Development of a composite model of the Train the Trainer to enhance the retention and utilization of the transferred skills
- Lesson from the Dominican Republic Medical Education Project -

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Abstract: The first author conducted the ID (Instructional Design) training to the CEMADOJA (Dominican-Japanese Friendship Medical Education Center) trainers in 2 occasions: the first during October 2003 to January 2004 and the second during July 2004. Data of the Level 1, 2 and 3 evaluations shows satisfactory results on the achievement. But most important evidence of the success of this Train the Trainer is that CEMADOJA incorporated the developed training courses as a part of the regular training course. Based on this experience, the authors propose a prototype model of T3 (Train the Trainer), and give some recommendation to enhance the retention and utilization of the transferred skills.

1. Introduction

The first author was dispatched as ID Trainer to an international cooperation project implemented by the Dominican Republic Ministry of Health and JICA in two occasions: first dispatch during October 2003 to January 2004 and second dispatch during July 2004, as an instructor to enhance the capacity of the CEMADOJA's Trainers, by improving their ability on Instructional Design and Presentation Skill. Though this study and successive works, the authors are trying to develop On-the-Job, a practical model of an effective and sustainable training program, to be able to apply to other T^3 programs.

One of the common problems observed in many training programs is the weakness on the applicability and sustainability of the transferred knowledge and skills. Donald L. Kirkpatrick (1998) pointed the importance of the evaluation on how much those learning are applied to the Job, and how much impact generated as a results. He proposed the "four level evaluation of the training" showing the new point of view of training design, to extended more than simple learning; should be applied to the actual work and should benefit in some extent to the goal of the organization. The 4 levels are: Level 1: Reaction, Level 2: Learning, Level 3: Behavior, Level 4: Results. Jack J. Phillips (1997, 2002) emphasizes the importance of the impact of the training, to justify the cost-benefit clarifying the return of investment.

The scope of this research limit to develop and validate an effective prototype of the T^3 that can apply to other T3 projects, with projection in the following stage to an hybrid training system combining the WBT and on-site training.

2. Objective of this study

The objective of this study is to develop and propose an effective training strategy model of the Train the Trainers (T^3), based on the practice and evaluation at CEMADOJA, Dominican Republic.
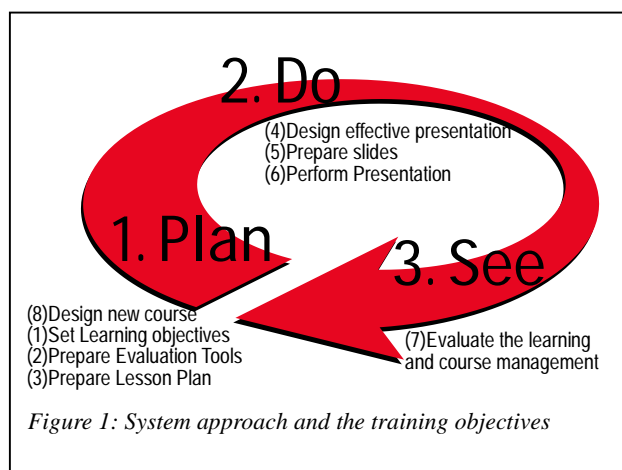
3. Implementation

3.1 ID training of the CEMADOJA' s Epidemiology section trainers

The training of Trainers was conducted in two occasions. The basic ID skill training and the applied ID skill training.

The basic ID skill training was conducted by 12 days (66 hours) during November 2003 to January 2004. The second training of the applied ID skill was conducted by 15days (52 hours) during June – July 2004.

What kind of skills needs Trainer to conduct a training program by the systematic approach? 8 topics were selected to enhance the capacity of the trainers as described in the Figure 1. The numbers are the objectives stated in the training program. The first training covered objective (1) to (7), while in the second training repeated the same objective but adding new skill; the development of a new course design. Basic difference between the first and second training is that, in the first training given a simple subject (specifically was the presentation techniques) with pre-elaborated content, while in the second training was given a subject to be develop as original content. These mean, Trainers should gather information, analyze, select, organize and elaborate as a new training course.

A brief description of the training course is shown below:

Figure 1: System approach and the training objectives

3.1.1 Objective of the training: Under the guidance of the instructor, the participant will be able to design, prepare, conduct and evaluate effectively the training program. Specifically they will learn to:

(1)   Set training objectives

(2)   Prepare evaluation tools

(3)   Prepare Lesson Plan

(4)   Design effective presentation

(5)   Prepare slides

(6)   Perform presentation

(7)   Evaluate the learning and course management

(8)   Design new course

The criteria of evaluation on the achievement of the mentioned objectives are: A (Can do in high quality without help of the instructor), B (Can do good enough without the help of instructor), C (Can do with some help of the instructor), D (Can do with a lot of help of the instructor), E (Cant' do)

3.1.2 Target group: 4 Trainers of Epidemiology section of CEMADOJA. For the second training, two new trainers were added, but because of the absence during the assessment, only 4 were counted in this evaluation.

3.1.3 Implementation Steps:

(1) The Training of Trainers was designed to be conducted in 6 stages, as can see in Figure 2. The 1st ID training (Stage1) and 2nd ID training (Stage3) is the part leaded by the ID trainer. In the Stage 1 and 3 basically ID trainer conduct a workshop on the subject matter (in the stage 1 about Presentation skill and Stage 3 about "Community participatory health promotion: Samaná Case Study")35 then participants will develop the training kit using given Forms. The
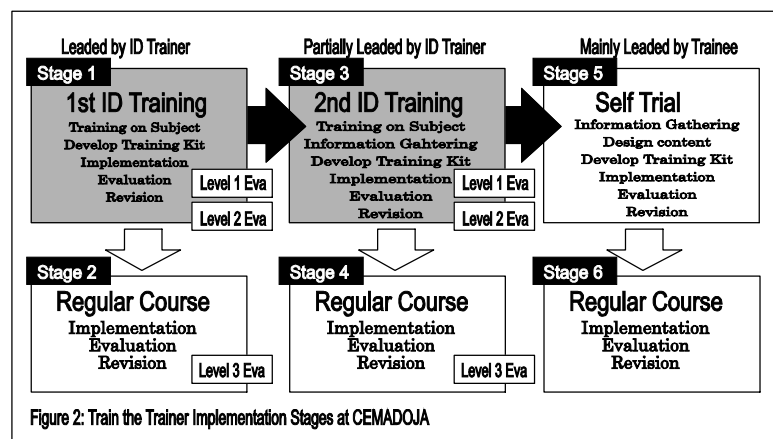

Figure 2: Train the Trainer Implementation Stages at CEMADOJA

difference of Stage 1 and 3 is that, the second training is more complex subject, so trainee spent some time for field information gathering in order to get deeper understanding of the given Case Study. After that, the trainee will conduct the training to other learners using the developed training kit, evaluate and revise for the improvement. The stage 2, 4 and 6 is kind of application stage of what trainee learn and developed. This design encourage trainee to develop relevant content to the need of the institution, and make use of those.

3.2 The Development of the Instructional Kit

As a part of the ID training process and strategy to ensure the application of the training results, Instructional Kit were developed during stage 1 and 3. A prototype of the Instructional Kit was modified and adapted from the research paper of Ito et al. (2001). The Instructional Kit consists of the Instructional Design Tools FC1-FC8 and Teaching aids.

FC1- Training Implementation Plan: Is equivalent to the syllabus and includes basic information about the course such as: Title, target participants, instructor, objectives, preconditions, schedule, methodology, seminar room layout, teaching aids, equipments and stationary.

FC2- Lesson Plan: Here are described the detail teaching-learning activities, timing to use each teaching aids, important consideration of some specific activities.

FC3- Pre-test (Level 2: Learning)

FC4- Post-test (Level 2: Learning)

FC5- Questionnaire for course improvement (Level 1: Reaction)

FC6- Practical Exercise Observation Sheet (Level 2: Learning)

FC7- Evaluation Processing Sheet: to help trainers to process and organize the data from the questionnaire and tests.

FC8- Training Implementation Report: Based on the FC7, trainers will summarize the Level 1 & 2 Evaluation results, finding based on the analysis, recommendation for the improvement.

The teaching aid consists of Power Point presentation for each of the 4 modules, exercise sheet and handout for the participants. For the second package in addition was prepared video documentary and inserted in the digital presentation slides.

3.3 Practical Exercise on the Development and implementation of a training program

As a part of the practical exercise of the ID training, two training courses were developed and validated. "Learn how to make a good presentation€during the first workshop and "Community participatory health promotion: Samaná Case Study" during the second workshop. The first one targeted to Medical education teachers and students of the CEMADOJA, and aiming to train learners on how to perform an effective presentation using Power Point. The second one targeted to Community Doctors course students and aiming to train learners on how to design, conduct and evaluate a community participative health promotion, based on the actual experience of Samana.

4. Evaluation of the results

Based on the framework of Kirkpatric' 4 level evaluations, Followings are the results of the evaluation.

4.1 ID training of the CEMADOJA' s Epidemiology section trainers

The evaluation done for the present program consist on: Reaction of the learner (Level 1), Learning (Level 2), On the Job application of the Learning (Level 3). Level 4 was not able to apply.

4.1.1 Participant Reaction (Level 1) for the First ID training:

A qualitative assessment was done by video interview to the 4 trainers, asking what they learned from the workshop. Some of the impression focused on teaching skill of Power Point, presentation tips, and instructional skill. Two of them pointed that the practical exercise on teaching others helps them to learn better the teaching skill. The extracted comments are:

Trainer A: It was great experience for me, I feel more confidence my self teaching PowerPoint, I discover my new capacity for teaching, the self confidence is affecting positively the participants of the course, the interest of my colleges, make me feel very happy, by teaching I learn more

Trainer B: I learn a lot. Until now, I was doing my job just by my own knowledge and intuition. Now I know how to do well, and I have the techniques and tools to do better my job. I discovered that many things that I believed doing well, may be was not. Though the practical exercise, I learn where I have to change and improve.

Trainer C: As teacher, I was feeling that something was missing to transfer better my knowledge, Not yet is enough, but I have now something to continue, I am very glad to Mr. Ito because of his work, It was very hard training, but as professional I have to improve my teaching skill.

Trainer D: The important thing that I learn is, a presentation shouldn't be boring, should be Simple, Short and stimulating, rehearse before the presentation and check if the objective is achieved.

4.1.2 Learning (Level 2) of the 1st ID training

The evaluation on the 7 objectives of the training was done by the observation of the instructor. The criteria are: 5=Can do in high quality without help of the instructor, 4= Can do well enough without the help of the instructor, 3=Can do with some help of the instructor, 2= Can do with a lot of help of the instructor, 1= can' do, (-) no data available. Assessment topics

Chart1: Summary of Level 1 Evaluation of the 1st ID training

are described in 3.1.1. Here presented the average of pre and post test only because of space. As can see in Chart1, in general we can observe progress in all the 4 trainee, Although achievement level only 2 trainee reach satisfactory level, as a group work, by helping each other in the week points, they can design, develop, implement and evaluate training course with level of difficulty is similar to the "Presentation" subject.
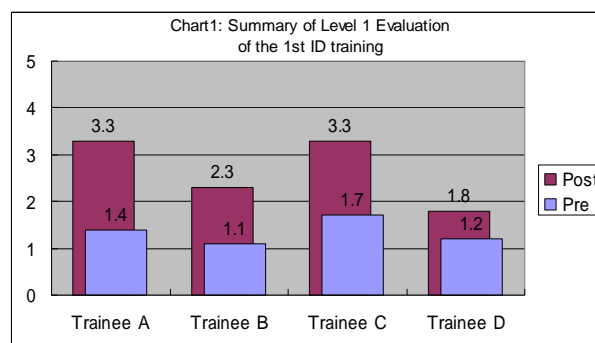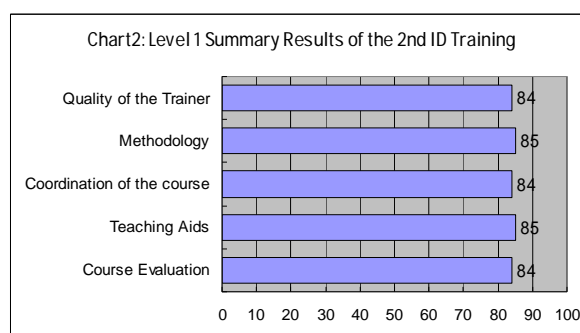
4.1.3 On the Job Application of the learning (Level 3) of the 1st Training:

Not specific evaluation tools were applied to assess the detail of the on-the-job application, but there are two evidence of the successful application to the actual job. (a) The implementation in two occasions of the Presentation skill training after the January 2004 T3 training was reported. Also the director of the CEMADOJA expressed his high satisfaction on the results during the second visit. (b) Based on the presentation training results and successive presentation workshop II conducted during the June 2004, 20 of the participants performed successfully their presentation of their research papers at the international conference of the medical research held at CEMADOJA during the July 2004. Now, the presentation seminar became a part of the standard course at CEMADOJA for all the trainers and students of Medical Education, and we can said that this is the most important evidence that the knowledge and skills transferred trough the presentation seminar are applying and helped CEMADOJA for the improvement of the trainers and students skills in their daily works.

### 4.1.4 Reaction (Level1)of the 2nd ID Training (Chart2)

The evaluation was done by questionnaire, on 20 topics from the 5 categories. The summary of the each category satisfaction rates are (1) Course evaluation 84%, (2) Teaching aids 85%, (3) Coordination of the course 84%, (4) Methodology 85%, (5) Quality of the instructor 84%, general average of 84%. As individual the lowest point was the 70% of question no. 4 (was presented clearly the objective of the course at the begin-

Chart2: Level 1 Summary Results of the 2nd ID Training

ning). In general, the average are more than 84%, lowest is the topic 4 with 70%. The reason why, I assume is the complexity of the training that involve other training inside as part of exercise in 3 different levels. These can be improving for the next training by visualizing more clearly the goal for each level.

4.1.5 Learning(Level 2) of the 2nd Training: (Chart 3)

This evaluation was applied as questionnaire form for self evaluation of the learner. The scale and criteria is same as 4.1.2.   In the Chart 3 can observe that even the topic of the ID training was more difficult than the first ID training, the results shows quite satisfactory level, reaching all the 4 trainee more than 3 points. Even the methodology of application was different than the 4.1.2, and some bias of personal differences on the optimistic

Chart3: Summary of Level1 Evaluation of the 2nd ID training
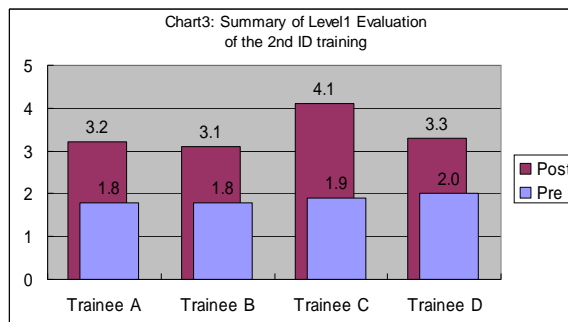
tendency of the Caribbean peoples, we can observe some more improvements on achievements in learning. As observation of the instructor, in general, we can said that are not so far from the reality, because this is after they experience the actual process of plan-do-see of an training program.

4.1.6 On the Job Application of the learning (Level 3) of the 2nd Training:

Was not able to obtain concrete evidence of the application yet, but was informed that CEMADOJA is proceeding to the higher committee for the authorization to make this program a part of the curriculum of the Family/Community medicine residence program under the Ministry of Health of Dominican Republic. Also the training coordinators are planning to apply the content to the field practice of the health promotion, expanding the program to 2 year field exercise for the 2nd and 3rd year of the on-going course.

5. Discussion

5.1 Achievement of the objectives

The experience of the Train the Trainer on ID at CEMADOJA shows that there was some individual differences on the level of achievement, but because of the exercise for course development, implementation and evaluation was done as team work, by the mutual support between trainers, basically the objectives of the ID training could reached.

For the other hands, on the continuity and sustainability for future implementation, because the "presentation" course and "Community participatory health promotion: Samana case Study" course was developed based on the institutional needs of the CEMADOJA; so it continued applying after the training was finished.

5.2 Role of the Instructional Kit to develop the ID ability of trainers and standardize the quality of instruction.

The Instructional Kit was developed with 2 objectives:

5.2.1   Support the learning process:

Specifically refer to design of the course, evaluation tools and teaching-learning process at the stage of "Plan", guide the accurate implementation of the course by the use of lesson plan at stage of "Do", and help the collec-

tion of data, processing and summarizing the results of the evaluation at the stage of "See". All this process is done using the Training Forms FC1 - FC8. (*FC: Formularios de Capacitacion) By following the preparation of the training forms, a trainer will experience the actual process of the Instructional Design.

As a result of the ID training using the training forms, a complete package of the Instructional Kit will be developed. The kit is prepared digitally using Word for the Training forms, Excel for the processing sheets, and PowerPoint for the presentation slides. The preparation as digital data format facilitates quick changes and improvements during the planning, implementation, or evaluation. In the near future, these forms can be converted as WBT formats, adding on-line instruction and feed-back system.

5.2.2   *Standardize the quality of the instruction:*

Although the quality of instruction depends on the quality of the trainer, an Instructional kit is a powerful support of the trainer to maintain the minimum quality regarding the content, methodology and process. So is very important that the preparation of the evaluation sheets, lesson plan and syllabus should be clear, logic, precise. The validation process by formative evaluation will refine the quality of the Instructional Kit. During the experience at CEMADOJA, could only make one time validation, but usually are recommended to prove at least 2 times the effectiveness, to say that is in some extent of "Effective" material. But instructional materials should always revise and improve by applying the formative evaluation.

5.2.3   *How to enhance the retention and utilization of the transferred knowledge and skills?*

The trial of this study shows, in some extent, there is a way how we can encourage the application and continuation of the activities started with the Train the Trainer; that is the *selection of the most relevant and demanded topic to the institution.*

During this training program, the author selected some subject that has needs and relevancy in the institution, as topic of the practical exercise. As result, the Director of CEMADOJA decided to incorporate those programs as one of the standard training program in the Center. Before the 2nd ID training, the Epidemiology Trainers conducted 2 more times the presentation seminar at CEMADOJA, and expected to continue giving this training on the request. By this way, the training program could find the opportunity to apply and generate multiple benefits to compensate the investment done for the implementation of the training. By other hand, this will help Trainers to improve their presentation skill, ID skill, and teaching skill learned more and more.

The second ID training exercise subject was incorporated as part of the 1st year program of the Family/Community Medicine Residence program. The coordinator of the program is planning to develop together with epidemiology trainer the second course of the Participative Health Promotion with field practice for 2nd and 3rd year curriculum of the mentioned program.

All these evidences show that this training was relevant to the CEMADOJA's daily activities and could take part as routine activities.

6. Proposing a prototype for the Train the Trainer

Based on the results of CEMADOJA's experience, a prototype of the training system is proposed to enhance the

possible application and continuity of the training program. This is something like a launching of a rocket. In the Figure 3 shows the diagram how the "Composite Model of T3" is implemented.

In this workflow, Stage 1 and 3 are the input of the instructor, 2 and 4 will be the On-the-Job application, and 5 will be starting of the new routine of course development.
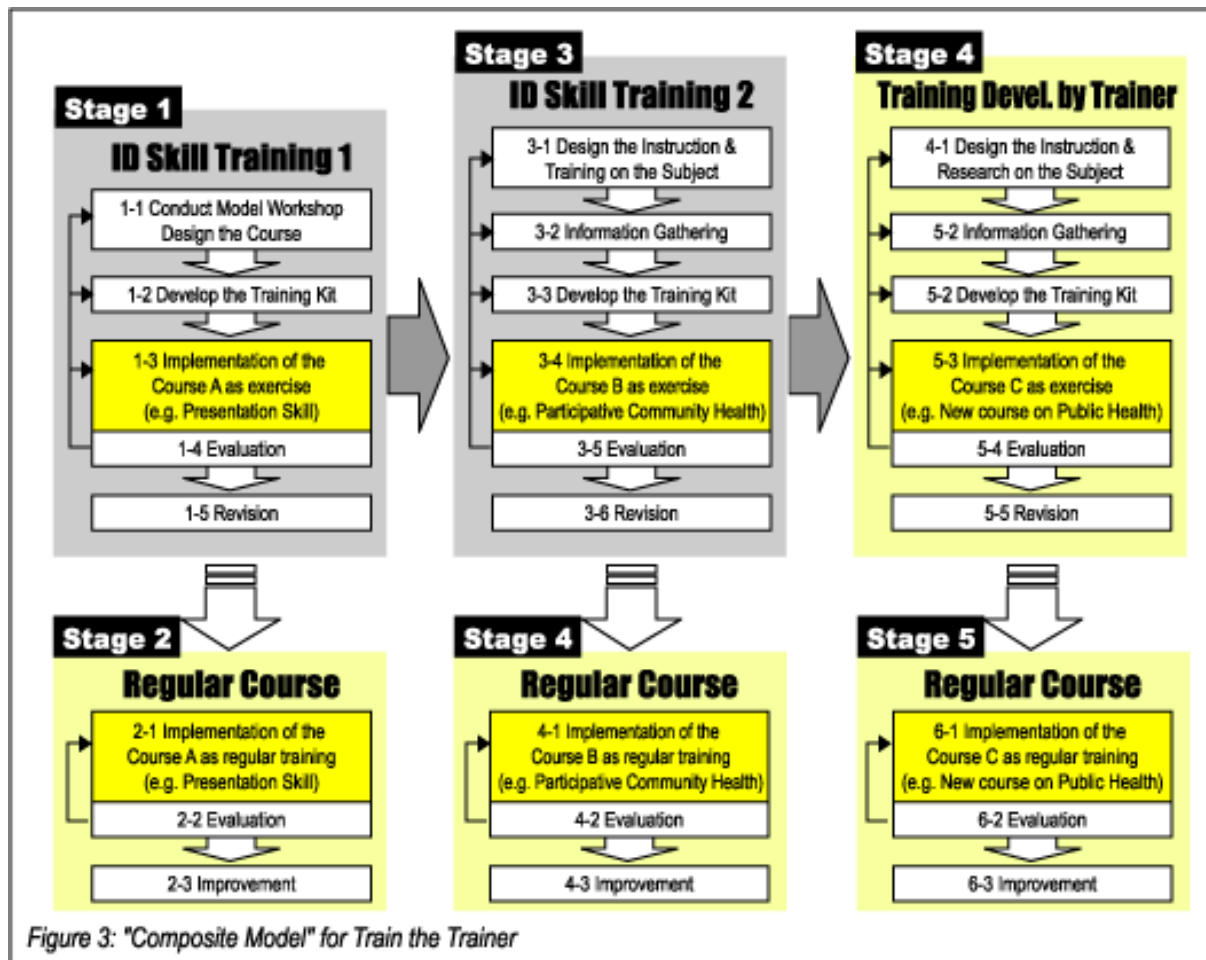

Figure 3: "Composite Model" for Train the Trainer

Stage 1: This is the first step of the training. In this step, the instructor will develop the basic ID skill of the trainers.

1-1   The instructor will provide a model workshop on the subject to be working during the practical exercise. This will give an image of what are expected results of the practical exercise. Don't forget to apply a pre-test of the T3 ID training.

1-2   The second step is, by using the Instructional Forms, will develop the Training Kit. The training kit will be composed by the (1) Instructional forms: IF1- Training Implementation Plan, IF2- Lesson Plan, IF3- Pre-test (Level 2: Learning), IF4- Post-test (Level 2: Learning), IF5- Questionnaire for course improvement (Level 1: Reaction), IF6- Practical Exercise Observation Sheet (Level 2: Learning), IF7- Evaluation Processing Sheet, IF8- Training Implementation Report, and (2) Teaching aids: will depends on the availability of the equipment and stationeries, but typical model can be: presentation ma-

terial (can be Power Point Slide or Flip Chart), audiovisual materials will be useful if is available, and handouts for the participants, including the exercise sheet, worksheet and others.

1-3   Implementation of Course A as Practical Exercise. Before and after the course should apply the evaluation tools (IF3, IF4, IF5). During the practical exercise, will apply the observation sheet (IF6)

1-4   Using the IF7, will process the results of the evaluation data and extract some synthesis completing the IF8, the summary of the evaluation.

1-5   Based on the results of IF7, will apply the revision or improvement proposed in IF8. At the end of the training, Post-test of the T3 ID training should be applied.

Stage 2: This is the first On-the-Job application stage of the learning. This should be implemented by the trainer, trained in the Stage 1. If available the chance, instructor can monitor the implementation and give suggestion for the evaluation and improvement.

2-1 Implementation of the training using the improved Training Kit. The procedure will be basically same as 1-3

2-2 Evaluation of the results: same as 1-4

2-3 Improvement: same as 1-5

Stage 3: This is the second ID training of the Trainers. The difference than the first ID training is the addition of the 3-2, information gathering. While during the first ID training, the subject and content of the exercise was given by the instructor, in this stage, instructor will provide the subject, and some information, but the some first hand information should be collected, analyzed and organized as new content.

Stage 4: Implementation of the course developed in the Stage 3 will be applied by the trainers.
Will follow the same process of Stage3-4, 3-5 and 3-6.

Stage 5: While Stage 2 and 4 was just the implementation exercise, this step is the exercise or we can said that is an practical test to prove if really Trainers learn necessary knowledge, skill and experiences to be able to develop by him/herself the training program.

Stage 6: Again, this is the Stage for the application of the developed course as a routine activity.

Some important know-how' of the implementation are:

(1) Before start the T3 program, should assess the institutional needs on the training program. Usually Information science related skill are highly demanded, specially the digital presentation skill. The first ID training topic can be one of most common and general skill. To start, try to identify simple and easy subject as 1 or 2 days course.

(2) For the second T3 program, can select some technical topic related to the subject with are tot by the trainers. Conduct some interview to the section head, department head and/or head of the center to identify the needs

subject to be selected for the improvement or new development.

(3) During the T3 training, is important to encourage and motivate Trainers to be a really professional trainers.

(4) Usually the On-the-Job application, especially stages 2, 4, 5 and 6 are not depends on the decision of the trainer. The head of the department, section or center according the institution has to commit on the implementation.

(5) The evaluation is one of the weakest point of most of the training institution. A check list for the manager can facilitate the monitoring of the implementation to apply all the evaluation tools.

7. Challenges

This T3 ID training was implemented with previous several trials in other countries similar projects. The next challenge will be the identification of what component of the training can be automates and converted as WBT, in order to develop the hybrid training of the on-site training and WBT, to improve the cost performance and effectiveness specially the follow up of the Stages 2, 4, 5 and 6.

Another improvement to be done for the future program is the application of Level 4 evaluation. This time because of limitation of time during the planning couldn't design the evaluation goal, criteria and tools, was not able to apply it.

The gap between what instructional design theories recommended and actual situation of the many training institution make as feel challenging, to develop more simple and practical system, tools and methodology to improve the performance, applicability and sustainability of the transferred knowledge and skills.

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