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REPORT / RAPOR

A new training approach for vaccinators:Cascade plus training

Aşılayıcılar için yeni bir yaklaşım: İyileştirilmiş kademeli eğitim

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ABSTRACT

Effective training of staff plays a major role in reaching and sustaining immunization goals. Training and updating health staff is the responsibility of all governments and immunization related organizations. The critical issue is finding the most efficient and effective way of providing initial and continuous training. Cascade training is thought to be one of the best methods. However, several researches showed that besides its advantages the classical cascade training approach has some disadvantages. A cascade training strategy is not an inappropriate choice, but the problems are initiated from inappropriate planning and implementation of it. Therefore, in order to have better trained health staff with high performance, rather than thinking of an alternative training strategy, the governments have to consider alternative ways of increasing the quality of the classical cascade training strategy. If the cascade training strategy is well planned, carried out by blending appropriate teaching techniques and is well monitored/supervised during the implementation phase it can be an effective strategy for training the health care staff and managers. In order to differentiate this understanding from the classical cascade approach, the authors propose the "Cascade-Plus Training" model, which is defined as "a well-planned and implemented cascade training strategy with an understanding of a holistic approach to the topic of training, which is practice oriented, flexible, delivered via multiple evidence based training-techniques, supported with effective supervision, monitoring, process evaluation and problem solving deliveries."

Keywords: Training models, cascade training, vaccinators

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ÖZ

Personelin uygun şekilde eğitimi, bağışıklama hedeflerine ulaşmada ve bu başarının sürdürülmesinde önemli rol oynar. Sağlık personelinin eğitimi ve bilgilerinin güncellenmesi hükümetlerin ve aşılama ile ilgili kuruluşların sorumluluğundadır. Bu iş yapılırken kritik konu, başlangıç ve sürekli eğitim sağlamanın en verimli ve etkili yolunu bulmaktır. Kademeli (Cascade) eğitiminin en iyi yöntemlerden biri olduğu düşünülmektedir. Bununla birlikte, çeşitli araştırmalar, klasik kademeli eğitim yaklaşımının avantajlarının yanı sıra bazı dezavantajları da olduğunu göstermiştir. Aslında, kademeli eğitim stratejisi uygun olmayan bir seçim değildir, söz konusu sorunlar uygun olmayan planlama ve uygulamadan kaynaklanmaktadır. Bu nedenle hükümetler, alternatif bir eğitim stratejisi düşünmek yerine, daha iyi eğitilmiş ve performansı yüksek sağlık personeline sahip olmak için klasik kademeli eğitim stratejisinin kalitesini artırmanın çarelerini düşünmek zorundadır. Kademeli eğitim stratejisi iyi planlanırsa, uygun öğretim teknikleri harmanlanarak yürütülürse ve uygulama aşamasında iyi izlenir/denetlenirse, sağlık personeli ve yöneticilerinin eğitimi için etkili bir strateji olabilir. Bu anlayışı klasik kademeli eğitim yaklaşımından ayırmak için yazarlar, eğitim konusuna bütüncül bir yaklaşım anlayışı ile iyi planlanmış ve uygulanmış bir kademeli eğitim stratejisi olarak tanımlanan "İyileştirilmiş Kademeli Eğitim" (Cascade-Plus Training) modelini önermektedir. Bu model, uygulamaya yönelik, esnek, çoklu kanıta dayalı eğitim teknikleri ile verilen, etkili denetim, izleme, değerlendirme ve problem çözme sunumları ile desteklenen model olarak tanımlanmıştır.

Anahtar Sözcükler: Eğitim modelleri, kademeli eğitim, aşılayıcı

Introduction

In order to raise the immunization rates, the WHO and individual countries are taking measures to ensure health services are available and accessible for everyone. Effective training of staff plays a major role in assisting governments to reach and sustain their immunization goals. There is therefore a crucial need, not only to train staff who will be involved in immunization programs, but also to provide training updates for those currently in the field in order to ensure that all staff consistently provides evidence based practice.

Training and updating health staff is the responsibility of all governments and immunization related organizations. The critical issue is finding the most efficient and effective way of providing initial and continuous training. Cascade training is thought to be one of the best methods.

However, a detailed report reviewing different styles of cascade training, found that the optimal results from cascade training came from the manner in which the training was implemented.[1] Using the best available evidence, the recommendations from this report were that a new style of cascade training be developed, one that was augmented with additional teaching and learning strategies, had a holistic approach to all stages of the program and was restricted to a few levels (e.g. two levels) of cascade. This prescribed method of cascade training has been termed *Cascade Plus Training* (CPT). A further recommendation of the report was that a guide on how to implement this training method should be made available.

The purpose of this article is to provide practical and prescriptive information for program managers on conducting Cascade Plus Training. It focuses on the method and not the program content.

Cascade Training

Cascade training is also referred to as "pyramid training", "training the trainers"

or "training for trainers.[2] It is a common strategy in conducting training aimed at change, implemented widely in many types of organizations and used extensively in the spheres of both education and health as an acceptable training method.[3]

Cascade training is a central training, provided by a master trainer, to trainees. These trainees then act as trainers and pass the content of the training course onto others, usually in another training session. This transmission method may be carried on for several cascade layers; the fundamental idea is to train a large number of people, in a relatively short time and at relatively low cost, as trainees become trainers in their own regions. [4]

Cascade training is a common, real world practice which is widely used with the aim of providing training to the maximum number of people in a cost effective manner. [2, 5, 6, 7] It has a number of theoretical benefits (pros) which make it attractive to planners of change on a large scale.[2,6, 7,8,9,10] Through use of small groups, it enables fully participative competency training; requires few logistical resources; requires few central organizational resources; it does not require staff to take long periods out of service and it uses existing staff as co-trainers it can train a large number of people in a relatively short period; it is empowering and capacity building in delivering transportable training skills to a large group of people at each level. [5,10]

Besides its advantages, the cascade strategy has some disadvantages (cons) as well:

a. Concepts introduced at the top of the cascade do not meet the needs of teachers at grassroots level [9]

b. The higher levels often lack a working knowledge of the grassroots practitioners' practices [7]

c. Dilution of the initial training can occur after several iterations of the cascade, so that the recipient trainee receives scant benefit [9]

d. Misinterpretation can occur between the main concepts taught by the trainers and the understanding of the end providers - This is also defined as "Chinese whispers effect" [11]

e. Poor quality teaching at grassroots level can result in a failure to achieve the objectives of the program [9]

f. It requires detailed development of trainer's manuals, lesson plans and presentation resources.

g. It requires central monitoring to ensure that sessions are in fact organised and conducted as planned.[8]

Because of these disadvantages, a number of authors have criticised cascade training and the question of either finding appropriate solutions for these disadvantages or think of alternative strategies was raised. [2,7,9,11,12]

Evaluations of Cascade Training

According to McArthur and Yoosabai the cascade model is based on the assumption that knowledge and skills can be conveyed from a centre to the margins and that the transmitters will not change that knowledge or the meaning of the message. [4] As Roberts states, however: "*...cascade may work if the message is strictly informational, but is liable not to work as intended if the message involves new practices based on new assumptions, theory and values* " .[13]

Typically, at the top of the training levels are the 'master trainers' who cascade down to a larger number of teachers. These master trainers are usually those trained by the 'outside expert', who then disappears from the city/country and is no longer on-hand for questions or monitoring of the cascading, leaving behind 'trainers' who are now expected to cascade this expert knowledge that they perhaps do not fully understand. [3]

As Toure et al have stated in their article, involvement of administrative authorities at all levels is crucial. Effective training requires a politically supportive environment, a strategy, resources, appropriate guidelines and policies, job expectations, and motivation and feedback. Delays in procurement of supplies and equipment can delay post training follow-up supervision visits. [14]

In their final report of evaluating a programme on training for trainers in palliative care and dementia by Kydd et al, found the training was accepted as success. [2] It is underlined that this success has been related to a number of factors such as, a) high quality training material, b) delivery of the cascade training by experts to extremely competent individuals, c) the excellent support and encouragement to the trainers from the project, and d) the interactive forum type of sessions. A further success of cascade training was cited by Morgan and Dutchman, who stated that training and education of health workers remains an indispensable part of good health development in resource poor settings. [15]

However, many past training programs have failed to achieve significant gains in health outcomes because of poor selection of participants, inadequate methodology, and/or the influence of external factors in the health system or social environment. Another criticism towards cascade training is after the initial training, many trainers lack of confidence, knowledge and understanding to manage the training process. [6] Many evaluative reports of cascade training cite difficulties such as local conditions, strikes, lack of time, lack of resources, lack of facilities, etc. Along with all of these practical difficulties, due to lack of interest, the trainers may not be willing nor motivated to hold workshops, despite their preparation. It is important therefore to understand the reasons for such reticence in order to deliver successful cascade training.

In response to such concerns, Weddell indicates that there is a need for planners to design and implement relevant and contextually appropriate training for trainees, and also that there needs to be a supportive environment that will support their post-training implementation attempts. [16]

According to Hayes there are a number of key criteria should be considered before teaching any programme of work in order to ensure the success of cascade training: [6]

a. the method of conducting the training must be experiential and reflective rather than transmissive;

b. the training must be open to reinterpretation and flexible to meet local need; rigid adherence to prescribed ways of working should not be expected;

c. expertise must be diffused through the system as widely as possible, not concentrated at the top;

d. a cross-section of stakeholders must be involved in the preparation of training materials;

e. decentralisation of responsibilities within the cascade structure is desirable.

A positive evaluation of a cascade training strategy was reported by Suzuki reflecting an in-service teachers training in Nepal. [7] As Suzuki states, the cascade strategy is largely used for in-service training, as it can deliver many trained teachers quickly and economically. However, despite its advantages, it is often criticized for its ineffectiveness, because the message is often distorted through long-distanced one-way process, and it hardly makes change at classroom. Similarly, McArthur states that whilst it is possible for 'partial' learning to occur, there can be a diluting effect of input and thus the learning is not *fully* relayed as intended. [4] This is not necessarily a negative effect, but one that can lead to creative and welcome new aspects on a topic. However, from a master trainer's point of view, dilution or partial learning is not desirable, the goal in cascade training is to pass on new information which is accommodated *fully* and used as it was originally intended.

Because of the advantages to planners in terms of cost and efficient use of human and material resources, cascade training programmes will remain a feature of organizations for some time to come. Training a small number of staff to be trainers seems to remain a common practice, particularly considering time- and cost benefits; however, it is difficult not to reach the same conclusion as Herchell et al that there currently appears to be limited evaluative data to support its use. [17] Therefore, in the meantime, it would seem that all engaged in cascade training

programs need to ensure that the training that is being provided meets the needs of recipients at all levels. And as Hayes highlights, active participation in the desired change at all levels has to underpin successful cascade training. [6]

Debates Over the Cascade Strategy and Solutions

Some researchers believe that the failure in cascade model lies with the cascade model itself.[7, 18] Others argue that the quality of a cascade model depends on the quality of planning and implementation, rather than on inherent weaknesses of the model itself.[19] They suggest ten components of conditionality to maintain the quality of planning and implementation of cascade training as follows:

TEN COMPONENTS OF CONDITIONALITY [7]

1. *To run a successful cascade model, the trainees and their needs are to be well defined.*
2. *Clear training objectives are to be set.*
3. *It should be supported by high quality consistent training materials.*
4. *The trainers are to be carefully selected for their competence as trainers and their understanding of the particular knowledge and skills which are to be transferred. Cascade training is only effective if the trainers are fully familiar with the practice and not only the theory, and sufficient time is given to the trainers to acquire new knowledge.*
5. *The role and function of each actor needs to be defined.*
6. *Each stage has to provide sufficient time for trainers to prepare, and for trainees to absorb the messages.*
7. *Each stage should be well structured.*
8. *Any ambiguity in training objectives and materials has to be removed in order to avoid the risk of personal interpretations.*
9. *Commitment at local level is needed.*
10. *The training process should be supervised to ensure that the trainers are following training procedures and that the trainees understand their accountability as future trainers.*[19,20]

Kydd et al say that, "*yet, it is often not the cascade training model which is the problem, but the manner in which it is implemented.* [2] *A prime cause of failure is the concentration of expertise at the topmost levels of the cascade, so cascading to the staff at the frontline becomes more complex.*"

David Hayes *supports* this idea and states that, "*yet, it is often not the cascade training model which is the problem, but the manner in which it is implemented.* [6] *A prime cause of failure is concentration of expertise at the topmost levels of the cascade, allied to a purely transmissive mode of training at all levels. Active participation in the change at all levels is, then, a sine qua non of successful cascade training. "*

For successful results, the solutions lie in better planning of who should be trained; what should be taught; methods used should be based on adult learning principles; alternative methods that maximise learner input and locate training as close as possible to the workplace and its problems need to be taken into consideration; there needs to be appropriate inclusion of the community and excellent coordination with other sectoral system interventions. [15]

For solving the "dilution" problem in a cascade training strategy, Gilpin suggests a way of minimising loss of input through cascading by training 'experts' from different geographical regions, to guarantee better availability for trainees/teachers in local areas should questions and problems come up. [5] Ensuring more expert trainers in more regions would also allow for closer monitoring at later dates. Gilpin also suggests that there needs to be a broad, agreed understanding of basic principles of training throughout the area involved. [5] One way of reaching this standard, could be what Mackenzie proposes: "*it is not only the trainees who need continued monitoring but the master trainers also, to ensure consistency in their training. This can also minimise any ambiguity in their materials and objectives.*" [21]

Proper and Felling state that in training the health staff, the training team is a crucial factor.[22] They propose five different approaches (strategies, models) for designing the training teams for training of family planning logistics, namely a) Trickle-down training model; b) Central training team model; c) Regional training team model; d) Training institution model; e) Tiered training team model.

Trickle-down training model: In this model, central level staff who have received training in technical content, and possibly training methodology, train the next level of worker, who then train the next level of worker in what they have learned, and so on until everyone who is targeted for training is trained. Expert assistance in the technical area of training is usually limited to training the central level. Curricula are rarely adapted for the various cadre of workers, and at best, a standard curriculum is used throughout. The main advantage of the trickle-down training model is that it does not require an outlay of significant resources (human, material, and financial) that are often scarce in many developing countries.

Central training model: This model relies on a team of trainers, usually comprised of personnel identified from the central level of the system, or hired specifically for the team and supported directly by central program management, to train all other personnel in the program in a particular field. Central level staff, including training team members, usually receive their training from consultant trainers.

Regional Training Teams Model: In this model, a training team is developed in each region in a country. Team members are either hired specifically for the job or taken from the ranks of regional program staff. Regional training teams are responsible for training all relevant program personnel in their region in the specific field. Curricula usually are developed centrally and adapted for use in each region by the regional training teams, with support from the central level. Central and regional level personnel usually receive training from consultant trainers in the field.

Training Institution Model: When training of program personnel is conducted by an organization or institution that is not under the direct management of the program, but is contracted separately, this is the Training Institution Model. The institution may be private, parastatal, or governmental. This model is used when the program itself does not have sufficient management and training personnel in-house to provide the needed training. While the development, management and conduct of the training program is the responsibility of the training institution, management staff of the technical program are still expected to provide some input into the training activity. This input should include approval of the curricula to be used, the timing of the training and participants for each training workshop. Consultant trainers assist in the selection of the institution and in building its capacity to provide a specific technical training such as logistics management.

Tiered Training Team Model: This model is characterized by having a team of trained technical trainers at each administrative level in the system. The training teams already exist at each level and only require technical training before undertaking a training project. A detailed curriculum is developed for each administrative level by the central level in an effort to assure that the various training teams are providing the same technical information and skills. Regional level trainers train provincial level which in turn trains district level trainers.

Appropriate Cascading

It is the decision of the governments to decide whether to implement the trainings by using either direct or cascading approach. There is an agreement in the literature that generally, the governments and vaccination program authorities prefer the cascade training strategy and the performance of these programs is relatively good. A cascade training strategy is not an inappropriate choice, but the problems are initiated from

inappropriate planning and implementation of it.[12] Therefore, as many of the experts in the training field agree, in order to have better trained health staff with high performance, rather than thinking of an alternative training strategy, the governments (and local and international organizations) have to consider alternative ways of increasing the quality of the classical cascade training strategy. [23, 24, 25]

Once the strategy is decided, then the next step is to decide how and what techniques should be utilized. Among these techniques are face to face teaching, distance learning, on the job learning, peer education, coaching and mentoring to name but a few. These techniques may be used alone or in a blended (mixed) manner.

Blended Model (Blended Delivery)

The blended model refers to a mixture of different learning environments. It combines traditional face-to-face classroom methods with computer-mediated activities and/or discovery learning opportunities. According to its proponents, the strategy creates a more integrated approach for both instructors and learners. Formerly, technology-based materials played a supporting role to face-to-face instruction. Through a blended learning approach, technology will be more important. For example, consider a traditional class meeting schedule. Say that the course would normally meet Monday-Wednesday-Friday, from 1-3 pm. If the institution were to apply a blended learning approach, the course may change so that it meets once per week in class and twice a week on line, instead of the usual three-session format. Thus learning activities that otherwise would have taken place during classroom time can be moved online.[26] There are many different approaches to blended learning. It can take on many shapes or forms, depending on the teachers and learners involved. As of now, there is no consensus on a single agreed-upon definition for blended learning. The terms "blended," "hybrid,", "mixed-mode", "multi-method learning" "integrative learning", are used interchangeably in current research literature.[27, 28]

A blended learning approach also applies science or information technologies (IT) activities with the assistance of educational technologies using computer, cellular or smart phones, satellite television channels, videoconferencing and other emerging electronic media. Learners and teachers work together to improve the quality of learning and teaching, the ultimate aim of blended learning being to provide realistic practical opportunities for learners and teachers to make learning independent, useful, sustainable and ever growing.[29]

Blended learning increases the options for greater quality and quantity of human interaction in a learning environment. It offers learners the opportunity "to be both together and apart".[30] A community of learners can interact at anytime and anywhere because of the benefits that computer-mediated educational tools provide. Blended learning provides a 'good' mix of technologies and interactions, resulting in a socially supported, constructive, learning experience; this is especially significant given the profound effect that it could have on distance learning.

In the implementation of a blended model, the facilitator can combine two or more methods of teaching. A typical example of blended learning methodology would be an integrated combination of technology-based materials and face-to-face sessions to present content. An instructor can begin a course with a well-structured introductory lesson in the classroom, and then proceed with follow-up materials online. Blended learning can also be applied to the integration of e-learning with a Learning Management System using computers in a physical classroom, along with face-to-face instruction.[37] For example, in a project in Korea, face-to-face learning and e-learning techniques were combined in the undergraduate teaching of nursing successfully. [31] In Italy, traditional learning was combined with web-based learning and scenario techniques for teaching school health in the area of skin and sexual health in a project named as PAEDIMED.[32] In China, for several years, the China American Psychoanalytic Alliance has provided

treatment, training and supervision to Chinese mental health professionals over the internet.[33]

There are no certain rules to prescribe what the ideal blend might be. The term "blended" encompasses a broad continuum, and can include any integration of teaching techniques. [34] In other words, blended learning is a tailored model of combining several learning techniques according to the preference of the training planners and the facilitators, depending on the topic and the facilities available.

Cascade - Plus Training Approach

In order to succeed in implementing programs, training has to be supported by regular supervision, regular on the job training, regular clinical rotations, regular evaluations etc. at the implementation phase of the programs. In other words, the classical training phase has to be continued (continuous training) and supported by a well-functioning implementation phase. The authors recommend calling this holistic approach (continuing cascade training approach with better implementation) as the *"Cascade-Plus Training approach"* (CPT). The CPT approach starts from the very beginning stage of planning the training and covers the training and implementation stages. Therefore, in this approach, some additional activities or techniques to the classical cascade training should be considered. Of these actions some should be considered during the planning phase of the training, some during the training levels and the rest at the implementation phase. As an example, regarding the immunization programs, the CPT can be defined as *a well-planned and implemented cascade training strategy with an understanding of holistic approach to the communicable disease control and immunization programs, practice oriented, flexible, done by multi-training-techniques, supported with effective supervisions, monitoring, process evaluation and problem solving deliveries.* The articles which stated the success of a cascading strategy, in fact, are the good examples of such approach.

Although, some disadvantages and ineffective results have been observed, it is very clear that because of the advantages to planners in terms of cost and use of human and material resources, cascade training programs will remain a feature of organizations for some time to come. Yet, it is often not the cascade training model which does not give optimal results, but the manner in which it is implemented. It has been demonstrated that if a cascade training strategy is well planned, carried out by blending appropriate interesting and innovative teaching techniques, provides good coaching-mentoring, is interactive, skills oriented, problem based and provided as on the job training, and is well monitored/supervised during the implementation phase, it can be an effective strategy for in-service training of staff and managers. In other words, the classical cascade training strategy has to be improved and strengthened which results in what the authors have termed the Cascade-Plus Training strategy.

Table 1: Differences between classical cascade and cascade plus training approaches

From	**To**
Classical Cascade	**Cascade Plus**
Oriented to education	Holistic approach /Pre-During-Post training
Course oriented	Continuous training
Classroom oriented	Practice oriented
Inflexible curriculum	Flexible and tailor type designed curriculum
Oriented to success of training	Oriented to success of immunization program
Evaluation of training	Training and impact evaluation
Dilution and misinterpretation of information	Correct transfer of information
Limited sectors involved	Multidisciplinary approach
Top to down training	Top to down with providers participation

Taking these points into consideration and with reference to the arguments stated above, an example of the CPT is proposed in Table 2. As can be seen in the table, this approach covers all stages of training and incorporates the operations level. The training models and techniques should be selected or combined depending on the need and feasibility at the local level.

Remember that CPT works best with two levels of cascade as multiple levels of training can dilute or distort content. (See Figure 1).

The three phases of CPT (see Figure 2) are as follows:
Phase 1. The pre-training phase: This involves the planning
Phase 2. The training phase: This involves the two levels of training
Phase 3. The post-training phase: This involves the performance support and supervision, monitoring, evaluation and report writing.

Each phase of CPT is of equal importance and should be seen as a whole. This holistic approach is the key to eliminating the disadvantages of

Table 2: Training / Learning techniques by levels of "cascade-plus training approach"– Two level cascade training (*)

Training of master trainers (Advanced training)	Training of trainers (First level of cascade training)	Training of providers (Second level of cascade training)	Implementation phase
Self-learning • Written materials • CDs etc. Blended learning • Distance/ On-line • Face to face	Blended training • Face to face • Interactive • Problem based • Entertainments / Scenarios / dramas • Distance / On line Workshops Peer learning Mentoring Learning by doing Reflection	Blended training • Face to face • Interactive • Problem based • Entertainments/ Scenarios / dramas • Distance / On-line Workshops Peer learning Coaching and mentoring On the job training Refreshing training Travelling seminars Rotations Drip training Distance learning Reflection	Supportive supervision and competency assessment through • site visits • telephone calls • records evaluation • On the job assessment? Coaching/ mentoring Refreshing training Travelling seminars Rotations Drip training Distance learning Providers' assessment and feedback Process evaluations

(*) Appropriate items will be selected and blended according to local conditions in each level.

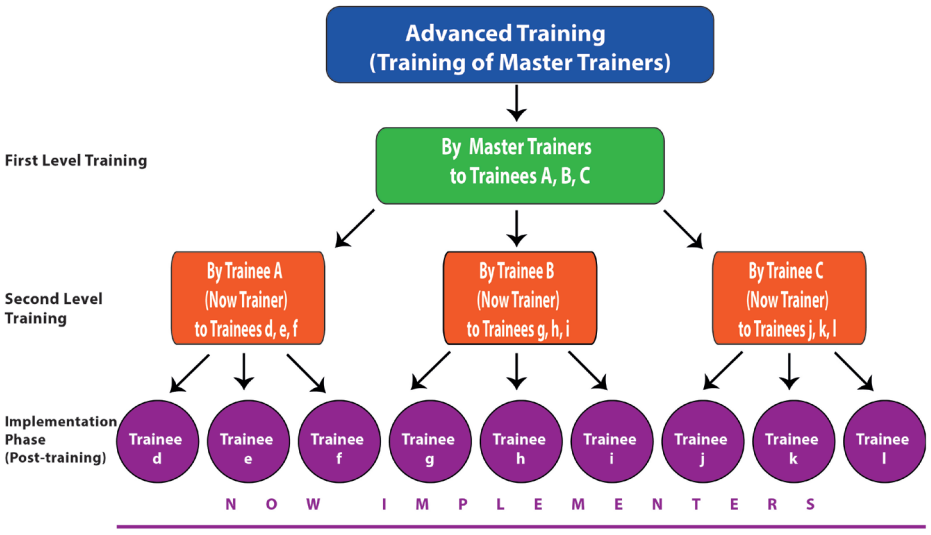

Figure 1. The two levels of Cascade Plus training

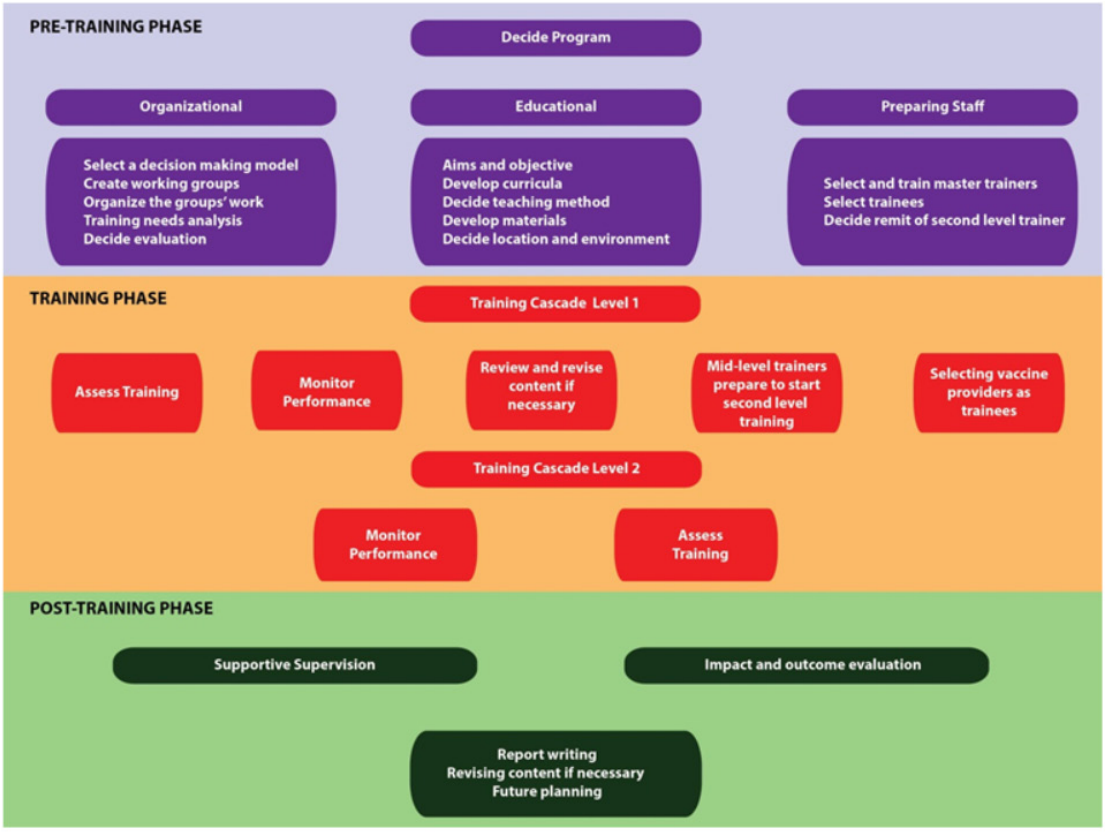

Figure 2. Diagram of the phases and some stages of CPT

classical cascade training and to ensure the success of CPT.

In summary, the CPT approach and the activities to be carried out in each phase of are detailed in Table 3.

Conclusion

Although, some disadvantages and ineffective results have been observed, it is very clear that because of the advantages to planners in terms of cost and use of human and material resources, cascade training programs will remain a feature of

Table 3: Scheme of "Cascade Plus Training Approach"

Planning phase (Pre-training phase)	**Training of trainers (First level of cascade training)**	**Training of providers (Second level of cascade training)**	**Implementation phase (Post training phase)**
Select trainees Develop material Decide method Find resources Organize facilities Train master trainers (Advanced training) • Self-learning • Blended learning	Blended training • Face to face • Interactive • Problem based • Entertainments/ Scenarios / dramas • Distance / On line Workshops Peer learning Mentoring Learning by doing	Blended training • Face to face • Interactive • Problem based • Entertainments/ Scenarios / dramas • Distance / On-line Workshops Peer learning Coaching and mentoring On the job training Refreshing training Travelling seminars Rotations Drip training Distance learning	Supportive supervision and competency assessment through • site visits • telephone calls • records evaluation Coaching/ mentoring Refreshing training Travelling seminars Rotations Drip training Distance learning Providers' assessment and feedback Process evaluations

organizations for some time to come. Yet, it is often not the cascade training model which does not give optimal results, but the manner in which it is implemented. If the cascade training strategy is well planned, carried out by blending appropriate teaching techniques and is well monitored/supervised during the implementation phase it can be an effective strategy for training the health care staff and managers. In order to differentiate this understanding from the classical cascade approach, the authors propose the Cascade-Plus Training model, which they define as "a well-planned and implemented cascade training strategy with an understanding of a holistic approach to the topic of training, which is practice oriented, flexible, delivered via multiple evidence based training-techniques, supported with effective supervision, monitoring, process evaluation and problem solving deliveries."

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References

1. Öztek, Z., Evaluation of "Cascade Strategy" for Training of Health Care Workers for Immunization Programmes – An Analytical Literature Review, paper presented at Expert Consultation on Training Methodologies, 19-20 November 2012, Ankara
2. Kydd A, Duffy R, Johnson B, Oliver J, Banks P, Kane H. Final Report Evaluation of the Training for Trainers in Palliative Care and Dementia, Commissioned by Alzheimer Scotland September 2009 Presented June 30th 2010, University of the West of Scotland, <http://www.alzscot.org/download-file/files/palliative-care-in-dementia-training-evaluation.pdf>, accessed September 14, 2012.
3. Moys A, Mullick S, McCoy D, Beksinska M. Training Clinic Sisters, Lessons Learnt Based on Experience of the National STI Initiative, Durban, 2002.
4. McArthur K, Yoosabai Y. The trainee as a trainer: Cascade training choices: What? Why?, British Council – IATEFL 2010 Harrogate, <http://iatefl.britishcouncil.org/2010/sites/iatefl/files/session/documents>, accessed September 16, 2012.
5. Gilpin A. Cascade training: Sustainability or Dilution? in: McGrath I. (ed.) Learning to Train: Perspectives on the Development of Language Teacher Trainers, Hemel Hempstead: Prentice Hall, 1997
6. Hayes D,.Cascade training and teachers' professional development, English Language Journal, Vol. 54, No. 2, 2000, pp 135-145.
7. Suzuki T. The Effectiveness of the Cascade Model for In-service Teacher Training in Nepal, <http://www.iiis.org/CDs2008/CD2008SCI/EISTA2008/papersPdf/E964RM.pdf>, accessed September 16, 2012.
8. Training of Trainers – ACE Electoral Knowledge Network <http://aceproject.org/ace-en/topics/vo/voe/voe04/>, accessed September 16, 2012.
9. Teacher training – Best practice. <http://info.worldbank.org/etools/docs/library/241469/PresentationTeachertraining.pdf>, accessed September 16, 2012.
10. Recruiting and training observers, A field guide for domestic election monitoring groups in the Southern African Development Community, <http://www.gndem.org/sites/default/files/Recruiting%20and%20Training%20Observers.pdf>, accessed September 16, 2012.
11. Williams, H. The HELA Training Co-ord Portal's Journey to the Extranet, <http://www.cieh.org/uploadedFiles/Core/Membership/Regional_network/North_East_region/Williams_HELA_training_co-ord_portal.pdf>, accessed September 16, 2012.

12. McDevitt D. How effective is the cascade as a method for disseminating ideas? A case study in Botswana, International journal of educational development, 18, 1998, pp.425-428.
13. Roberts J. Language Teacher Education, Great Britain, Arnold, 1998.
14. Toure B, Harroff-Tavel H, Casey S, Culler T. Training trainers in reproductive health, Forced Migration Review, November, 2010, <http://www.readperiodicals.com/201011/2213048861.html#b>, accessed September 18, 2012.
15. Morgan CJ, Deutschmann PW. An evolving model for training and education in resource-poor settings: teaching health workers to fish, Med J Aust, 2003, Vol. 178, No. 1, pp. 21-25.
16. Weddell M. Cascading Training Down into the Classroom: The Need for Parallel Planning, International Journal of Educational Development, Vol. 25, 2005, pp 637–651.
17. Herschell AD, Kolko D J, Baumann B L, Davis A C. The Role of Therapist Training in the Implementation of Psychosocial Treatments: A Review and Critique with Recommendations, Clinical Psychology Review 30, 2010, pp. 448–466
18. Connell CM, Voelkl JE, Bakalar HR. Providing dementia outreach education to rural communities: Lessons learned from a train-the-trainer program, Journal of Applied Gerontology, Sept 2002, Vol. 21 no. 3, pp 294-313.
19. A critique of the implementation of the cascade model used to provide inset for teachers in preparation for the introduction of the general certificate of secondary education, Department of Education and Science, Circular 360/88, London, HNSO, 1988.
20. Mpabulungi A. Assessment of the Cascade Training (Uganda Working Brief Series), Uganda: UNCDF, 1999.
21. Mackenzie A. Steady flows, sponges, drips and other wet patches: A critical analysis of 'cascade training', [Blog online], 2007, <http://alansmackenzie.wordpress.com>, accessed September 18, 2012.
22. Proper W, Felling B. Developing national strategies in family planning logistics: How hard can it be? Published for the U.S. Agency for International Development (USAID) by the FPLM project, Arlington, Va, 1993.
23. Paruthi, R. Personal communication, RI-Training Person, WHO-NPSP, New Delhi, India.
24. Stewart, S. Personal communication, Communication Expert, Centre for Disease Control, Atlanta, USA.
25. Shimp, L. Personal communication, Senior Technical Officer, Immunization, Maternal and Child Health Integrated Program, USAID, Washington DC, USA.
26. Blended Learning, <http://en.wikipedia.org/wiki/Blended_learning>, accessed September 18, 2012.
27. Martyn M. The hybrid online model: Good practice, Educause Quarterly: No.1, 2003, <http://net.educause.edu/ir/library/pdf/EQM0313.pdf>, accessed September 19, 2012.
28. Horn MB, Staker HC. The Rise of K12 Blended Learning, Chapel Hill, NC: Innosight Institute, Jan. 2011.
29. Graham C R. Blended learning systems: Definition, current trends, and future directions, in: Bonk C J, Graham C R. Handbook of blended learning: Global perspectives, local designs, San Francisco, CA: Pfeiffer. 2005, pp. 3–21.
30. Garrison D R, Kanuka H. Blended learning: Uncovering its transformative potential in higher education, The Internet and Higher Education Vol. 7, No. 2, 2004, pp 95–105.
31. Jang KS, Kim YM, Park SJ. A blended program on undergraduate nursing students' learning of electrocardiography, Stud Health Technol Inform 2006;122:799.
32. Apfelbacher CJ, Deimling E, Wulfhorst B, Adler F, Diepgen TL, Linder D, Blenk H, Stosiek N, Reinmann G. Is story-based blended learning a promissing avenue for skin and sexual health education? Results from the PAEDIMED project, Acta Derm Venerol 2010;90:152-158.

33. Fishkin R, Fishkin L, Leli U, Katz B, Snyder E. Psychodynamic treatment, training and supervision using internet-based technologies, J Am Acad Psychoanal Dyn Psychiatry, 2011, Spring Vol. 39, No. 1, pp 155-68.
34. What is blended learning? Web Learning, PennState. <http://weblearning.psu.edu/blended-learning-initiative/what_is_blended_learning>, accessed September 19, 2012.