (Wachira 1998)

Context	▶	When health services in the Eastern Cape Province of South Africa were re-organized to a Primary Health Care (PHC) orientation, service providers in 818 district-level health facilities serving 6.7 million people required additional training.
Circumstances	▶	Because of a shortage of health care service providers, workers could not be away from the health facilities for a lengthy training program. Selected nurses received training as PHC trainers, to train other service providers.
Learners	▶	Nurse providers in rural health facilities
Instructional package distribution	▶	At group sessions, learners received print modules containing: <ul style="list-style-type: none">· Learning objectives and content· Learning activities requiring application of knowledge to solve real-life problems· Self-tests of skill and knowledge in work site based tasks
Clinical training integration	▶	Six subject areas were presented in cycles of: <ul style="list-style-type: none">· 1-week face-to-face group training to orient nurse-trainees to the print module, discuss complex content and demonstrate critical skills· 3- to 4-week self-study for trainees to work through learning activities and self-tests to acquire and gain confidence in PHC and training skills
Support and communication	▶	Regional trainers and local facilitators visited trainees regularly at their work sites to support and ensure the trainee was mastering the learning objectives and applying skills correctly at the work site.

Primary health care comprehensive skills for trainers program, South Africa (continued)

Findings ►

Strengths:

- Multiple training methods (print modules for both knowledge and skills transfer, group learning, and on-the-job mentoring) worked well
- Knowledge and skill transfer were observed

Challenges:

- Greater than expected time commitment to support a trainee resulted in inadequate support for some
- Not all facilitators had adequate skills to support the trainees
- Some trainees found there was too much material to cover during the time allotted

Lessons learned ►

- A comprehensive learning needs assessment would identify specific gaps in knowledge and skills and allow a more realistic presentation of content and allotment of time
- Training and support of local facilitators is critical to ensure trainees continue to use newly acquired skills correctly
- Participatory processes in program development are important but must be balanced for efficiency. A small team, with access to sources of expertise as required, can handle development tasks
- Professional accreditation of the training course is desirable as motivation for trainees to excel and to complete the program
- Implementation of effective monitoring and evaluation activities should not appear as punitive but as a tool to improve the program and individual performance

Where to Get More Help

Foster, Susan. *Guidelines for Distance Learning Course Design*. Distance Learning program, London School of Hygiene and Tropical Medicine.

Obtain from: London School of Hygiene and Tropical Medicine
Keppel Street
London WC1E 7HT, Great Britain

This publication helps teachers make the transition from classroom presentation to the preparation of instruction for distance learners. This publication reflects the extensive experience of the London School of Hygiene and Tropical Medicine with a DL program in health related topics for internationally located learners. The emphasis is on keeping the instruction simple and straightforward. The guidelines include planning and preparing a teaching unit, writing course materials, using other media.

INTRAH. *Distance Learning Needs Assessment Checklist*.

Simple-to-use checklist for planning or review of a DL program's components.

INTRAH. *Assessment Checklist for Training and Client Materials*.

Simple-to-use checklist for assessing training materials.

Rowntree, Derek. *Exploring Open and Distance Learning*. 1992. London, Kogan Page Limited.

This book helps teachers, trainers and managers to develop DL programs. The book provides for self-instruction with unit objectives, learning activities, points for reflection and additional references. The contents cover all aspects of open and DL.

Rowntree, Derek. *Preparing Materials for Open and Distance Learning: an Action Guide for Teachers and Trainers*. 1994. London, Kogan Page Limited.

This book guides the user through all the phases of planning and developing learning materials. The book lends itself to self-instruction and provides practical help through examples and checklists that supplement the text.

Willis, Barry, editor. *Distance Education Strategies and Tools*. 1994. Englewood Cliffs, NJ. Educational Technology Publications, Inc.

Contents include detailed chapters on the process of planning, implementing and evaluating DL. In addition, the book contains a review of distance education and chapters covering regulatory issues, faculty development, and resource sharing. The chapter on developing print materials for DL is particularly useful.

Websites American Society for Training and Development

<http://www.astd.org>

The site offers information about the American Society for Training and Development (ASTD) and its publications, information on all aspects of training, a chat area for discussion, announcements of training programs and seminars with online registration, and articles in current issues of the ASTD publications.

Distance Education Clearinghouse

<http://www.uwex.edu/disted/welcome.html>

Distance Education Clearinghouse is part of the University of Wisconsin website and contains DL news, as well as links to many DL resources including: courses, technologies, DL introductory materials and publications.

Distance Education Resources

<http://www.ola.bc.ca/>

Open Learning Agency library and information services of British Columbia provides links to an extensive list of Websites relevant to DL.

International Centre for Distance Learning

<http://www-icdl.open.ac.uk/>

A site based on the Institute of Educational Technology, which focuses on research, teaching, consulting and publication activities. A distance education library makes available many full text documents as well as references to DL programs and courses, with a concentration on Commonwealth countries.

World Bank Learning Network

<http://www.worldbank.org/distancelearning/>

The site includes guidelines for development of DL and answers to frequently asked questions about the World Bank DL services. The site provides listings of DL courses offered by World Bank, distributed to World Bank field offices. Courses offered at the time of this review use synchronous interactive technologies and include content related to policy issues and development topics. An example of a course relevant to the work of RH providers is “Communication for behavior change.”

Definitions of Terms

Distributed learning: pre-packaged instruction designed for self-directed learning that is distributed to learners.

Open learning: a philosophy of learning that removes access barriers to learning opportunities and increases learner control. Distance learning is not the same as “open learning” although DL programs may also be “open” in approach.

Training team: those responsible for planning, providing instruction, facilitating learning and assessing learners’ achievement. Words to describe the different roles of the training team members in DL vary in meaning. This publication uses the following definitions:

- **Clinical instructor:** usually an experienced health care provider who provides clinical instruction and assessment on the job for trainees. Provides demonstration-based instruction, practice and feedback opportunities, and assessment of clinical performance using models and actual clinical facility practice. Clinical instructor also includes the functions of mentor
- **Facilitator:** guides learning and gives feedback about performance, tips for improvement. Gives encouragement. Helps learners by clarifying expectations, suggesting resources, asking and answering questions, stimulating critical thinking. Facilitator embodies the roles of tutor or mentor, terms that describe the same or similar role
- **Mentor:** (see Facilitator) carries the additional meaning of a skilled and experienced role model who socializes the learner/protégé to the larger context of an organization or profession
- **Practicum:** a type of apprenticeship. A practicum is carefully designed and structured to enable trainees to move from their entry-level competencies towards achievement of the practicum objectives. Practicum objectives are consistent with the participants’ anticipated post-training functions

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