

## A TRANSFER MODEL OF SHUTTLE TRAINING

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### Abstract

*The shuttle training model is advanced as a method to transfer technology through human resource development. The eight-step model integrates seven critical concepts to transfer training courses from donor to recipient institutions. The three key factors are (1) a training team with strategic residence at one institution, (2) the ownership principle resting with the recipient institution, and (3) adaptable courseware materials supplied by the donor institution.*

### Introduction

In any development program, there is an express need to expedite the transfer of technology. Almost without exception, the transfer process involves the development of human resources. Subsequently, there is a need to have, in residence within the target country, a team of experts with competencies in both the technology to be transferred and the science of training.

This paper advances a model of shuttle training as a strategy to transfer technology through the development of human resources. The objective is to set in place a mechanism to adapt and transfer technology with some semblance of perpetuity in a particular cultural setting -- a generator to receive and disseminate technology through training. The model is intended for small group (30 participants) training programs of short duration (1 week to 4 months). It is composed of eight steps between a source or donor institution that possesses technology and a receiver or client institution that desires the technology.

The shuttle training model is based on seven requisites integrated into eight steps.

### Requisites For Shuttle Training

#### 1. The Experiential Concept

Educational research has long substantiated that people learn and remember what they do. Doing facilitates both information recall and problem solving. Active participation

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benefit as well by becoming better educators. The real benefactors, though, will be the students who will become better thinkers, and thus will be better prepared for life.

### Bibliography

Newcomb, L. H. & Trefz, M. K. (1987). Levels of cognition of student tests and assignments in the College of Agriculture at The Ohio State University. *Proceedings of the Central Region 41st Annual Research Conference in Agricultural Education*, Chicago.

Cross, K. P. & Angelo, T. A. (1988). *Classroom Assessment Techniques: A Handbook for Faculty*. National Center for Research to Improve Postsecondary Teaching and Learning, University of Michigan.

in a practical, applied problem solving situation is essential to transferring technology through training programs.

#### 2. The Critical Mass Concept (Team of Five)

A critical mass of energy is essential to effect quality experiential training. Subsequently, there must be an adequate human resource pool that can conduct and manage training programs. This includes not only the training experts but support staff as well. To affect quality training, the trainers must be master trainers -- steeped in the principles of cognitive psychology, courseware development, self-learning principles, the science of distance learning, and the application of experiential methods. In this respect, a critical mass or team of five such transfer agents is essential to obtain adequate teaching ratios and management support. One team member should act as coordinator and another should be skilled in the area of training media and instructional resources.

#### 3. Administrative Facilitation Concept

Experiential training requires resources and capital outlay, especially in the initial stages. Administrative commitment to the experiential training concept and provision of the resources required for its implementation are essential for implementing the shuttle training model.

#### 4. Strategic Entry Concept

Any experiential training program has a greater probability for success if there is a selected strategic location for its entry into a region. This location should have the amenities that will perpetuate the training program and subsequent technology transfer. Examples of such amenities would be a critical mass of resident content experts, conducive training environments i.e., classrooms, laboratories, electronic media, housing and dining facilities, etc.

#### 5. Needs Assessment Concept

The requirements necessary to conduct quality training programs that effectively change behavior are enormous. Thus, a comprehensive needs assessment is essential to identify constraints and draw up a curriculum responsive to client needs.

#### 6. Courseware Concept

The process of printing was developed many centuries ago. Since then, reading printed materials has become a major means of inputting information and knowledge.

Research in cognitive learning has revealed techniques to produce learner-driven instruction that saves thirty to fifty percent of the time spent in inputting information. This time

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saved can be applied to experiential problem solving and dialogue with experts.

This documentation of curricula and content in a modular learner-driven format is essential to overcome language barriers and adapt information for transfer to training populations.

### **7. In-country Catcher Concept**

It is imperative for facilitators to be in residence at the location that will receive the shuttle training. These persons alleviate the constraints identified in the needs assessment and provide logistical support through the higher local administration, then serve as backstop for site monitoring and control adjustments.

## **Shuttle Training Steps**

The model is composed of eight action steps or activities. These activities take place between a donor institution that has the technology and a receiving institution that will obtain the technology.

### **Step 1. In-Country Request**

The administrative body of a potential recipient institution requests the donor institution to transfer a particular training or course that will develop human resources to effect the transfer of a particular type of technology. Subsequently, decision makers in recipient institutions need to be informed about the availability of technology and training programs.

### **Step 2. Needs Assessment/Curriculum Development**

An assessment team from the donor institution goes to the transfer site and assists in defining the resources required for the course by conducting an on-site physical assessment and interviews. At this time, the curriculum is defined to meet local needs and the training constraints are identified. A subsequent assessment report is submitted to the administrators of the target institution. A program is developed to circumvent or alleviate constraints.

### **Step 3. Critical Mass/Training Team**

A training team is selected by the recipient institution and is sent to the donor institution for training in the technology to be transferred. The team is composed of the critical mass mentioned earlier. A team of at least five people, with one person assigned as a leader and another with expertise in materials development or talent in the arts, is encouraged. The team should all be from a single in-country target institution.

### **Step 4. Content Training**

The target team gets exposure to the training methodology and courseware of the donor institution by participating in the course designated for transfer. At this time, a transfer team of advisers from the donor institution is assigned to guide the recipient team. The donor team does successive ad hoc interviews with the client team to obtain information on their competencies and needs.

### **Step 5. Training Trainers**

After training in the content area, the target team undergoes training in educational technology to obtain training

skills in addition to the content skills to be transferred. This T3C or Training and Technology Transfer Course covers needs assessment, curriculum development, training management skills, communication, cognitive psychology, training strategies, evaluation, and especially, materials development and adaptation. At this time, the donor team with expertise in the content and educational sciences is assigned to advise the receiving team.

### **Step 6. Project/Motivation**

This is a crucial step involving a team project to adapt or completely recondition the original course in residence at the donor institution. Using their T3 skills, the receiving team redefines the course to meet the needs of the client institution's future training program. The donor transfer team assists in this process, but the essential decision making and ownership reside with the receiving team. The course might have the original matrix in places, but it has been redesigned for a new system by people who know that system. This is the ownership principle.

### **Step 7. On Line**

Both the recipient and donor teams go to the transfer site and implement the course with the training materials designed for the project. After the course is on line, the donor team returns to home base.

### **Step 8. Debriefing**

And finally, if needed, the donor team goes back to the location and assists in debriefing the recipient team at the end of the training program. This final debriefing is a consultation of future needs and constraints. It is hoped that consequently, the donor team will sustain its interest in the training program and monitor its progress.

## **Key Factors**

This transfer model is called Shuttle Training because of the movement of people, information, materials, and behaviors between the donor and receiving institutions. The three key factors in the model are:

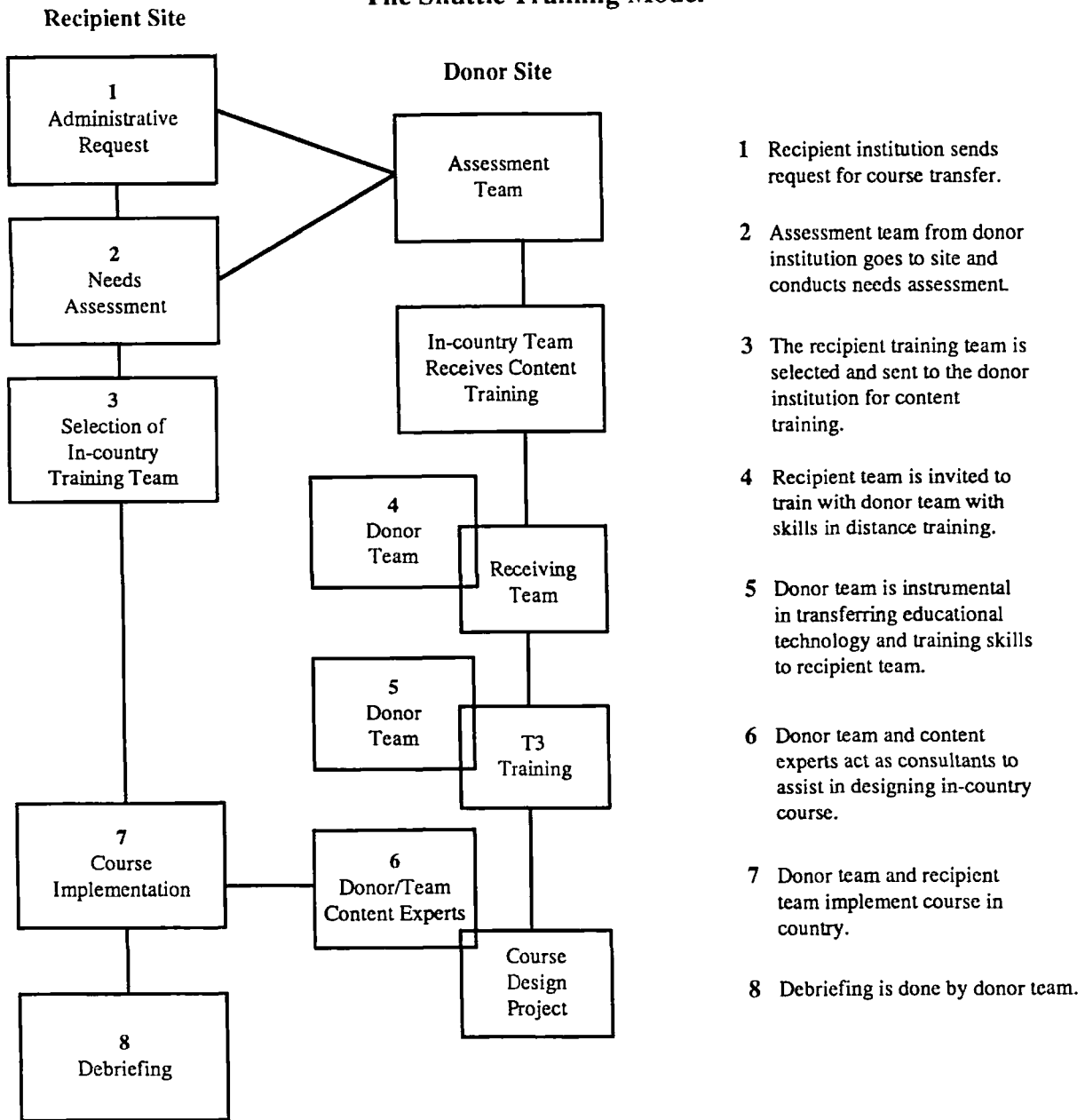
1. the critical mass concept of a training team with strategic residence in one institution;
2. the course in training and technology transfer and its subsequent adaptation project which applies the ownership principle; and
3. most especially, the adaptable courseware materials supplied by the instructional resource unit of the donor institution.

By focusing on these factors in developing human resources that are proficient in training and technology transfer, a multiplier effect can be initiated. This multiplier effect is obtained when recipient institutions repeat the model with other institutions, by assuming a new role as the donor institution.

## **Constraints**

Any model is not without inherent constraints. One we have found is the support of the team concept. It is important that a critical mass from one institute be trained as a training team. Often it is difficult to sensitize administrators to the

## The Shuttle Training Model



possibilities and implications of the concept. For example, there is resistance on the part of recipient administrators to temporarily close down their training programs and retool by sending the team for training.

Another constraint is the necessity for team members to be proficient in both the agricultural and educational disciplines if effective technology transfer is to be implemented through human resource development.

Other constraints include the need to ensure adequate physical and instructional support, unavailability of resources, etc. Hence, the identification of the seven requisites in the outline of this paper.

As long as these requisites are met and the steps implemented, the model has been found to be a viable tool in technology transfer through training.

### References

- Harris, P. R., ed. (1984). *Global strategies for human resource development*. Washington, D.C.: ASTD
- Kolb, D. A. (1984). *Experiential learning*. N.J.: Prentice-Hall.
- Kulik, J.; Kulik, C.; Cohen, P. (1979). Research on audio-tutorial instruction: A meta-analysis of comparative studies. *Research in higher education*, 11(4): 321-341.
- Rogers, E.M. (1983). *Diffusion of innovation*. 3rd ed. NY: Free Press.