Good Practice Guide on Training Methodologies

How to become an effective and inspirational trainer

November 2014

European Union Agency for Network and Information Security

www.enisa.europa.eu

About ENISA

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Acknowledgements

Our reviewers were inspiring and a great help. Without their supportive and insightful comments this guide would not nearly have been what it is now. Their names:

Jim Buddin[2] , The GÉANT Association, Training Coordinator

Dr Tomasz Chlebowski, CEO ComCERT, Poland

Andrew Cormack, Chief Regulatory Adviser, Janet, UK

Mark Hoevers CISM, m7, The Netherlands

Baiba Kaskina, CERT.LV, Latvia

Mike Potter, Avalon Coaching & NLP, USA

Christopher Spirito, International Cyber Lead, The MITRE Corporation, USA

Hans de Vries, Founder/CEO Security Academy, The Netherlands

Wilfried Wöber, Vienna University / ACOnet, Austria

Furthermore we acknowledge the good contributions of Shin Adachi (NTT-CERT, US), Serge Droz (SWITCH-CERT), Sven Gabriel (EGI CSIRT), Jaap van Ginkel (University of Amsterdam), L. Aaron Kaplan (CERT.at), Franz Lantenhammer (CERT BWI), Toomas Lepik (CERT-EE), Francisco Monserrat (RedIRIS), Leif Nixon (EGI CSIRT), Margrete Raaum (FIRST, member of board of directors), Dennis Rand (eCrime Labs), Robin Ruefle (Team Lead, CSIRT Development and Training team, CERT Division, Software Engineering Institute, Carnegie Mellon University), Olivier Caleff (ANSSI/CERT-FR) , Anto Veldre (CERT-EE), and Mauno Pihelgas.

[1] Don Stikvoort
[2] Jim Buddin also kindly provided a few of the pictures for this guide.

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ISBN 978-92-9204-097-0 doi:10.2824/33183

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1 Foreword

Until 2012, the efforts of ENISA, with regard to the training of Computer Emergency Response Teams (CERTs), were mostly focused on supporting the TRANSITS training framework,[3] organising various workshops[4] and on providing the ENISA CERT Training material[5]. Since 2013 ENISA started providing training activities to the European CERT community. While these efforts were widely used and appreciated by the CERTs and other communities, the challenges and circumstances have changed and are evolving rapidly. Since ENISA started its training and support activities, the importance of managing information security incidents has grown to become a top priority for companies, government institutions, universities, schools, and EU Member States. CERTs have emerged in all sectors and countries, and the number of national and governmental CERTs is continuing to grow. As ENISA and numerous CERTs provide trainings to provide constant influx of new information security professionals, and to enhance the skills of existing team members, the effect of training needs to be long-lasting. Furthermore the field of CERT operations is highly specialised, and not widely covered by trainings. To fill in the gap community frequently organises workshops where experts “from the field” are asked to educate other members. Therefore the “Good Practice Guide on Training Methodologies” was created to provide guidance on how to create, organise and conduct trainings that would be remembered, valued, and have long-lasting effect.

It is important to note that the contents of the good practice guide originate from the knowledgebase and experience of the authors, reviewers, and contributors who have created, organised, and conducted trainings to CERT community and also to the wider audience.

[3] http://www.enisa.europa.eu/activities/cert/events/transits-training
[4] https://www.enisa.europa.eu/activities/cert/events
[5] http://www.enisa.europa.eu/activities/cert/support/exercise

2 Introduction

Training is everything. The peach was once a bitter almond; cauliflower is nothing, but cabbage with a college education. [Mark Twain, 1835-1910]

Why write a guide about training methodologies when there are so many resources and theories on “trainings” and “trainers” already?

There are two reasons. Firstly, to bring the "field experience" of being a trainer[6] to the target audience (see below), coming from highly experienced trainers who are both experts in information security and well versed in the concept of “training” itself.

Secondly, to condense this experience and knowledge in a guide, which will help trainers in the field to expand their skills and raise their awareness of the processes of teaching and learning.

The goal is to guide both novice and experienced trainers to design and deliver trainings of any size or type, and to make these trainings more successful, more “fun” and with better and longer lasting results. This practical guidance is backed up by the presentation of essential theories and research in this area, including references. This will enable trainers to learn and study these topics in-depth.

2.1 Target audience

The target audience includes all those in the information security and CERT area who design or deliver “trainings” in the broadest sense of the word. Training includes a process where knowledge or skills are being purposefully taught, shown or transferred live[7] to one or more people, who are receiving the training. Trainings include lectures, teaching, instruction, practice sessions, presentations, hands-on trainings, guided discussion, directed exercises, etc.

The guide has been written bearing in mind fairly traditional “classroom type” trainings, as these are still the most common ones in use – however without any limitation to specific types of delivery methods. Also, the principles described can effortlessly be extended to all types of “trainings” as indicated above.

Thus whenever the word “training” is used in this guide, it needs to be appreciated and applied in the broadest sense of the word.

Examples given in the guide will in most cases be relevant for the primary target audience, however those too can be easily generalized by a creative reader, and used to his/her own benefit.

Finally: ENISA’s scope is the EU, especially the national and governmental levels. Therefore this guide is written with that in mind. However, like many of ENISA’s good practice guides, the usefulness of this guide is in no way limited to that constituency only.

2.2 How to use this guide

We recommend reading this guide from beginning to end, the first time. After which, you may wish to use the guide as a reference and skip to specific items/topics. If you are in a hurry (like preparing for a training) you can just read the short introductions to chapters three and four and then continue with the chapters after that. Make sure to come back to these two chapters later though, as we guarantee they will give you food for thought that will help to make you a better trainer.

[6] It is important to note that scope is not limited to “information security trainer”.

[7] Live can be in person as well as through videoconference or chat. The limitation to live trainings does not mean that the learnings from this guide would not be applicable to e.g. more advanced online trainings (using more communication vectors than just an image of the trainer), or “written” courses. Many of them will be applicable, one way or the other. However, advanced online and written courses are so different in many ways, and such challenging themes onto themselves, that we cannot and will not pretend to cover them here “on the fly”.

3 Learning and teaching strategies

People are different: they learn, take in information and communicate in different ways. Not everyone thinks like you do. Knowing this will enable you to become a better trainer. [Jim Buddin, The GÉANT Association, Training Coordinator] [8]

In this chapter we provide you with essential ideas on how people learn in different ways, and how you should cater for those different needs in your training sessions. We will start with a theoretical framework (Kolb), which is the introduction to the 4MAT system that you can readily apply in all your trainings, presentations and training materials.

3.1 Learning by doing

David A. Kolb pioneered the idea of experiential learning, which is learning by reflection on doing[9] . Experiential learning's focus is the individual learning process.

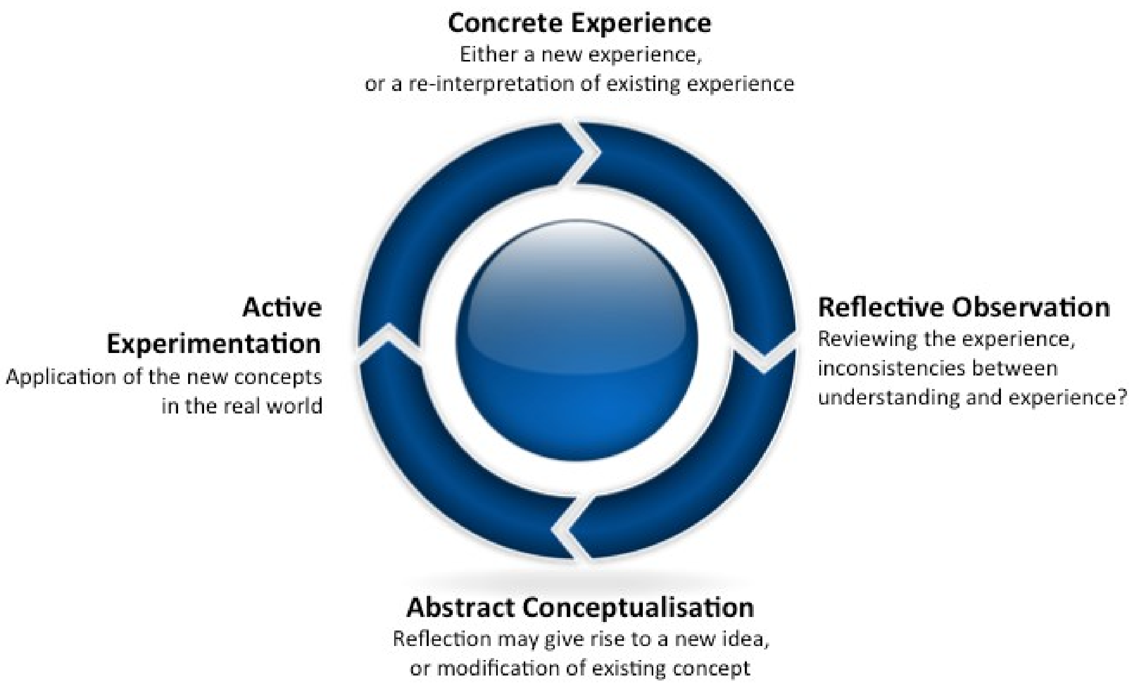

Figure 1: Experiential Learning (Kolb)

Note that Kolb suggests that learning is a circular process, and that the best learning is achieved when going through the whole circle repeatedly. Experiential learning is powerful, but does require self-initiative, the intention to learn and be an active participant in learning, so it is not just theory.

Kolb further introduced four learning styles on top of his experiential learning diagram, suggesting that there are four types of learners: divergers, assimilators, convergers and accommodators. We provide you with a diagram here that explains this concept well[10]:

[8] The book "Design For How People Learn" by Julie Dirksen is a highly recommended read in this area

[9] https://en.wikipedia.org/wiki/Experiential_learning offers a good introduction. On David Kolb's commercial website there is a useful set of references in http://learningfromexperience.com/research/

[10] For more information see e.g. http://www.simplypsychology.org/learning-kolb.html

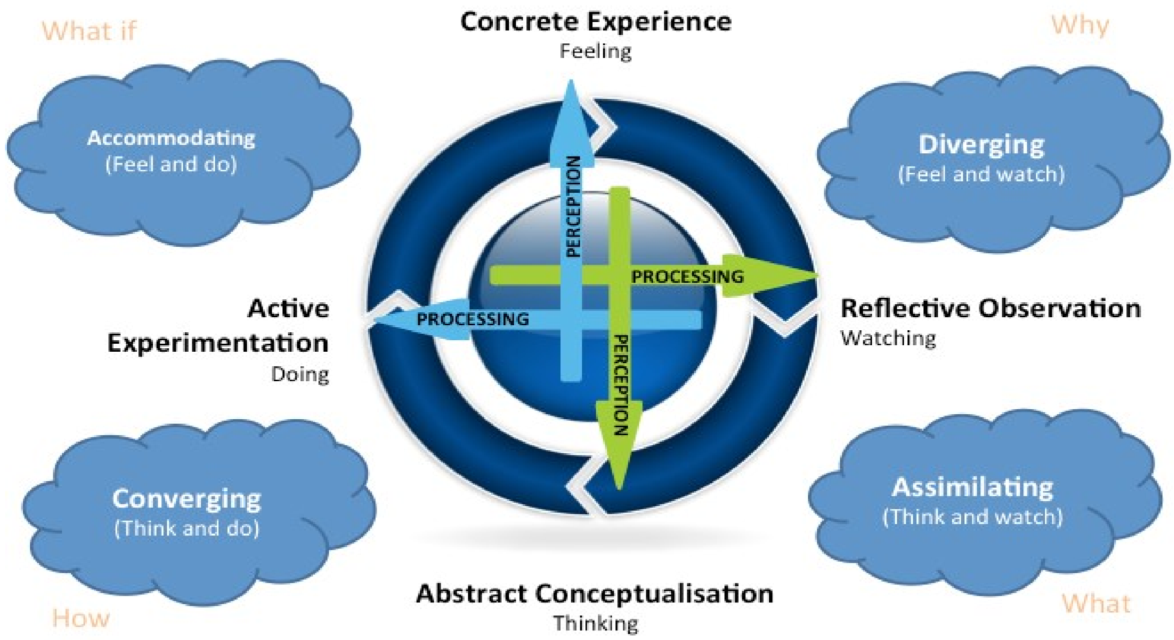

Figure 2: Learning Styles (Kolb)

Note that the texts in orange colour (why, what, etc.) are not part of Kolb's theory but point ahead to McCarthy's 4MAT model, which will be described in the next paragraph.

3.2 The 4MAT Model

The ideas of Kolb and others are interesting and insightful but not so easy to apply in real life. Credits go to Bernice McCarthy who further developed these concepts into the 4MAT model that you as a trainer can easily implement and that will get you results [11]. We highly recommend that you use 4MAT, and that is why we present it not only here, but also later in this guide to explain how you can use the model in real life.

McCarthy proposes four types of learners, and her characterisation is based on Kolb's:

[11] An easily accessible presentation of 4MAT is found on McCarthy's commercial website under http://www.aboutlearning.com/what-is-4mat . The original book is "About Learning Inc.; 1st Ed. edition (May 1996)" by Bernice McCarthy. Other useful references found at http://www.4mat.eu/theory-studies-research.aspx .

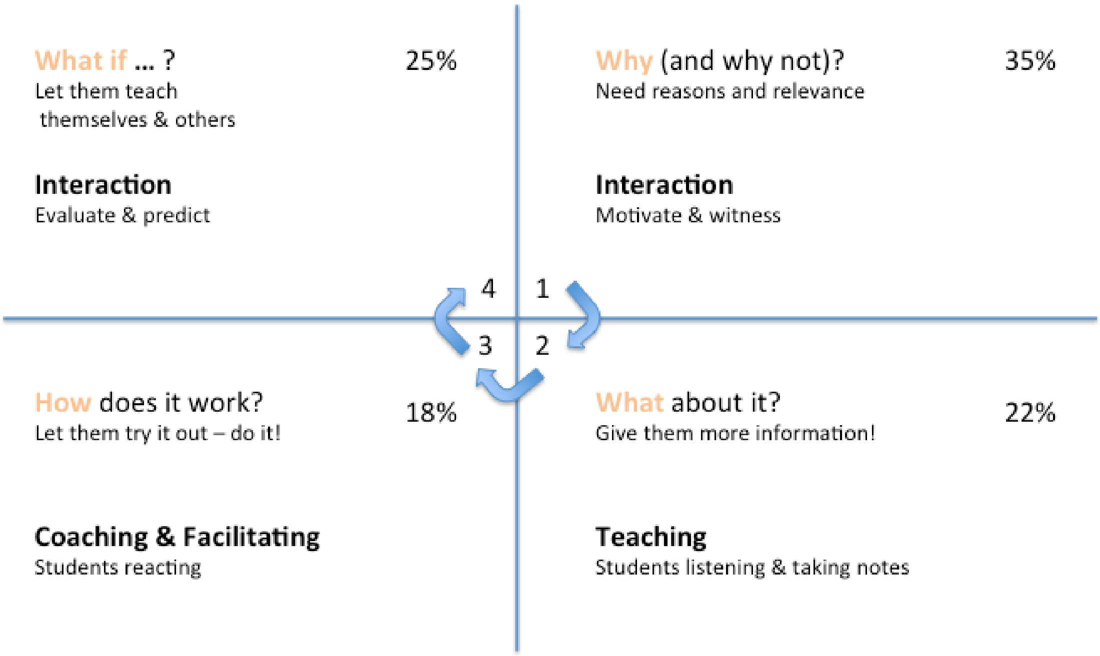

Figure 3: The 4MAT System (McCarthy)

The four types of learners are labelled as WHY, WHAT, HOW and WHAT IF people. The percentages in the diagram indicate how what percentages of people fall into those categories, according to McCarthy. These percentages show that you can expect a fair percentage of your students to be in each of the four categories, which means you must cater your trainings for all four types of learners.

It is important to remember that any model is just that – a model, and not reality. People are not bound by the 4MAT model and can therefore never simply be classified and told “you are a WHY person!”. It is about learning preferences – most of us fall into more than one category, sometimes even all four. But it is also true that most of us do prefer one of these four over the others.

Exercise, most useful in a trainer’s training: Explain the 4MAT model to your trainees. Assign the four categories to corners of the training room – a WHY corner, WHAT corner, etc. Tell your trainees to go to the corner that most expresses their learning style – and to discuss with one another how they understand and perceive that style. You may find typical things, like in the WHY corner people may ask “but WHY are we doing this?”, whereas in the HOW corner the process of discussion usually flows quite easily. Finally, while leaving all of the trainees in their corners, have a plenary discussion about the four categories. Stress that the “map is not the territory” and that these categories are useful concepts but that no man is bound to just one category!

An important concept in the application of the 4MAT model is that as a trainer you need to serve the four categories in a specific order: WHY first, then WHAT, next HOW and finally WHAT IF. There are good reasons for this which you can find in detail in the references provided. In essence, you will “lose” the WHY people if you don’t start out by explaining WHY they are there listening to you. The WHAT and HOW people are used to being more patient, and to first explain the theory (WHAT) and then the process of application (HOW) is natural. The WHAT IF naturally includes questions and thus is best placed at the end.

You can apply 4MAT to most training, education or presentation, including your five minute high level presentation to the Board of Directors! It’s a very useful way to logically organise the content you want to present, at the same time reach as many types of learners as you possibly can, while doing that in the most effective order.

For extended trainings, you need to organise the content in more topics. Then you can have an overall 4MAT applied to the whole training, starting with the WHY. And then per topic you can apply 4MAT again. If you present a model which has a bigger number of subtopics, and each one of these needs to be practiced – then you can adapt the 4MAT system in a way as to do WHY, then a short overview WHAT, next a WHAT and HOW for each of the subtopics, concluding with the overall WHAT IF.

3.3 VARK Model

Neuro-Linguistic Programming (NLP) models human communication and provides techniques which help improve the effectiveness of communication at all levels (not just words.) and also provides therapeutic applications, mostly for achieving behavioural changes[12] . A result of NLP is the idea that people have a "preferred" sense among the five senses – in most cases visual, auditory or kinaesthetic (feeling via the body) – one that they also engage in learning. The suggestion is that people who prefer visual, need especially visual cues for learning. The same goes for people with an auditory and kinesthetic (feeling) preference. And a fourth category is added for those who prefer internal dialogue and words. The teacher can accommodate all categories by including in a training not only auditory and word elements (the traditional lecture: listening to the professor and reading a book), but also visuals (whiteboard, flipcharts, videos) and kinesthetic elements (learning by doing, feeling, trying it out). Any good training should be a mix of these four. For learning purposes this was synthesized by Neil Fleming in the VARK model[13].

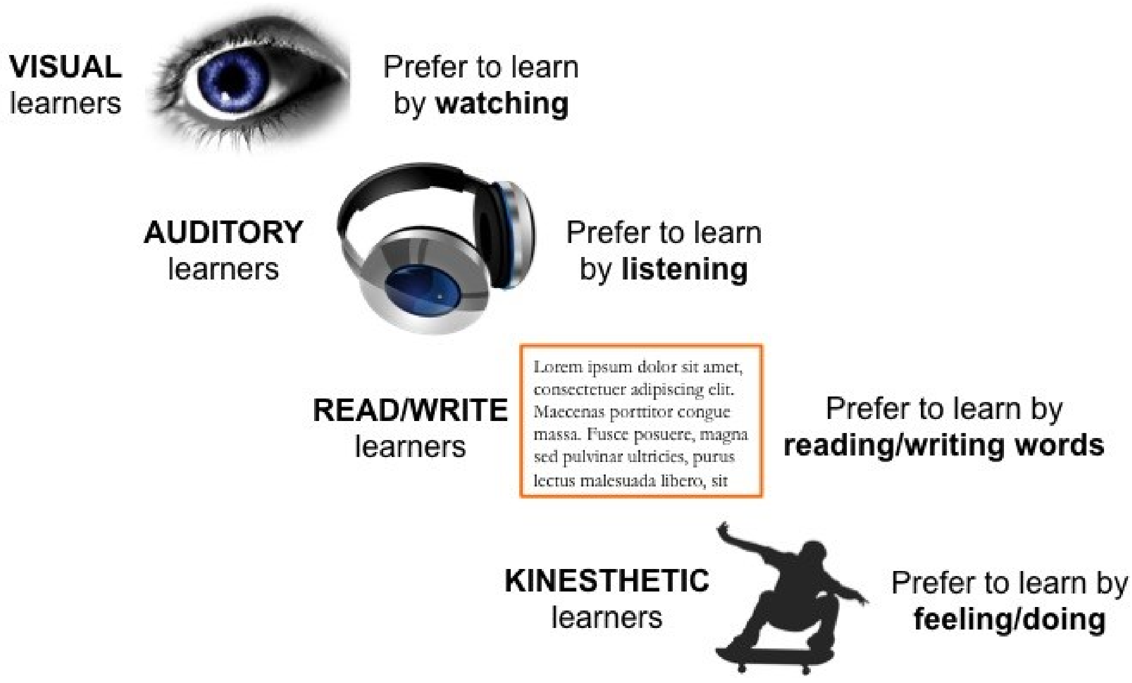

Figure 4: Learning Preferences: (VARK Model)

[12] Most NLP references are commercial. A good introduction to NLP is "Introducing NLP: Psychological Skills for Understanding and Influencing People", by Joseph O'Connor and John Seymour (Conari Press, revised edition 2011).

[13] See e.g. http://www.vark-learn.com/english/page.asp?p=categories for the VARK model and for Fleming https://en.wikipedia.org/wiki/Neil_D._Fleming

3.4 10,000 hours

K. Anders Ericsson performed research among kids playing the violin since early childhood, which indicated that the highest forms of competency is reached mainly as a result of many hours of study. What he found was that around 10,000 hours of study before the age of twenty led to the highest forms of competence[14].

Subsequent generalisation and popularisation (by Malcolm Gladwell et al.) of Ericsson's research findings into a 10,000 hours "rule" has led to much heated debate and seems to be questionable. However you will find it no surprise that practice, practice and more practice yields the master. This applies to you as a trainer as well.

4 Training methods

Train, don't strain. [Arthur Lydiar, 1917-2004, professional athlete and coach]

In this chapter you will learn that old style lectures, only talking from front to "class", are not effective and that instead you need to give your trainees a variety of training methods. That way you can optimize the chance of keeping their attention, and thus increase learning.

4.1 Span of attention

Old style lectures whereby a professor just talks and talks in front of his students are almost extinct nowadays. And that's a good thing, as the span of attention for the learning style "just sit there and listen" lasts less than half an hour. The following diagram is an illustration of that[15]:

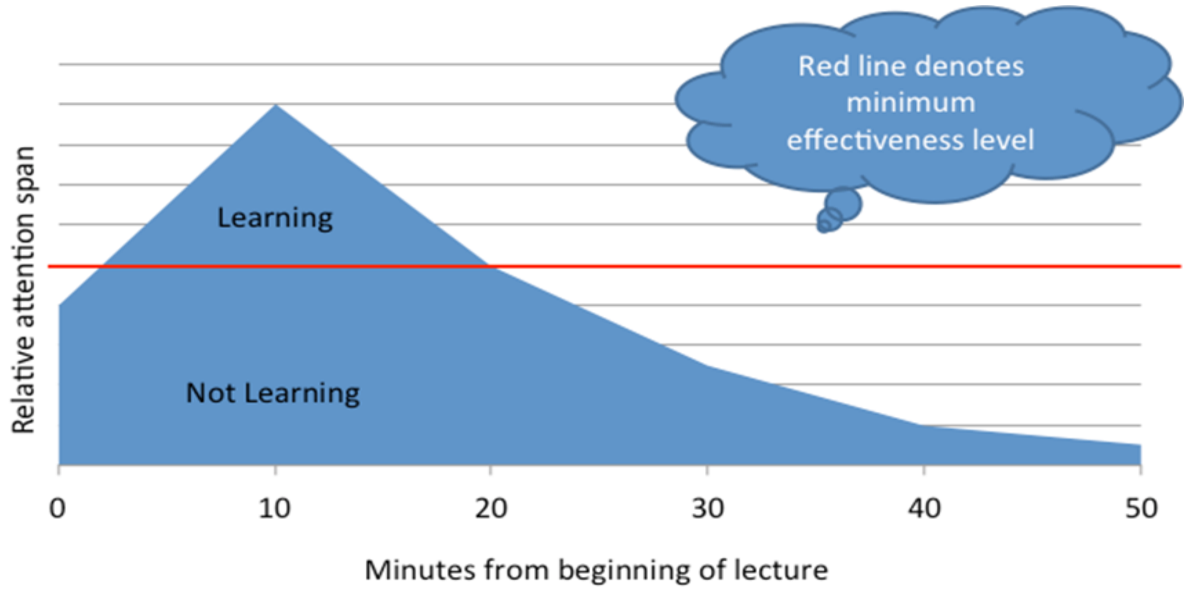

Figure 5: Effectiveness of Traditional Lecture

4.2 Training Methods

It is recommended to use a variety of training methods to reach your students, and make sure to do that in a diverse manner. Make sure there is enough to do, write, see and hear – in that order! The

[14] http://www.psy.fsu.edu/faculty/ericsson/ericsson.exp.perf.html

[15] See e.g. *McKeachie's Teaching Tips*, Wilbert McKeachie, 14th edition (2013). This kind of research has been repeated many times over, the results are approximately the same.

number of methods you can adopt is actually quite high. See the following diagram containing some suggestions in this regard:

Figure 6: Training Methods

4.3 The Learning Pyramid

The ineffectiveness of the traditional lecture style, but also of just "reading a book", is apparent in the learning pyramid[16] , presented below. The pyramid shows that a training which combines "hearing"

[16] The *learning pyramid* is widely attributed to the US National Training Laboratories (NTL) – this seems to be an urban legend however. The idea for the pyramid probably comes from Edgar Dale in his book *Audio-Visual Methods in Teaching*, Dryden Press (1954) – but it's unclear where the percentages come from, though the NTL seems to claim they are based on their research – only they can't find that research. See http://homepages.gold.ac.uk/polovina/learnpyramid/about.htm which also contains the image that we presented. As the *plausibility* of the diagram is mostly undisputed, we decided to present it here as it does contain valuable ideas.

and “seeing” already achieves much better results, but that the most effective training methods include “seeing and writing” as in workshops, and “doing” as in going through the steps one by one.

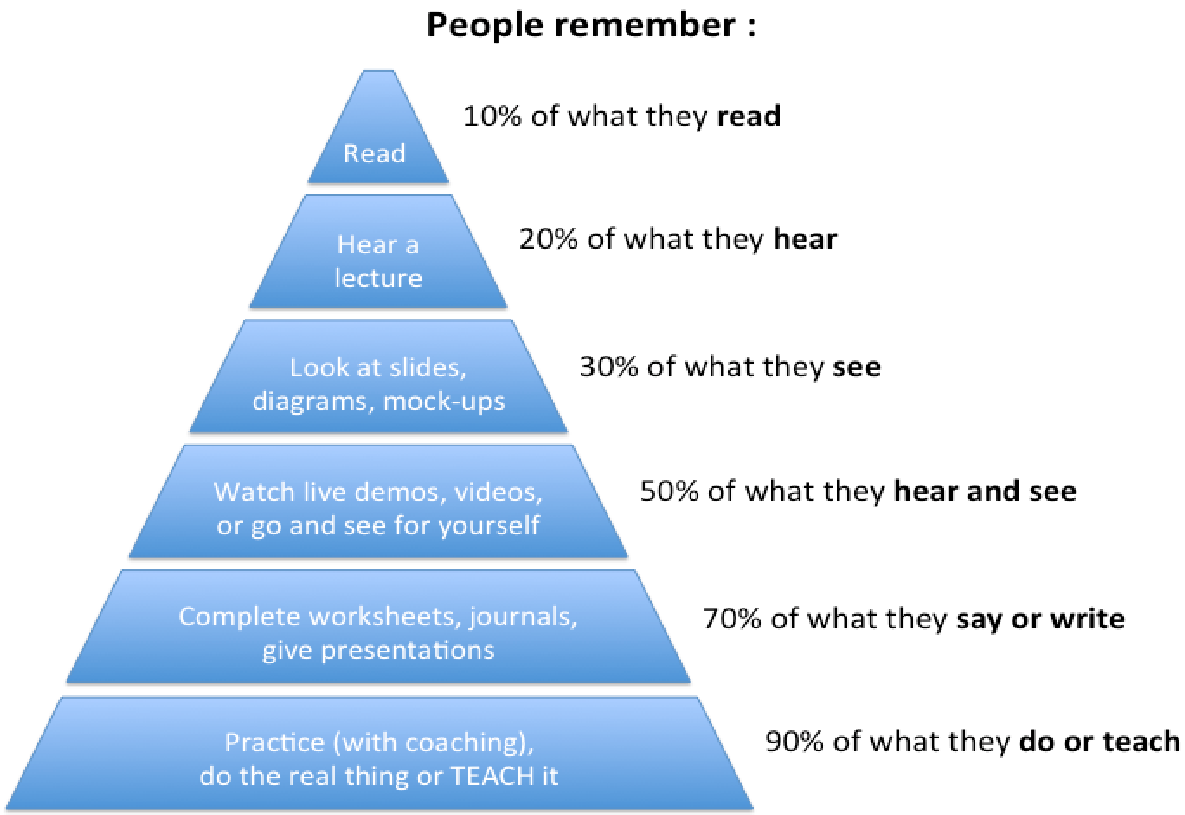

Figure 7: Learning Pyramid

Looking at the learning pyramid, you can see that *seeing* is fairly effective, but *doing* and *teaching* are the best vehicles for learning and remembering. In the medical world the “adagium” *See One – Do One – Teach One* is often used as an application of this[17]. The idea is simple: first see how something is done. Then do it yourself. And finally teach it to others. This method has proven to be very effective for example in medical educations. There is some critique on it saying that *See One* and *Do One* are not enough to gain sufficient learning to be able to teach one. This will be correct for learning complex matters or techniques, but just leads to a small attenuation of the “adagium”: *See Many – Do Many – Teach One*. The essential idea stays the same.

As CERT community touches wide range of areas, consisting of legal, operational, and technical challenges, it is highly recommended that trainers seeks to touch the very bottom of the learning pyramid where the effectiveness is the highest. As practice is often the most time consuming part, the trainer should consider the available time, and cover less topics more in depth.

[17] See e.g. http://virtualmentor.ama-assn.org/2003/12/ccas3-0312.html

5 How to be a trainer

Excellence is an art won by training and habituation. We do not act rightly because we have virtue or excellence, but we rather have those because we have acted rightly. We are what we repeatedly do. Excellence, then, is not an act but a habit. [Aristotle, 384-322 BCE]

Before asking how to become a trainer, we should ask, "why be a trainer?"

5.1 Motivation

The basic motivation of any trainer should be to want to share experience and knowledge with their trainees. This applies both to a professional trainer, as well as to ad hoc trainers[18] . Motivation for ENISA to support the trainings is to ensure that every EU member state has well-functioning national and governmental CERT. In 2012 a roadmap was created to provide more proactive and efficient CERT training[19].

The reasons why a trainer wants to share his experience and knowledge can be one or more of the following:

- The lack of well-trained people in a specific area and the trainer seeks to address this (an example is the CERT community: as it is rare to find dedicated CERT education in schools or universities to cover the full range of CERT services in depth[20], the CERTs themselves organise trainings to fill this gap).

- Specific/specialised skills need to be fostered e.g. inside an organisation or team (for example in IT forensics skills).

- The need for greater understanding of terminology, concepts, and ideas: this will benefit the effectiveness of future communication, operations etc.

- Gauging his own skills and experience, and learning new things in the process: training people confronts the trainer with his own understanding and grasp of a topic. Ideally a trainer will be two logical/experience "levels" or higher above that of their audience[21]. However, a trainer who is not that advanced, can still be a very good trainer as long as he communicates well with his students and realizes his limitations. Also, some of the most knowledgeable experts are not the best trainers in their area of expertise. It is preferable to be a good and enthusiastic trainer to knowing "the last bit of everything".

- Having a new idea of great potential and wanting to share it with others; in that case excellence as a trainer is less of an issue; enthusiasm and vision are compensating the lack of training skills.

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[18] If you think you are only a trainer because your supervisor assigned you to the task and you don't feel self-motivated, then read this guide carefully and put the recommendations into practice. Practice and be well prepared. And you may or may not find that training people is great fun. Give yourself time to observe and enjoy the process, and you will surprise yourself.

[19] http://www.enisa.europa.eu/activities/cert/support/exercise/roadmap-to-provide-more-proactive-and-efficient-cert-training/at_download/fullReport

[20] http://www.cert.org/incident-management/services.cfm

[21] Being a few levels higher than your students is a well-known qualitative concept. We will not endeavour an exact definition here. Use your gut feeling, as in the following: when you don't know something you are at level 0. When you learn it for the first time, you reach level one. When you have worked and struggled with it long enough, you reach level 2. When you see the structure behind it and understand both that and the details, and can explain it in simple terms, you are at level 3 or higher.

Would you rather be a professional full-time trainer, or an ad hoc one? Remember that "sharing" is basic to being a trainer. Of course a professional trainer will have considerable training and content wisdom to share, however the ad hoc trainer, who 90% of the time practices what he teaches, sometimes has an advantage when it comes to real-life experience. And real-life experience is probably THE most effective way to gain credibility with trainees. We invite you to tell tales of real events – and just notice how comfortable it is to apply the 4MAT system to such stories.

There are plenty of good reasons to be a trainer. Yet even when you may not see yourself as an excellent trainer, remember that being in front of an audience does not mean that you have to know the answers to all possible questions. You are simply the one standing in front of the audience sharing your learning, experience and events you have witnessed from close by. Being able to talk about your experiences in plain language is a great opportunity for information sharing. And by doing it more often, and acquiring trainer skills, you will grow from consciously competent to both consciously and unconsciously competent over time[22].

5.2 Education & training

There is no clearly defined education or training path to become a great trainer in IT Security. There are all sorts of content-oriented training paths (like CISSP, or CISM), there are specialised subject matter trainings (like TRANSITS I and II, or classes in topics as forensics, etc.), but when you ask "how do I become a trainer", there is often no easy answer.[23] Additionally the goal of certified knowledge serves a purpose of ensuring, that the holder of certificate has passed the minimum requirements required in the certification process. Specialised trainings on the other hand most commonly lead the participant into the depths of a narrow field of expertise showing best practices on how could the best results be achieved.

If you already are experienced and knowledgeable in your area of expertise, and you are motivated to become a trainer, then you are recommended to:

- read, understand, and practice, a training guide like this one[24];
- read more about training and communication (this guide will give you plenty of references);
- learn from successful trainers by talking with them, as they enjoy to share the experience with like-minded people.

If you are in Europe and work with the CERT community, then we can also suggest that you may want to follow a TRANSITS training to "see how it is done", and attend a TRANSITS Train-the-trainer course. You may even want to become a TRANSITS[25] trainer afterwards and make your experience available to a wider audience!

[22] About the "Four stages of competence" see e.g. https://en.wikipedia.org/wiki/Four_stages_of_competence
[23] Most universities offer a professional development scheme for their employees, which will most likely including a trainer's training. Outside this, a good commercial trainer training is e.g. http://shop.cipd.co.uk/shop/cipd-training/courses-qualifications/learning-talent/training-delivery/foundation-course-for-trainers ; another excellent training is http://www.nlpcoaching.com/nlp-trainers-training/ , however this requires prior qualification as NLP Practitioner
[24] Another take on how to become an excellent presenter is found in the recommended book: "Presenting Magically: Transforming Your Stage Presence with NLP", by Tad James and David Shephard (Crown House Publishing, 2001)
[25] For TRANSITS trainings see http://www.terena.org/activities/transits/

5.3 Communication during the training

Body language, tone of voice and language (the words you speak) are vital to the success of your training. Surprisingly enough for many, research indicates that the success of communication depends for 55% on body language, 38% on tone of voice and only 7% on the actual words spoken[26].

Body language includes how you stand, walk, sit, and wave your hands. An upright stance, chin up (not talking to the floor but to your audience), back straight but relaxed conveys confidence in yourself. It also opens up your lungs for the kind of good breathing that you need to carry your voice and to keep doing that for maybe even hours. Face it: if you don't show confidence in your posture, then who's going to believe you? Body position is an unconscious process that you need to bring into your awareness at first to learn and use your body language.[27] In the pictures you see an example of very uninspiring language, and the opposite, a relaxed and good stance.

Figure 8: body language is important

Tone of voice is almost as important to the success of your communication. Within the natural range of your voice, experiment with variations in pitch (higher or lower), loudness and speed. Discover that loudness and speed should also depend on the venue you are in, whether you use amplification (microphone) and if you train people in their own language or not. If you are not experienced in hearing how you "sound" in a room, then ask someone else to sit there and give feedback. Above all a successful trainer sounds confident yet approachable and inviting. There is no clear cut recipe how to achieve this. Preparing well certainly helps you feel confident and sound confident. Listen to other speakers and trainers you will soon start noticing the differences.

Finally, words may only be 7% of the success of communication, but to convey meaning as a trainer you cannot do without them. If you are the expert and give training in your own language, then the words will usually flow. However, if your audience is multilingual, you need to take this into account. Make sure they can follow you and make very sure that you do not go too fast. Imagine being among

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[26] See e.g. https://en.wikipedia.org/wiki/Albert_Mehrabian for these percentages, which of course vary per research – but the trend remains the same. Credits go to the pioneering work of Ray Birdwhistell, see e.g. https://en.wikipedia.org/wiki/Ray_Birdwhistell .

[27] There are various beneficial techniques which help you make better and more healthy use of your body – and improve your body language at the same time. A proven one is the *Alexander technique*, which can be adopted in a few sessions with an Alexander trainer – see e.g. https://en.wikipedia.org/wiki/Alexander_technique . It's not difficult when you want to learn and the results are usually excellent.

them and listening to someone speaking a very strange accent – imagine how it makes you feel to have to struggle to understand. Slow down your pace. Cut down on content if you must. It is better that your audience understands most of your topics well, then get through everything and leave the audience comprehending little.

Encourage your trainees to speak and ask questions. Literally encourage them, give them courage to do so. Start with this right from the start. Ask them questions. When you do this from the start they will start trusting both you and their own capacity to speak up. And you will have a much better training going on.

If you are not speaking your mother tongue during a training, make sure your command of the language is sufficient to make the training a success.

As quite a lot of international trainings are presented and conducted in English, it is often assumed that native English speaking trainers have an advantage. But based on feedback from people from the audience who are not native speakers, it follows that in some cases native speakers are quite hard to follow, due to various reasons. The speed of talking is in some cases very high, what makes it hard for non-native speakers to follow. Specific dialects (and e.g. the UK and USA have a lot of those) make it hard to grasp the meaning of all the words and the sentences. So native speakers: slow down! Seek to speak English as you hopefully had to during language classes in school. Avoid slang. Avoid figures of speech. Also stay away from local references, the kind of topic or TV program or actor or musician that everyone in your town or country may know – but the people in your training room have probably never heard of. If it’s a great metaphor, by all means use it – but then you will need to explain. Also, as native speaker you have plenty of time to process information as you speak calmly. Use this time to be aware of the body language of your trainees. When you do that, you will know it when you are not getting through.

Non-native speakers who do have good control over a language like English need to pay attention too. Some of them use a rich and unusual vocabulary that may be quite hard to understand as they use expressions that are uncommon or rarely used. One of the authors has read a lot of Shakespeare, and sometimes uses ancient words or word orders that even some native speakers fail to process – nice as this may sound, it’s of no use to your students. Keep your senses open and you will know when you are talking “gibberish”.

The English language is used here as an example. The principles apply to all language and it takes a lot of practicing to speak fluently and in a way that would be acceptable to most if not all audiences.

Four important hints to conclude here. The most important one is to "be yourself". You can play with body language, tone of voice and words as much as you like (as long as it works for the audience), but stay true to yourself. Don't try to emulate someone else, because unless you are a brilliant actor, it won't work. People who are not themselves, run the risk of being perceived as "fake" by the audience. That's a showstopper. Be yourself, and tell your own story. It’s ok to sometimes use other’s stories, but you will convince more when you share from your own experiences.

Second, while being yourself, adapt to your audience enough to be effective. This is about the words you chose to convey your message, and the body language and tone of voice to support that. If your audience is highly educated, this will be different than when you address a class of ten year olds. If your audience is accountants, or doctors, or military men, will make a difference for how and what you communicate. Gauge, observe your audience to see if your approach works. Adapt if needed.

Thirdly, adopt a style that fits who you are. If you are not good with humour, then it’s no use trying to crack jokes. Maybe you like to challenge – then challenge, with due respect for your trainees. Maybe you like understatement – feel free to use it, but do look around to see if it works, which may be hard with an international audience. Be flexible and adapt to circumstances.

The fourth recommendation is to record your presentation with video and audio - and replay them later. Most often you won't like it at first but it is worth to overcome this, and then you will learn a lot. Do accept that to others you sound different than to yourself, that's always so. Another idea is to ask a non-native speaker to watch you train and then give you personal feedback (in private).

5.4 Previous experience

A contributor to this document said that speaking on the radio had helped him a lot to develop his skills as a trainer. In a radio broadcast, as in a podcast, you need to be entertaining and flexible: qualities that are very useful for a trainer. Fear is a perfectly natural reaction when you are not used to a big audience. By exposing yourself to it, you will get over the fears to be on stage. Experience tells that stage anxiety becomes a non-issue in time. It takes about one year of going out and training people for a trainer to become really fluent in front of an audience. If you want to speed this up, expose yourself more – e.g. take a stand-up comedy training (which sounds a bit extreme, but is a perfect training for spontaneous reaction)! After a year or less, what's then left of what once was stage fear, becomes in fact an aid to keep you alert and perceptive as presenter, and thus becomes a friend who helps you deliver the best quality.

5.5 Appearance while giving a training

This topic is not easy to approach as every person is unique. Nevertheless there are some general recommendations for "appearance" when presenting or training on stage. The basic idea is simple do not over dress and do not under dress. And stay with your own ideas of what is stylish, unless those are too outrageous of course.

Do not under dress: as trainer you are the role model, everyone looks at you, so you want to look properly groomed and wearing proper quality, decent clothes. You can adjust to local habits (make sure that you know them), but avoid excess or things not suited to you: e.g. as someone from Europe, you are not going to present in a traditional dress of India or Saudi Arabia. If dress codes do apply, know what these mean: smart casual, business attire, etc. – check with your local host what they will be wearing, as the definition of dress codes varies across the planet, and may even be different between two similar companies in the same country.

Do not over dress: you want the trainees to be attentive to what you communicate, not stare at your clothes or make-up. So if you like people to look at you, that's fine but when you train people, be somewhat laid back and relaxed. What you definitely need to avoid is some special untested makeup or tanning right before the training. Also protect yourself against the environment (climate, sun) within reason. One of the authors has experienced first-hand how a running nose (from a neglected cold) or blazing red skin from too much sun make it so much harder to maintain that professional appearance expected of you as the trainer.

I once assumed my normal dress code for international meetings (a suit and tie), forgetting that the audience would consist of network operators in t-shirts. Fortunately I spotted that 100+ people had simultaneously folded their arms when I entered the stage. Describing my own account of a professional challenge that they had all experienced themselves too, got most of them to relax and listen. But it was a narrow escape… [Andrew Cormack, Chief Regulatory Adviser, Janet, UK]

This story illustrates that audiences have expectations of how a “leader” in their field looks like. If you fit that image, then you have a good starting point. For instance, an audience of ethical hackers does not have any issue with trainers with tattoos or piercings. If you train them in a business suit however, you may be the best of experts, but you will need to work harder to convince your audience. Still, do not dress beyond the limit of your own comfort. If you are a great hacker and you feel best wearing a tie, wear a tie by all means. Maybe you want to crack a joke about your ties with the audience to break the ice. Be perceptive and creative and you will solve such challenges while enjoying doing so.

5.6 Cultural differences

In some cases the audience is composed of people with different cultural backgrounds, beliefs and experiences. That's a wonderful opportunity to share your experiences with a wide variety of people from all over the world, and when you have a training with group exercises, also a very good vehicle to increase the mutual understanding among your trainees. However as a trainer you do need to have some basic idea of these differences in order to make all in the class feel welcome and respected. This includes things like how to approach people, the distance to keep in a one-to-one chat, manners and other relevant facts, like how to accept a business card that is being presented to you. If you have local hosts in a culture you don't know, simply ask them beforehand if you are not sure about such local habits. However as always stay true to yourself and your background: be respectful and welcoming, yet keep your own style. It will not be appreciated if you "copy" their habits. When in doubt during a training – simply ask respectfully.

When I was program chair for FIRST back in 1999 in Brisbane, a gentleman from Japan gave me his business card. I was glad that I had heard about that event, because this was the first time I was party in this protocol[28]. The card should have two sides, one in Japanese, and one in English. The card is handed over held with two hands. When you receive it with two hands, in a similar manner, and exchange courtesies, you will have done very well for a Westerner. Don't worry about bowing – if you have good rapport during the encounter, you will find it very hard to suppress a polite slight bow – I know I automatically do it. Avoid overdoing this – this is part of a complex protocol, and you are not expected to know this. I sure don't, so I just follow my gut feeling and have had many courteous and friendly exchanges and contacts with Japanese colleagues. [Don Stikvoort]

Figure 9: Business Card in two Languages (from one of the reviewers of this guide)

Gender differences (female/male) can pose a very similar challenge, depending on where you are. Again, if you are for instance from Switzerland, do not assume that the way you can approach both genders in your home country is the same as elsewhere. The difference can be very apparent in Islamic countries – but not only there. In some cultures, women will not look a man directly into the eyes – if you then keep trying to achieve eye contact this may be perceived as rudeness. Again, if you are in a new environment – feel free to ask with respect. If necessary, one to one, and not in the classroom.

[28] For more information see e.g. http://www.japanesebusinessresource.com

5.7 What it takes to be a trainer

To be a trainer is like climbing a mountain. Inspiring but sometimes asking for more when you thought you had nothing left. [Don Stikvoort]

Often your trainings simply go well, and there are no big surprises. Your trainees are doing well, and you are happy as their trainer. But sometimes, “Murphy” strikes. You may be jetlagged or simply not well. The air-conditioning is too hot or too cold. Your voice has taken a day off. There is a trainee from hell who tries to sabotage your training. The projector, or the network breaks down. And the coffee is awful. Every trainer will experience such things one day. That’s when the quote really applies. Your trainees, especially on a paid training, expect you to be excellent. They are there to learn from you. You set the example. So what do you do? You use your reserves and perform. It will take a lot of energy, but you can do it.

The first and last thing to do as trainer is – stay on the positive side, stay on the cause side, where you can cause solutions to happen. You can always ask for help and support. From the hotel or facility you are training in. Even from your trainees as long as you clearly explain that there is a perfectly valid reason for doing so.

As the trainer you set the example in all matters visible during the training. This also applies to arrival, breaks and departure. So do not change style all of a sudden during a break. Of course you can have relaxed, personal chats with trainees during the breaks. But remember that you are still the trainer, both at a conscious and unconscious level. So you continue to set a good example. For instance, if you expect your trainees to stick to the set break timing – and you should – then you need to stick to it too. If all your trainees are back in time and you make them wait for five minutes, then they will be late next time. Some trainers enjoy a little decorum for that reason – for instance they ask local staff to prepare the room and only appear five minutes before starting time. They enjoy their break separately. You can but don’t have to do this to be a good trainer. It is more important to decide your own style and stay with it, at least during the training. Over time you will find what suits you and it will become a natural style. Some trainers prefer to be close and involved – others like a bit more distance. It’s up to you, but whatever your style, every good trainer is involved with and interested in his trainees.

You may be reading all of this and thinking “but how do I ever get to be such a great trainer”? Well that’s simple: like we all did! Practise, practise and practise! Don’t be afraid to get things wrong at times. Learn from your mistakes. Apply a sense of humour – crack a joke about yourself at times (without degrading yourself), it’s very refreshing and good for learning. Trainees don’t mind a mistake at times, as long as you are open to correcting them. Know that you can always learn from your students. Always accept and respect their feedback. Remember: perfection is the enemy of excellence. The best trainers and performing artists, like in music or in acting, will tell you the same.

6 Preparation for trainings

The 7 Ps:
Proper
Planning and
Preparation
Prevent
Pest
Poor
Performance

[Adapted from British Army training]

6.1 Planning

In many cases the training that you need to give already exists. All materials for preparation and delivery are at your disposal. Suppose that is the case – then how long before the course do you need to start preparing, and what do you need to prepare?

Let's first look at simply familiarising yourself with the materials so that you feel confident you can deliver an excellent training. How much time does this cost? We sent out two polls to experienced trainers asking them two questions:

Basic level preparation:

Suppose you prepare for a training that is fairly basic in content and the exercises are not complex or deeply technical. How many days of preparation do you think you will need per actual day of training?

Advanced level preparation:

Suppose you prepare for a training that is more complex in content or the exercises are complex or need a more technical set-up. Imagine a classroom with PCs equipped with virtual machines. In that case, assume that the VM is available to you as part of the materials, but as usual with VMs, you find they all need some tweaks and updates to work properly. How many days of preparation do you think you will now need per actual day of training?

More than 15 trainers replied to these two scenario questions. Based on their replies and the authors' own experience, the basic level preparation takes around two to three days of preparation per training day, with some responders planning up to ten days of preparation time. The advanced level of preparation typically will take five to ten days of preparation, with some mentioning up to twenty days.

This means that when you prepare for a basic two-day training, you need to reserve at least four days to prepare. And if it's advanced, at least ten days but maybe you will need twenty. Of course the length of your preparation time will vary depending on your experience in the content and as a trainer. But once you are an experienced trainer you will be able to make a good estimate of how much time you need. The bottom line – start well in advance. To prepare well you need much more time than you may think when you come new to the training business.

Is this all the planning you need to do? No, there is more. Right at the beginning of your preparations, consider the following and write down your honest answers:

- Goal. What is the goal of the training? What do the trainees need to know and/or be able to do after the training? How good should they be at knowing/doing that? Think about how you can measure this after the training.

• Target audience. Who is coming to your training, and how many? What is their background, education or knowledge level, before they enter your classroom? If there is a wide variety in knowledge level, how will that affect your training? Do you need to give extra help to people whose knowledge level is relatively low – and if so, how are you going to pull that off? What language is the training in, and what are the mother tongues of your trainees? Are there cultural and/or gender differences that you need to take into account?

• Group size & training assistance. How many will attend your training? This does not only influence the size of the training room, but also if you will need help on-site. Groups with up to ten trainees, you can handle on your own, including logistics. If you can get logistics support, so much the better, but consider this a luxury. For groups with more than ten people, aim at getting some form of logistics support. For groups with up to twenty people you can take care of the *training* by yourself, but beyond twenty trainees, you will need to consider getting training assistance. This can be in the form of one or more assistants who take care of exercise or workshop elements, so that you can re-gain energy. You can also work with a co-trainer, performing the training together as a pair. It can be very rewarding and inspiring to work with a co-trainer – one of the authors has done this himself several times, witnessed it many times, and is enthusiastic about it. However, working with a co-trainer requires good preparation together, getting to know one another, and especially finding ways to react to one another and take cues from each other naturally. All of these will facilitate a spontaneous flow of ideas during the training. And important as preparation is, it is not enough: this kind of collaboration really needs to be *discovered* while doing it. Training on the job, while you are training others.

• Success/fail factors. Make a shortlist of factors that can make or break the success of your training. You will find many of these in annex A. These factors can be anything from a failing air-conditioning in desert heat (this happened to one of the authors), or a broken projector, via a strike in public transport, to you being ill, or one of the trainees sabotaging your training knowingly or unconsciously. For each of the factors, think about the likelihood of that occurring, and your remedy for when it would happen. For very unlikely factors on which you have little or no influence, you may write down “Force Majore” and further ignore them[29].

6.2 Planning and announcing

Marketing is a profession of its own and you can find many books and online information on the topic. The authors are not marketing experts, though one has experience in doing actual marketing for more than 15 years. We will just mention a few things that we consider essential for the marketing of trainings:

• **Planning**. Plan well ahead of time. If your training is well known and respected, and you have good communication channels for PR, even then you need to start advertising your course three to four months in advance. If you can make a training calendar much earlier than that, so much the better.

In case your training still needs to gain recognition then you need to start much earlier, up to a year in advance. Because you will need to approach your target group, find the right channels to do so, sell your course. If your training is a longer one, you may want to offer short workshops as appetizers for your full trainings. If you offer a training path that way, take into account that one out of five is a very decent turnover rate – that means that out of every five people that do your introductory workshop,

[29] If you give the training in a country where legal liability is an important issue, you may want to exclude liability for such “Force Majore”, by obliging trainees to sign a set of terms for your course either when subscribing to it, or just before the course begins, in the classroom.

one will do the full training. And out of every five that do the full training, one will subscribe to the advance training. Always set goals for your marketing success and measure success.

- **Goal**, content and target audience. Make a clear description of what trainees will achieve by taking this training. Will they receive a certificate, or be accredited or certified? Write down a summary of the content – this can be as simple as a bulleted list. Describe what audience you want to reach and also what level of knowledge or education they need to have in order to make a success of your course. Communicate all of this clearly. Fuzziness does not make good PR. Do not hype your training: trainees who get what they expected plus some more, and feel good about trainer and training, are the best PR.

- **Media**. What media will be used to market your training? Traditional media are flyers and catalogues, printed yellow pages, banners or billboards, newspapers, radio, TV and word-of-mouth[30] of course. Articles in local, regional or national newspapers are usually good PR. TV is great, but to get coverage you often need a really good story and some insider helping you. Flyers are good hand-outs at gatherings like conferences, workshops and exhibitions.

The list of new media keeps growing. A web presence is the bare minimum these days – and if this is an important marketing medium for you then strategies to get your site high in search engine results. Media like LinkedIn and Facebook offer extra online presence. A more active approach can include a blog or Twitter messages. Whatever you choose, make sure the information is correct and up to date. If you do blog or tweet, do it regularly. Don't waste your time on a blog updated once a year; no one except your partner will read it.

6.3 Training material

Make sure that your materials are elaborate enough for students to be able to reproduce your story when you are not around to help anymore. [Hans de Vries, CEO of a Dutch training company]

This quote may well contain the most important advice in regard your training materials: your training is not a "one-man-show", but is meant to bring lasting education to your trainees. Whatever your training materials exist of, make sure to address the following issues:

- **Effective structure**. Choose a structure that enables as many trainees as possible to meet the training goals. We specifically recommend to adopt the 4MAT system as explained in chapter two – the 4MAT is just as powerful for a one hour presentation as it is for a ten-day course. This would apply to your session planning and accompanying slide set especially. Remember: the 4MAT system addresses the needs of all four different types of learners, and does so in the most effective order. All it requires is that you chunk up your training topics in logical chunks or topics, and that for each one of those topics you order your training as follows:

1. **WHY.** Make the trainees curious "why" they should want to pay attention to this part of the training. Ask questions like "who wants to learn …" in such a way that they want to reply "yes, I do!" The WHY takes 5-10% of your topic's time.

2. **WHAT.** This is the content, the theory, the body of learning for this topic. Old style school and university lectures did almost only the WHAT. Fills 20-70% of your time: some topics need more WHAT and less HOW, with others it is the other way around.

[30] For those in the CERT community – contact your local or national CERT and see if they want to work together with you to spread the word. If this is in the interest of their constituency you may find them interested to do so.

3. **HOW.** This explains how you actually apply the theory. If there is a process with steps, it's in the HOW. A demo and exercise are also in the HOW. Again, this fills 20-70% of your topic's time.

4. **WHAT IF.** Variations on the theme. Time for questions. The WHAT IF people learn by wondering how to apply the learnings in different ways, under various circumstances. Plan for 5-10% of available time.

Remember: for big topics with several sub-topics you can go for one WHY for the whole topic, followed by a series of WHAT-HOW sequences sufficient to cover all sub-topics, concluded by one WHAT IF. In such a case the WHY and WHAT IF may be shorter than 5% overall.

- **Ability to understand**. Keep your language straightforward and avoid complexity. Avoid long sentences, many commas, and stay away from double negatives such as "do not forget to not …" as these really confuse people. As a rule of thumb, even stay away from negatives when you can as the unconscious does not process them. So instead of writing or saying, "don't mess with the air conditioning", opt for "make sure the air conditioning is set well[31]". Whether you are a native speaker or not, have someone else review your materials for language and understandability. Together with the reviewer also make sure the materials are as much as possible free of errors in spelling, language and of course also content – too many errors will make your materials look really unprofessional, and you will need to be a really brilliant trainer in person to compensate for that impression.

- **Easy Reference**. Make sure your trainees can easily find what they are looking for, 6 months later. A good table of contents is a must. If your materials are extensive and you plan to re-use them many times, consider making an index - this is worth more than the effort spent. If you have a set of references, you will help your trainees a lot if you add a commented bibliography: that way they get the quality assessment of the expert (you) for free.

- **Readability**. Both for projected slides as well as for printed hand-outs, make sure that readability is prime. This means: big enough fonts and no distractions, and make sure that text and background contrast in both colour and light/darkness. For a text slide this means that four or five bullet points is much to be preferred over 7 or more – less is more where it comes to slides. For printed materials, use black on white printing and choose a clear font. Font size: dependent on the font, but usually at least size 12 – one of the authors uses only 14 with a font such as Calibri. Avoid distractions – no backgrounds that make the texts hard(er) to read, and keep logos to a minimum. The pictures below give examples of a bad, unreadable slide (a webpage with small font on this picture), and of the opposite.

[31] In the NLP model, "now, we wouldn't want you to mess with the air conditioning" actually contains the embedded command "mess with the air conditioning". Thus, negative suggestions can actually reach the opposite of what they literally contain. This works much better in speech than writing. Unless you are well versed in such matters, we simply recommend you to steer away from the use of negatives.

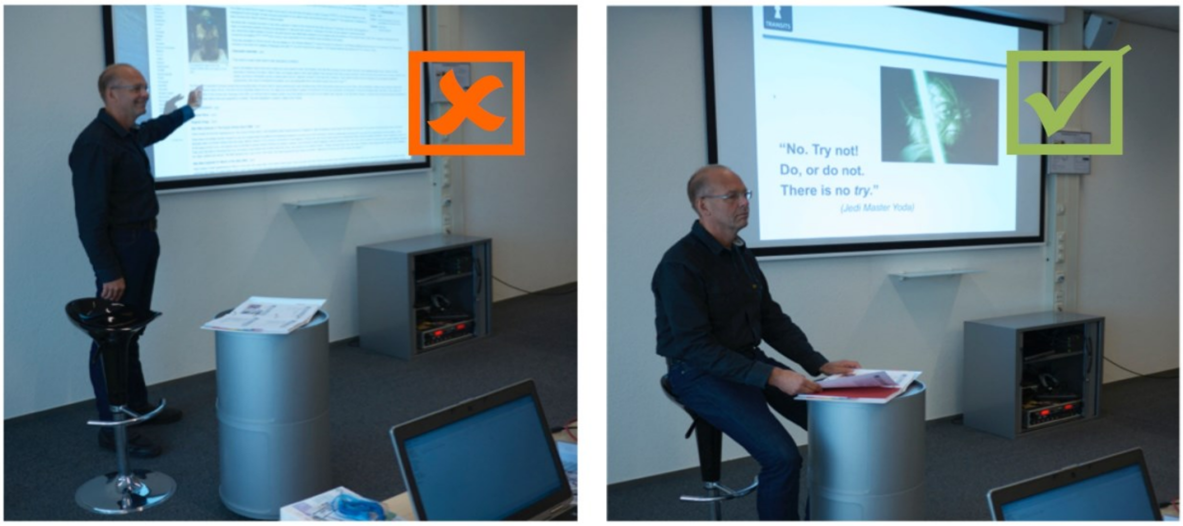

Figure 10: slides must be easy to read and digest

- **Portability and security**. Printed materials are still used a lot, but they are a lot of work to produce, and "cost trees" as the saying goes, and so more and more trainings cut down on the amount of paper. If your students fly in, they will also be thankful when you don't provide them with several kilograms of bulky binders. E-materials are increasingly popular. CDs are going out of fashion, USB sticks are the most commonly used now. Whatever e-format you use, choose one that works on most computers. PDF is most commonly used – avoid sharing PowerPoint or Word files. If you supply audio or video materials, whether before or during the training – then it is wise to stick to mp3 for audio and mp4 for video. No one will have trouble getting those to work on most systems, including smart phones and portable media players. One word of care – make very sure you are not spreading malware (computer viruses, worms etc.) with the USB sticks you hand out. And once handed out, do not plug them into your own computer anymore, as the laptop of your trainee may have infected the USB stick at first contact. [32]

- **Life cycle**. When you finish any training document, or video, demo, or whatever part of your training materials – make sure to set the expiry date at the same time. You don't need to make that explicit towards the trainees, what counts is that you know and that you have a system to follow up on this. What does that mean? Well, say that you set a three year expiry time. Then after maybe two and a half years, you make a renewal plan: who is going to do what, and when, to make sure that the material will be updated, or completely renewed. So you plan a life cycle for all your materials.

Bearing the above in mind, we recommend you prepare the following materials for a traditional classroom type training:

- **Learning objectives**. First things first: write down what you want your students to learn, experience and achieve in the training. Learning objectives should be SMART – specific, measurable, attainable, realistic and timely[33]. When you explain about Internet hacking techniques for instance,

[32] You could opt for media that you can set read-only. This is rare for USB sticks. Flashcards as used in photo cameras have a little switch for that. You could use such flashcards, switch them to read-only and tell your students that if they switch it back to read-write they do so at their own peril. However, most devices cannot read flash cards so you will need to provide your students with a little flash card reader with USB interface. These can be found for under € 10.

[33] See e.g. http://topachievement.com/smart.html

then "the students will learn about all hacking techniques" is clearly not a SMART goal. Whereas "after the training the trainees are able to explain at least two ways in which DDoS[34] attacks are done" is much better. "Measurable" means you need to be able to ask your student a question afterwards – and the answer should prove that the objective has been met (or not, in which case you need to wonder what to do).

• **Session plan**. This is your timetable as trainer. It tells you what to do what and when, and how long it will take. If you are an inexperienced trainer, make a detailed session plan and then see how it works out during the training – adapt it if needed for next time. This will really help you become a better trainer. Experienced trainers will make a more concise session plan, and be more liberal in playing with the timings "going with the flow" of the training and the specific needs of that group of trainees. However, for longer trainings (especially those over multiple days) all trainers, no matter how experienced, need a good session plan. Also, for longer trainings, you should segment your session plan and add learning objectives per segment. It's a really good idea to check on the achievement of these learning objectives at the end of each segment.

• **Slide set**. This is what you use as visible guide for both yourself and the trainees. Add images to your slides where apt – these can be charts, illustrations of the content, or simply funny. Avoid explaining funny images – they should speak for themselves. Keep slide animations down to a minimum – these were fashionable once, but in fact can disturb your flow as a trainer and distract your audience. An animation here and there can be both functional and part of the fun factor, which helps to make the training digestible. A functional animation can for instance be if you are presenting important topics via bullet items, and you want to have them appear one by one. But do not apply that to each and every text slide.

• **Tutor notes**. These are there to help the trainer with explanations about e.g. the slides, and with background information. Tutor notes can be added to the slide set, and be visible for the trainer but not the trainees – however in that case the available space for information is usually very limited. Plus, presentation laptops are sometimes quite small, and older trainers may need a microscope to actually read the small font of the tutor notes on screen. Separate tutor notes are therefore recommended. You can print them in font 14 or 16 for easy reading, so that you can even easily browse them during training, without the students even noticing.

• **Student notes and/or accompanying texts**. A bunch of slides is not the same as full training materials. As mentioned in the quote above, make sure that you provide the students with enough materials so they can find the essence also when you are not there to help them anymore. You can do this by adding notes that accompany the slides – supplemented with additional texts, readings, articles, whatever is relevant and helpful. If a book is available, you may recommend this or even include it as part of the training cost. It's very nice to send the students home with not just a set of materials but also a relevant book.

• **Exercise hand-outs**. When you do exercises make sure to have extremely clear instructions and very explicit and clear hand-outs to go with it. If you run a new exercise for the first time, no matter how well you think you have prepared it, half of your students will do something completely different from what you ever planned they would do. Monitor the exercises closely, and improve the hand-outs so that the surprise factor goes down. If less than 10% of your students "re-interpret" your exercise, you have done very well.

For other types of trainings, e.g. hands-on computer trainings, various types of other materials will be needed. We won't go into these, as the variety is too wide to cover here. Just remember that whatever

[34] DDoS: Distributed Denial of Service – a specific hacking technique

you do, you need to have it covered in your session plan. The various remarks about effective structure, readability, understandability etc. always need to be taken into account.

6.4 Logistics Checklist

Training logistics is everything *outside the training process itself* that needs to be done before, during and after the training to make the training a success. Logistics include all the boundary conditions for a great training, from the availability of a well-equipped training room, coffee breaks and sandwiches, to climate control, mailing lists and materials, all the way to the red carpet for the trainees to walk over as they enter the training room[35]. Many of these things have been and will be discussed in this guide – but for your convenience we provide you with Annex A, a logistics checklist. The idea is that you can use that checklist to prepare and execute trainings, marking each item once completed. This checklist will be provided separately as an annex in pdf and word format, for your convenience: the word file you can tailor to your own needs.

6.5 Preparation on-site (before the first day of training)

If you are doing a training for the first time in a certain site, go and check it out several days or even weeks before. Make an appointment with the local contact responsible for supporting your training and have them guide you around. Your appointment needs to be at a time where your intended training room is free. Make sure to cover all the items listed below under "class set-up" – this way you make sure everything is well prepared and you save time on the training day. Check whether your guide is available on the days of training, and who are their back-ups and how you can quickly reach them during training. Important: expect "things" (what, you never know) to change between this visit and the actual first day of training. Be prepared for that.

6.6 Communication before training

In the many training evaluations that the authors have received and made, trainees often appreciate the training, but critique communications in advance of the training. Pre-training communications is often underestimated. Let's look at some aspects to take into account:

- **Communication plan.** Have a communication plan. That plan will tell you what to tell, when and to whom. Allow people enough time to digest what you send them, especially when it will take some effort on their side. Tell them about your timeline – what information or tasks they can expect and when. Stick to your timeline and plan. Doing what you write and say you will do is an easy way to gain credibility with your trainees.

- **Expectation management.** Be very clear towards your trainees as to what you expect of them. What are the pre-requisites for the training? How should they prepare? What should they bring with them to the training? Is there a dress code? What can they expect in regard to food and beverages? Should they bring a laptop – and if that is needed, does it need to carry a specific operating system? Do they need to pre-install some software? Should they have root/administrator rights? Or, alternatively, do you actively discourage the use of computer equipment during the training? Do you have a policy about taking pictures, recording audio or video, tweeting or otherwise publically sharing events during the training?

- **Tasking.** You can assign tasks in advance to encourage the trainees to already consider some of the training elements. This is valuable, but bear in mind that trainees often have little spare time left during or after their daily jobs. This lack of spare time is sometimes a reason to go to a formal

[35] The red carpet is optional.

training. Make sure that tasking is very clear in content and limited in the effort required of the future trainees. It is better they spend one hour intensely on one or two topics or questions, than spending two hours to cover ten topics superficially.

- **Training schedule and travel tips.** Make sure to send a clear training schedule and travel tips one to two weeks before the training starts[36]. If you do it much earlier, your trainees may not pay much attention to this information and forget about it. If you do it later, they will tell you that the information was sent too late. The travel tips include how to get to the location by the most obvious forms of transport (car, taxi, train, plane) and one or more relevant maps – include those maps and do not only link to some mapping website: your trainees will be grateful that you save them time. The distance that trainees are traveling to your course may alter the timing of travel-related communications; those booking air tickets may need travel details further in advance of the course.

6.7 Class set-up

Arrive well in advance. At least half an hour before the training starts, for a bigger training one-two hours on the first day. Do NOT expect that on the day of training everything will be as you saw it during your preparation visit – especially hotels are good in changing everything when a client with more money comes round. One of the authors once did not even get the training room that was shown to him during preparations and that he paid for – the hotel had decided otherwise, and the new room was not as good. Some refund was given later, but that didn't help his students that day. Had the author not arrived well in time so that he could adapt his planned set-up quickly, the students would have noticed some annoyance and chaos – which is bad for building trust with your students and bad PR.

Make sure to cover the following items:

- **Local staff.** Meet with the local logistics people. Who is responsible overall? Who is responsible for the audio-visual facilities? What about coffee and lunch breaks, and where are they held? Where are the fire-exits? Where the toilets? Any other things you need to know? Talk all of this through.

- **Room lay-out (U-shape or otherwise).** Check this with local staff and make them do changes to get it as you want it (and as you should have specified in advance). In general we recommend u-shape as it is a more personal setup than e.g. classroom style – all trainees are around the same table, and you can get close to all of them. The u-shape is really like a version of the "round table" adapted to a training situation. A good alternative is a set of small round tables, allowing four to six people around them. This is especially useful if you switch a lot from plenary to group work.

- **AV equipment and network.** Check with local staff if the projector works, and any other AV that you may need, like fixed or clip-on microphones. If you use microphones, you may want one or two portable ones for questions too. Have all this ready and tested. Also check the network connection, and if it is essential, have some back-up plan, like a 3G mobile hot spot or tethering using your mobile phone.

- **Environment.** Is the room temperature okay, and is the air not too dry? How do you operate the air-conditioning? Are there any windows that can open? What about the lighting, where are the controls, and what is the best setting for your plenary sessions? Do you need other settings for group work? (Temperature differences can often happen.)

[36] If international/long travel is involved you clearly need to inform people much more ahead of time, or you can give them a heads-up say 3 months in advance, so they can at least book their flight or long distance train.

- **Stage.** Set up your stage. Place any posters or banners where you want them. Make sure there is a clock somewhere that you can easily see during training. If you use stage positions, practice where they are so you won't have to think about it during training. You can use the stage in many ways[37], but here we will keep it simple and give you two positions to consider.

One is your neutral teaching position, as in the picture to the right. The neutral position is one you need to be able to maintain for a longer period of time. In the example of the picture, the trainer has set himself up for a longer training, as he has chosen to sit on a high chair instead of standing – and he has arranged his materials to be in front of him. Notice that the posture is relaxed yet communicative.

Figure 11: Teaching position

Figure 12: Teaching position

The second position we suggest you think about is the *close to audience* position, as in the picture to the left. Remember that whenever you come close to your audience, this is a *powerful* position, as you come closer into their comfort zones. You can use that power in a positive way by *not* staring your students down with your eyes, but instead staying in trainer state and peripheral vision. In the picture, the trainer was using this position for doing a *confession* – some personal experience which would not be in the slides or training materials. The same position can also be used to tell a story. When the *close to audience* position is used in these ways, it becomes a way to connect more personally with the trainees, which is inspirational when done respectfully and as exception rather than as rule.

The main thing to remember about stage positions is that *when* you decide to set them up and use them, you need to use them in a consistent way, using the same locations and similar body language. The reason for this is that a stage position is what is called an *anchor*, which triggers a reaction in your trainees. The more you use the anchor, the more defined that reaction will be – there will be recognition at an unconscious level: "ah now he is going to tell us some personal story!" for instance. For an anchor to work well it needs to be precisely located and executed. Hence the specific location and body language – and even specific tone of voice, like you would tell a personal story in a slightly different tone of voice from your normal teaching voice. How – that is up to you.

[37] To talk about stage positions could easily take a day! See e.g. http://www.speakingaboutpresenting.com/delivery/9-ways-space-presentation/ to get some ideas of what you can do.

- **Materials.** Any materials for the students, have them readily available – on their places, or in a central area, e.g. next to the entrance. It is very convenient to have nametags and name boards for your trainees. Nametags are useful during breaks and group exercises. The boards with their names on them you ask them to place in front of them – that way you can see their name right away, which helps you get acquainted with your group more easily, and avoids uncomfortable situations like "you there, tell me …".

- **Finish your preparations before you allow the first students in.** If students are early and you are still busy, ask the reception to have them wait in a suitable waiting area, like the coffee area – not inside the room. It's not professional to let the trainees watch you prepare, and besides, some of them will start a talk with you and you will be either very distracted or impolite as you brush them off. If you have a co-trainer, then one can prepare the room while the other meets with the students already, outside.

7 Execution of trainings

Better a diamond with a flaw than a pebble without. [Confucius]

As a trainer, strive for excellence – not for perfection. Perfect is the enemy of inspired. Be an inspired trainer rather than one who is continuously looking to correct minor flaws. Trainees will remember you for how you motivated them – not for where you put the commas in your sentences. As trainer you are like a performing artist. The famous classical pianist Alfred Brendel once said that in his best performances he made the most errors.

7.1 Training style

Find your own style in giving trainings – and then get comfortable with it. Make sure it works for your trainings of course. Being respectful towards your trainees is always an essential element in any training style – but also to be in charge in a non-arrogant, inviting way. Use your sense of humour, but as we said before – be yourself. Avoid extremes – trainings are not supposed to be stage dramas.

Once you know your basic training style and are comfortable with it, stick with it. Predictability towards your trainees is good, in general. Especially in more intense trainings, your students will be outside their comfort zone, and they need some elements of stability. As you are the one guiding their learning, it is excellent that you are that anchor as trainer.

However don't be boringly predictable. The word boring says it all – that's what you want to avoid in your trainings. The one you all know to avoid for instance, is to read from the slides[38]. Surprises and unexpected events coming from your side are quite welcome, if used sparingly and with purpose. You can prepare some of such surprise moments – but always allow room for spontaneous ideas too. Spontaneity is usually inspired by your students, by what they say or who they are – by the interaction with the group. Allow that to happen, enjoy the element of surprise which that is also for you.

Your training style extends to all your behaviours in and around the training, visible or audible to the trainees. So that includes the breaks. Maintain your style in the breaks. If you really need a personal break, make sure to not be with the students, have a walk outside for instance, or use a trainer room to retreat if available. If you work with a co-trainer, that makes everything easier as you can share the workload. For most trainings it is beneficial when at least one of the trainers is around during breaks. Some students will only ask you questions at such quiet moments.

[38] Also know that every rule has an exception! If you have a complicated statement to explain, then it's perfectly fine to have it on a slide and read it out, even twice if needed, while adding explanations. Remember that this is the exception to the rule.

7.2 Timing

Start on time, stay on time, and end on time. If you adhere to that, you will be fine. Let's examine these briefly. First though, remember from the preparations – be aware of time, have a clock visible for you.

Start on time. Usually that is up to you. Make sure that at the starting time, you are really ready to start, e.g. the first slide is up already. Fighting with the projector at that moment and blaming technology gets you off on the wrong foot. Instead of right away leading your trainees towards meeting their expectations, for which they may have prepared a long time or travelled for hours, you are distracting them with something which really can only be explained as a lack of preparation and disrespect towards the trainees.

Sometimes your class is not full yet at starting time. This mostly depends on the culture/region you are giving the training in – if you suspect that may be the case, then find out by asking. Sometimes it can be due to external factors, like problems with the train system. Adapt as needed, but keep your students informed and stick to what you say. If you say "as several students are still missing we will wait for another five minutes" – then do start after those five minutes. In that first hour of any training, you set the rules for the whole training. No matter what culture or region it is, and no matter how busy the roads or trains may be – you set the rules of engagement. If needed, make this very explicit. One of the authors sometimes gives trainings of six to twelwe days total. He then spends the first half hour on setting the frames and expectations for all those days – and demands implicitly the acceptance of the trainees, like in "as you sit here, you accept these rules, which are here to make you all learn as effectively as possible, in an way that is agreeable for all of us". Make sure that the trainees stick to the rules you set, also after breaks and the following days – and make sure you stick to your own rules as well.

When your training is part of a day program, insist that you can start on time. And if not, that provisions are made so that you don't have to rush because of others having been too late. If there is no choice but to accept the shorter time available, consider leaving out part of your program, instead of rushing it all. If you do, explain to your trainees what you leave out and why – and how they can make up for this. Maybe you can give them the missing materials as hand-outs, and allow them to ask questions by e-mail. Make the best of any given situation. If you genuinely feel that you cannot do your work right – refuse to do it. This requires some strength of character and experience, but we assure you – once you have done it once, you will know how to do it for the future but may find that you won't need it anymore[39].

Stay on time. If you don't, you will not get your materials done, or your end time may slip. Neither will make you very popular with your students and it's unprofessional. Adhere to the break times – its fine to start five minutes later with a break, but do not shorten the break. Breaks are not there to give you more time for teaching, they are there for the students and you to relax for a moment. When doing exercises, stay on time too. It's very easy to take longer for exercises. While this will usually happen a few times when you give a training for the first time, be very aware of this, as it's definitely a risk factor towards your overall timing. Correct the timings for the future and stick to those.

Visible and audible cues, often called anchors, can help, especially during breaks and exercises. Some trainers set up a timer during breaks which counts down to zero, indicating the end of the break. This is very suggestive and cannot be mistaken. Other trainers use audible anchors. A straightforward one

[39] You may not need it anymore as you will have learnt an unconscious behaviour that will make clear to future hosts that you are really serious about wanting to do a good job and demanding that they give you the time required for that.

is for example in the concert hall or in a school, a buzz five minutes before the end of the break, and one more when "class begins". More imaginative is the use of music in the break, and a specific piece of upbeat music which you always use in the last minutes of the break – this will become an auditory anchor especially during longer trainings. When your students hear it they know even without thinking that "break is over". In exercises, the use of visual and audible anchors is recommended too, but keep them simple. A visible timer and some articulate, preferably fun sound to mark different stages of the exercise will do.

End on time. If you have done all of the above well, it will be easy to stick to the agreed end times. Your students will be grateful, after a long day of learning. If you are done with your program, and still have some time left, then be creative. Sometimes you may have an extra discussion, if events on the day give cause for that. Other times you can just end the training early, and your students will often even be more grateful, especially if that happens once or twice during a training that lasts for five days or more. Do make clear to them that they deserved the free time for having been such excellent students that day. Avoid going over the time limit. Inform the students when you do that and explain why. Keep it as brief as possible. Inquire if anyone needs to catch a train or plane, and encourage those to leave when they must, also make sure they have everything they need before they leave. If you can compensate this the next day by ending early, then feel free to do so.

7.3 Speaking & visuals

7.3.1 Speaking

You don't want to speak all day and your students certainly don't want you to. We have explained in previous chapters about the need for diversity as to cater for the different learning styles of students and to ensure that they don't fall asleep or lose focus. Be happy for that as most voices don't last a whole day. As an upper limit, you should not speak for longer than 30 minutes in one period and up to seven of these speaking periods maximum per day. The rest of the time you should be using other training methods. Group discussion is not speaking, exercises are not speaking, and breaks are not speaking – though of course you will say things during those as well.

Use a microphone, especially if you have to speak a lot during the day. The ones that you attach over the ears and that extend towards your mouth are generally the most flexible and rewarding ones. A microphone that is fixed in place is only useful for shorter presentations, not for anything beyond one hour, as it limits you too much and will make your training static.

One of the authors took singing lessons at the advice of an experienced speaker who started out his career as opera singer. He had told the author that the lower and middle registers of his voice were very good already, but that he would benefit from developing his upper register, plus learning some general techniques for how to use your voice. This turned out to be excellent advice. The author is now much more confident in using his voice in all tonalities – nor does he easily get tired anymore, as he learnt to use his voice in a better way.

7.3.2 Visuals

Just as your voice needs to be heard clearly, the visuals that you provide need to be seen and understood easily. Whether you write or draw on a flip-chart, whiteboard, and blackboard or use any other visual aids, write or draw large enough to be seen from the back of the room. Just as in slides, keep the number of words and details to a minimum. Use colours like black, dark blue or red as those are easiest to see. If you use more colours in one sketch or text, then make sure you use those colours in a consistent and meaningful way.

7.4 Trainer state

Assume trainer state and maintain it throughout – only in trainer state you can achieve an excellence and effectiveness as trainer that is completely outside the reach of trainers who just focus on their slides, fingernails, whiteboard or the faces of one or two students. The third main elements of trainer state can be most easily achieved in the following order, starting inside yourself and gradually going out to your students:

7.4.1 Physical/emotional state of excellence

Practice this at home before a mirror. Achieve this state as follows

a. Stand up straight and relaxed as you place your body cylinders on top of one another. How to do that? Imagine that your body consists of ten cylinders: two for each leg and arm, one for your main body and one for your head. The arms can just hang relaxed down. Have the feet a little bit apart for stability[40]. Stand in such a way that you place your six standing cylinders on top of one another without any one of them wanting to break the order and tumble down. Have you ever made buildings out of little wood cylinders as a kid? Just like that, gravity will tell you when the building of your body is stable and relaxed.

b. Breathe relaxed – breathe in through your nose, using not only your chest but also your belly area, and out of your mouth by talking[41]. If you give longer trainings this is very important. Good breathing is a basis for feeling good and confident. This is not so easy to explain in a few words. If you are not a natural at this, you may for instance take some yoga lessons – in yoga, breathing is very important[42].

c. Be relaxed yet attentive. You are opening up to the room and people around you.

d. Be confident. You know the training. You are well prepared. You have what it takes.

e. Be at cause. This is means that you are the cause of what happens around you[43]. This is essential for a trainer, because if you don't cause your training to be a success and your students to learn, then who will? You know that you can inspire and train your students. That's what you prepared for and what you are here for, in this training room. Also, have great trust in your students. Your students can learn and actualise what you train them in. They may need some help from you and that's what you are there for[44].

7.4.2 Peripheral vision

Central vision is when you focus your vision on something in particular, like a nice flower you are looking at. The angle of view is very limited in that case. Peripheral vision is when you do not focus on

[40] Always make sure it fits your personal style.
[41] Some people don't have enough air intake via the nose and need to use the mouth. When you have a cold this may apply as well. Extending the stomach when breathing in, actually enables you to use your full lung capacity, including the lower parts of the lungs.
[42] See e.g. http://yogaforbeginners.com/breathing01.htm but better - follow some good yoga training and tell the trainer what you want to focus on, like breathing and relaxation.
[43] The opposite is to be *at effect*: this is the state where people feel they don't influence what happens around them or in their life. They are victims to circumstances, genetics, upbringing, education, the demands of their job or marriage, in short: others are to "blame" for where they are in life and what they do.
[44] A general principle of coaching and therapy – also forms of training – is that if you believe your client cannot do something, then they probably cannot as part of the work you do with them. The more you *unlimit* yourself in your beliefs as to what clients or students can achieve, the better you will be at helping them actualize whatever it is they need to learn.

anything in particular, but rather see everything that is happening in the room in front of you, without this being any effort or trouble. Like in this picture:

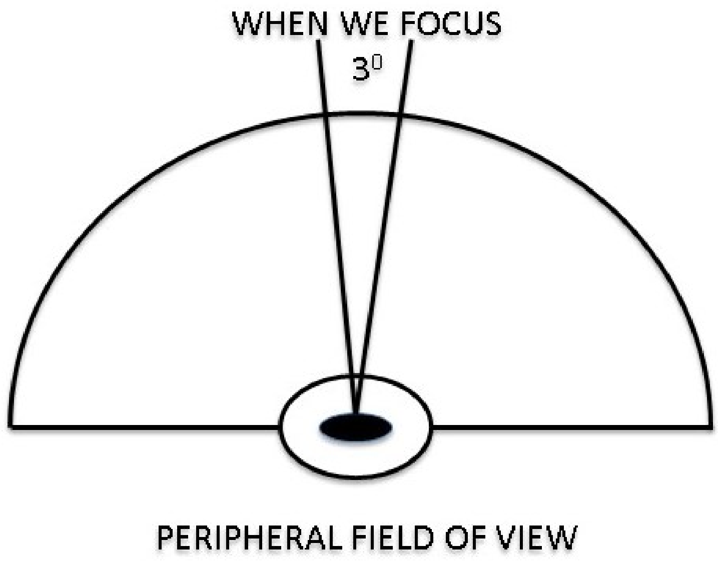

Figure 13: peripheral versus central vision

Trainer state always involves peripheral vision, as this vision allows you to "be with your students". You will notice how they move, use their hands, even how they sigh or take a breath to (maybe) ask a question[45]. Knowing all this does not distract you at all, it is in fact very simple to be giving a great training while at the same time being aware of what is happening in the room. Experienced trainers go into peripheral vision the very moment they start a training or presentation. If you are new to this, 3^0 this is an easy way to set up your peripheral vision:

1. Attach a coloured (or black) "dot" of about three cm in diameter to the wall at the end of the training room, opposite of you, elevated at the height of a person. (If there is a similar focus point already there, use that.)

2. A few minutes before starting the training, focus on that point, so that you only see that point. You can do this sitting down, as not to attract the attention of your students just as yet.

3. Maintain that focus for just a few seconds, then allow your vision to wander out to both the left and right, while loosely still looking at that point. Allow your vision to wander out all the way to 90 degrees left and 90 right, covering a full half circle. You can even go beyond a half circle, but in most training rooms that will be all you need.

4. Get used to that peripheral vision for half a minute and notice how you can see everything that happens in the room, even the smallest movements, while you are still loosely looking at that point you attached at the end of the room.

5. Now you can look relaxed all through the room and see how the peripheral vision stays with you[46]. You are now in peripheral vision. Maintain that vision, even when trainees ask you questions.

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[45] It is fair to say that in peripheral vision not just your visual sense is more aware, but at least also your auditory sense. It's a form of light trance that comes with heightened awareness of the senses.

[46] As you learn peripheral vision you will notice that some students are easier to look at than others. We tend to like most to look at responsive students, those that physically and positively respond to what we are doing. But this is a trap as focusing too much on such students can lead you back into central vision, and you lose touch

Whenever you need, repeat this exercise (e.g. after a break) – soon you will find you won't need it anymore, though some trainers like to always have a "focus point" at the opposite wall, as a reminder and confidence booster. This is completely up to you.

7.4.3 Be out there with your students

Having done all the above, your physical and emotional states are good and relaxed now, you are confident and at cause, and peripheral vision allows you to notice all that is going on. Now as you train your students, be out there with them, enjoy training them, have fun. When you are out there with them, you will often notice that you go too fast or said something you need to repeat, without anyone asking anything. You will just notice some stirring or uneasy movements. When there are questions, you will usually know that there are before they are raised – this is very useful as it can allow you to encourage shy students. One of the authors sometimes notices a yet unspoken question and then if it's a shy student, stops and encourages the person in question with "you may have a question, please feel free to ask?" Yes, this is an advanced technique, but practicing and using trainer state will get you there.

7.4.4 Stay in contact

Stay in contact with your students; do not ignore them. This may sound logical, but consider the following – and see the photos:

- *do not turn your back on your audience* when you are writing on a flip-chart or whiteboard, reading an important line from the screen, or using your laser pointer
- when you are sketching or writing something in response to a question, finish the sketch or writing before continuing to talk again

Figure 14: Stay in contact with your audience

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with the rest of the group. So do not focus on any students, but just let your gaze wander through the room whenever you feel like doing so, not favouring any specific student.

7.5 Rapport & leadership

Rapport[47] is a pleasant state of being between people where it becomes easy to unconsciously accept the other's communication. Rapport happens at the unconscious level and is completely natural as we are social beings. Rapport between lovers is the most obvious and e.g. manifests itself by walking in the exact same pace. Rapport with friends and good colleagues is easy too, and you can see it in a group because most people have the same stance (arms crossed for instance, or fist under chin) at a given moment, and have also adapted their use of voice to a generally agreeable level.

The background of why rapport works and why it is so important goes back to the fact that various research indicates that the effectiveness of our communication is based for only some 10% on the words we use – the rest is based on body language and voice[48]. This explains why your body language (remember the trainer state) and use of voice are so very important towards the success of your training.

As the trainer you want to be in rapport with your students, so that they feel relaxed and unconsciously accept your authority as the trainer, as the one whose words are taken seriously on the topic you are discussing. And likewise you will be relaxed when you are in rapport with your trainees. It goes both ways.

How do you achieve rapport? First of all, we are all born with this talent, we can all do it and do it all the time. Some are better at it than others though. In a room with students it's different than one on one[49]. The best you can do is to be in trainer state. When you do that right and including an unspoken respect for your students, we guarantee you that you will stimulate rapport quickly[50]. You will notice it as the initial tension that is usually in the air with a new group of students will ease off. You will see random groups of students being in obvious rapport with one another (e.g. one group sitting with arms crossed, another group with legs stretched out) and with you. When you are in trainer state you will always be included in this spreading rapport, you are even an important cause of it.

As you are in trainer state, stimulate rapport and are the trainer and expert – leading becomes really simple. But you got to accept your leadership role. It is your training, you are in charge – no one else. You decide when training starts, and when the breaks are. You decide content, and exercises. You decide when it's ok to ask questions and when it is not. When you do this consistently you will find that it happens naturally and there is no need whatsoever to act like an archetypal army drill sergeant. In fact, in most professional groups such dominant macho behaviour could well break rapport and render your training ineffective, as it will create a battlefield instead of collaborative learning environment. Nonetheless, do use your authority when you feel you need to: when some trainee is breaking the rules so much as to become a disturbance to the other trainees or the success of your training, you must act decisively and timely.

7.6 Socialization

Before we go into the handling of groups and individuals, it is useful to shortly consider when it's a good idea to plan some socialization event like an icebreaker, before the training starts. If you don't

[47] See e.g. https://en.wikipedia.org/wiki/Rapport - rapport is taught in any decent NLP training and in many presentation and communication trainings

[48] See e.g. http://www.microdot.net/nlp/rapport/physiology-in-rapport.shtml

[49] For gaining rapport one-on-one see e.g. http://teejay648.wordpress.com/2008/04/01/how-to-build-rapport-with-anyone-instantly/ or http://coachingleaders.emotional-climate.com/how-to-achieve-rapport/ or attend any good NLP Practitioner training.

[50] Unless some trainees do not want to be there but were forced to. You will notice a lack of rapport then and this should alarm you enough to go and find the cause of this, and see if you can remedy it one way or the other.

do something like that, the first few hours of a training tend to be a bit uneasy. Your trainees don't know each other and they don't know you. Most are silent, interaction is low. So for any training that's longer than just one day, it's a good idea to gain some time and momentum by breaking the ice before the training starts. The evening before is often a good option. One way of doing it is setting a time that everyone will be in the bar, for instance. There you find a relatively quiet place (preparation), or you ask the barmen to bring the music down for a moment. You welcome everyone, introduce yourself and any other trainers or staff, roughly tell about the training days ahead, and end with any logistics details worth mentioning. A free first round of drinks is really nice, if the budget allows that. The rest of that meeting is just informal, talking with people. As trainer, go round and talk with some people. Adopt your training style. Of course this is an informal event, so you can dress relaxed, but not too relaxed – you are the trainer, you will be watched, your example sets the tone for the whole training[51].

You can also be creative and organize some sort of game for the icebreaker session, with the intention of people leaving their comfort zone and talking with trainees they do not know yet. Don't overdo this however. You may love this kind of game, but others don't like them much and may feel pushed. Whatever you do, let it be inviting and respectful.

The next stage of socialization happens in the training room, after you start. Do a round of introductions. During introductions, position yourself in such a way that when a trainee talks about himself and looks at you, he also looks at the other trainees. So be in the position of the trainees. Take enough time for that, so that people can say a few personal things. Ask some questions to your trainees in a relaxed way - no cross examination. If you can, lead them into some form of small group exercise within the hour. Small group exercises work really well for people to get better acquainted and thus break the ice.

If you had no opportunity for an icebreaker event, what was just said about breaking the ice in the training room becomes extra important.

One other social aspect of the training that you will set the tone for is how much you allow your students to be in contact with their e-life outside the training room. In this era, asking for 100% attention all the time during is unlikely to succeed, and may feel overwhelming especially for younger trainees. Consider telling your students that you expect a 10%/90% split – 90% is for the training, 10% they can use to keep track of their e-life. It is reasonable to require that such e-life interactions are done unobtrusively and subtly to avoid disturbing other students.

Socialization does not stop there. It continues during the whole event. Breaks need to be long enough to allow people to talk and share. Intermediate breaks typically 30 minutes. Lunch break 60-90 minutes, dinner up to two hours. The timings also depend on the country where you are. In countries like France and Italy for instance, 60 minutes is usually too short for lunch.

If there is time for a social event during the training, then grab the chance. A social event needs to be fun, but also respectful and not pushy. Some trainers utilise the social event for their training goals, but you don't have to. The same as said above applies: no matter how nice the event is, and no matter how good the wine and beer are – you are always the trainer and set the example.

7.7 Group dynamics

Every new group of trainees will be different from the previous one. Humans differ and their reaction to trainings differs. Also any group that is newly formed has its own dynamics. This is part of the challenge for you as trainer – for experienced trainers it is part of the fun of doing trainings. You could

[51] E.g. drinking too much together with your students is something you must avoid at all cost. The authors would not go out with their students, but that's up for debate.

of course follow trainings in group dynamics, though this is rarely done in the field of information security. Any decent communication or trainer training will certainly touch on this topic and is in general more recommendable.

If your group of trainees stays together for longer than just a day and have regular interaction, like during exercises, then this group will follow the usual group dynamics path. If there are more participants and you form fixed subgroups, the same applies to those. Barry Tuckman's stages for group development[52] are a useful model to know. The following picture explains the stages that any newly formed group goes through.

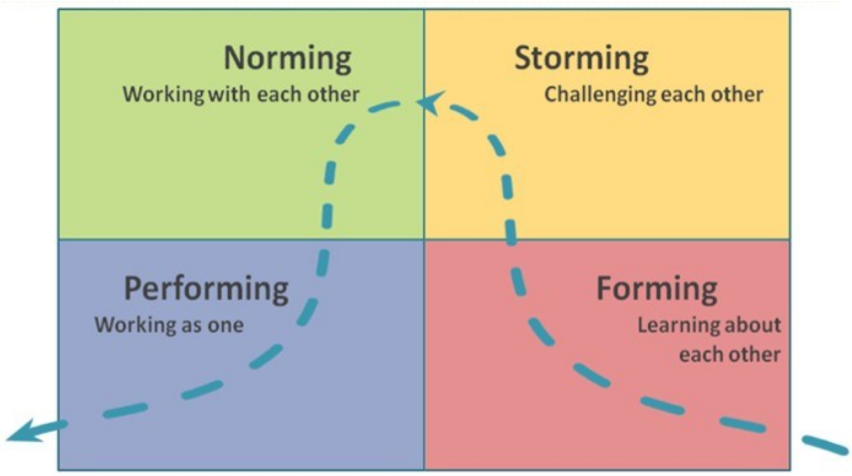

Figure 15: Group Development Stages (Tuckman)

It is useful to recognise these phases when they occur – phases can vary in length from almost absent to quite long. Sometimes, a storming group can take a lot of time to storm. Depending on the goal of your training, you may need to address this, as storming is a natural process but can also be a distraction. If team building is part of your goals, then in general it is not wise to try and stop the storming, unless it takes offensive forms. Men storm more than women on average – especially a female trainer needs to recognise this and not get worried.

Groups create implicit functions for the group members, mostly unconsciously. There will be one or two leaders. There will be a "scribe", someone taking notes. There will be easy going members who just cooperate. There will be a mostly silent member – and what you hope is that the group leaders will stimulate this person to participate. And there may be the occasional mismatcher, who usually does the opposite of what the group does[53]. Do what you can to ensure that as many group members participate as possible. If for instance one person is the scribe, then during evaluation you could ask another group member to use the scribe's notes and verbalise them (in most cases you want to announce this beforehand, or you will scare people).

7.8 Handling of individuals

Most of your trainees will be great people, and when you are respectful and inviting towards them, entertain good rapport and do as you promise, then you will do just great towards them. A few words of advice on the handling of those very rare individual trainees who cause grief:

[52] See e.g. https://en.wikipedia.org/wiki/Tuckman%27s_stages_of_group_development

[53] No need to worry about natural mismatchers – it's no sabotage, just how they are. They are the people who go left when everyone goes right. When it IS sabotage, e.g. by someone who does not want to be in your training, then you will notice some form of venom which is absent with mismatchers.

- In any training group you will find someone who wants to teach you, the trainer. They have some reason to show off their own knowledge or experience, or they just love to go on about their personal experiences even if they may not be too interesting to the group. Don't become their pet. You are in charge. Make clear when it is ok to ask questions or make remarks, and when it is not. If the remarks made are not very relevant or have too much repetition, then kindly but clearly put an end to this. You could say any variation of "thank you for your input – we will continue now". You could add "if you want to discuss this more, do it offline please" but you don't have to, especially if that is exactly what you do not want. Be friendly, respectful and kind – but also honest. Now these people are easy to handle. However sometimes, rarely in the experience of the authors, you have someone in your group who does not want to be there. They were sent by their boss or someone else in authority, and they have decided not to like this and take it out on the world. That is: on you as trainer especially, as you represent authority. Even if they could benefit from your training, it is not going to happen, they will punish you. Now you make talk some sense into them, during a break, and this needs to be done at the earliest possible stage. If they really want to punish their boss – with you as proxy – then not much is going to help and you may even need to remove them from the class. This is treated in the next bullet point.

- The one showstopper is when one or more group members become clearly offensive or hurtful towards others. This is unacceptable and you as the trainer will need to stop this. Respect between trainees is essential – and as we argued before you set the example in that. In such cases the first thing to do is a one-on-one talk with who you believe to be the offender – be very aware though, as things are not always what they seem: some people like to play the victim role and blame others. There are usually psychological reasons for any kind of bully or victim behaviour, but you are not their therapist. Tell them what you expect in regard their behaviour, make it crystal clear if needed. If they persist in negative behaviour warn them a second time – and make clear that the third time you will remove them from the training.

- Make sure beforehand that you know what authority you have with this group. Can you remove someone from the group? If you are not sure, can someone else in a leadership position do that for you? If so, make sure you know such people and that they know you. Be aware that removing someone from your training is the last thing you want to do. But sometimes you have to, so be prepared. In countries like the UK or the USA it is not unusual to have the trainees sign rules of engagement on the spot, at the very beginning of the training. These rules invariably allow the trainer to remove a student – usually without a refund of the training cost[54]. When you have to use that last resort and remove someone from your training, you need to make sure to do this during a break, preferable a longer one like the lunch break, or at the end of the training day – and you must do it one-on-one. The other trainees do not want to hear an unpleasant discussion between you and the person to be removed: it's not functional and will only spoil the mood. When they return from a break and see that the offender has gone, they will usually be pleased.

7.9 Structuring the training

The first thing to do to structure your training is to use what you learnt in chapter 5, where we told you to use the 4MAT system to bring an order to your teaching that will result in effective learning. Now of course you use the 4MAT that you prepared in your classes. So with specific chunks of learning you go WHY - WHAT - HOW - WHAT IF, where the WHY and WHAT IF can be 5-10% of the time and the WHAT and the HOW fill the rest of the time. Also remember that if you have a topic with specific

[54] One of the authors once had to remove a trainee who was spoiling a training for all others. Half of the course money was paid back. The main thing is to get it done, one way or the other, with a minimum level of disruption for the other students!

subtopics that need to be practiced (i.e. they need a HOW), that you can also go WHY - WHAT (subtopic A) - HOW (subtopic A) - WHAT (subtopic B) - HOW (subtopic B) - etc. - WHAT IF. Use this, practice it. It even works for your five minutes of fame before the board of the organisation: in such cases, five minutes is all you'll ever get. You start with explaining in a few sentences WHY the board must listen to you – and this had better be good and related to how the board thinks, or you are wasting your time. Then you spend two minutes on the WHAT and two on the HOW, and always you stay high level – the HOW for a board member is about money, laws and resources, not about technical difficulties. And finally the WHAT IF is time for questions.

Equally important is that you take the lessons of chapter three to hear and avoid lecture fatigue. Don't talk for more than 30 minutes at a time, make sure to embed other teaching elements to cater for variety and to reach all types of students. Discussions, exercises, working in groups, technical work, breaks, challenges, etc. are all tools that you can use for this purpose. Use them consciously, make sure this was in your session plan. You can always improvise a teaching element when the interaction with the trainees gives cause for that, or when you are inspired to do so – but know what you do when you do this and do it sparingly please, to avoid chaos. Chaos will never give students the feeling that they were in a good training.

A teaching element you can always use is the metaphor. We use metaphor here in the sense of a story that is meaningful in the context of the training. That can be consciously meaningful – the topic can be the same or similar for example – or it can be unconsciously meaningful: a story about challenge and learning for instance. Plan your metaphors and think about the goal they have in the context of your training. Put them in your session plan and explain why there are there at that moment. Don't put too many purposes in one metaphor – use more metaphors if needed, and keep the purpose of each metaphor clear in your own mind. Do not explain the purpose to your trainees. It's great when you can tell your own stories as they are usually the most gripping. Make sure to polish your stories in such a way that they become a great metaphor for the trainees. If that means you need to rewrite history a bit, feel free to do so: you are not giving a lecture on a historical topic. Do not use metaphors to show off: that is not their purpose. If you use the stories of others, make them sound if they are your own – a metaphor does not work when the storyteller is detached. You need to play out the metaphor in your choice of words and use of voice. If you have kids and you read out to them, you already know how it is – just go with it and enjoy telling the story.

Why do metaphors, meaningful, contextualised stories, work so well? That's because we humans love stories. Look at movies and books – all stories. Even the most serious business men or university professors love stories deep down. The idea behind this is that stories engage both the conscious and the unconscious mind. And as learning requires the participation of the unconscious, this is exactly the kind of buy-in that you want to achieve. Do you ever remember ten years later how you learnt something so well? No you don't, as the learning became unconscious and only then was it really useful and lasting.

Milton Erickson[55] was a famous psychiatrist and therapist who pioneered the use of metaphors as important therapeutic tools. The first thing he did with metaphors was that he opened one at the beginning of a therapeutic session, but did not close it right away. He just stopped the story at a cliff-hanger. Then at the end of the session, he'd close the story. The idea behind this is that the unconscious mind loves stories and wants to hear how they end. So this way he opened up not only the conscious but also the unconscious mind, to ensure that the learning effects were maximised. Why don't you try that in your trainings, just see how it goes.

[55] See e.g. https://en.wikipedia.org/wiki/Milton_H._Erickson

Erickson also very carefully picked his metaphors for purpose, as we already argued above you should do too. Now he even did one more thing, and we advise you to only try this out once you are sure footed in using metaphors, because it requires some skill. Once you are you will find how great this can work. What Erickson did was not just open ONE story A and not close it. He opened up to five stories B, C, D and E in a row, and did not close any one of them! Then he did his therapy work. Then he closed the metaphors in reverse order, so from E to A. This process is called "multiple embedded metaphors".

7.10 Feedback

To give constructive and useful feedback to your students is an important part of training. If the feedback is felt as harsh – the student will only remember the harshness and not the content – and he will probably reject and resent it. If the feedback is too long and detailed, the student will only remember two to three things. If it's too nice all over because you want to motivate him, then the student may feel great about his own achievement, but if it really wasn't any good, this kind of feedback won't make it any better. In general, a good way of giving feedback is using the so-called feedback sandwich as you can see in the picture. You need to read this top-down. So first you start with a thank you for trying and a few points that went really well. Then secondly, a few precise observations of things to improve, and the way how to improve them: tell clearly to the students what you expect of them. And thirdly, you wrap up with a positive, motivating conclusion. This way of giving feedback can work quite well, but do remember to moderate your critique. If the student still has a lot of improvements to make, limit your observations to a few main things that need improvement. When a trainee does something 90% well, then you can go into the finer details. Remember, here too "less is more" applies. Another good idea is that if the trainees have done an assignment in a group, to have one of the other group members write down a summary of the feedback. That way the student can listen to you without worrying about forgetting it. Another method is to have the student repeat the two to four (no more!) suggestions that you made for improvement.

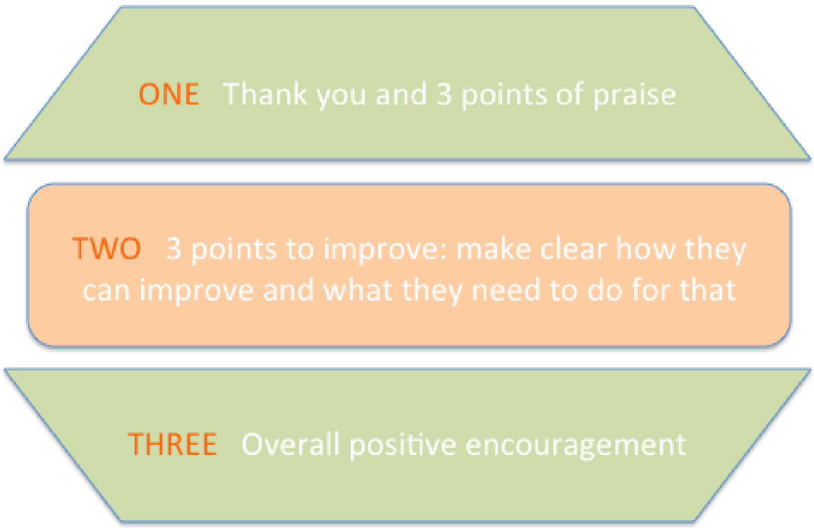

Figure 16: Feedback sandwich

Most importantly for feedback: give feedback in a respectful way and stay in rapport. Make a joke if you are natural at that, but never ever at the expense of the student. Break the ice, make clear that everyone is there to learn, and that you as trainer learn from each training too.

7.11 Be prepared for the worst

And just when you think you got everything under control and your training is well on its way – things happen. The air-conditioning stops working and its blazing hot outside. One of your trainees becomes ill, or runs into an emotional state that needs attention. The hotel's renovations have just started and the drill does not sound quite right for your training. Your voice decides to take a day off.

All of this and much more can happen – and will happen someday, one way or the other. If you prepared well, you can already meet a lot of challenges. Some are hard or impossible to prepare for in terms of equipment or arrangements. For those you need to prepare mentally. Set yourself up so that the training will be a success, no matter what. Then instead of panicking, or going passive, you will find the best possible solution and go for it.

Often this means you need to take action or negotiate. Be prepared to pause the training to do that. You can be open about this: "folks, this is one of these things you can't plan for – I need to address this problem right now or it will affect our training – twenty minute break, starting now – wish me luck!". If the hotel is "to blame" you may need to really escalate the problem. Hotel staff is in the authors' experience very good in saying "sorry Sir, nothing we can do about it". Once one of us was offered a refund – but that doesn't help the trainees and is not acceptable as a solution. If necessary one of the hotel management will need to come up with a satisfactory solution, and quick. Use all your powers of persuasion.

Clearly it is ideal to not be on your own. When you have a co-trainer – or a logistics man, it becomes much easier to deal with such issues, as at least you can keep focusing on the training, as best as can be done under the circumstances. Be flexible. If there is a lot of noise, then you could possibly go into a small group exercise.

Let's look at technical trainings for a moment. There you almost always have to prepare for challenges occurring. Some estimates from real life experience:

- If the training involves a number of technical devices which are supplied to the trainees to work with, then you can safely assume that around 20% of these devices will not work properly.
- If the trainees use their own devices, such as laptops, and you e.g. provide them with virtual images to install, then the percentage of problems will usually exceed 20%, no matter how well you thought you prepared everything.
- If you do a technical training for the first time and it involves hands-on technical work, then estimate the time needed for that hands-on work, and at least double it. That figure will be a better estimate.

Sometimes your trainees give you a hard time. Remember: you are in charge, therefore stay calm, maintain trainer state, and stay in charge. In the worst case you may need to ask a trainee to leave the training. Never allow to be engaged in discussions about the set-up and format of the training, and make sure that classroom discussions don't touch topics like politics or religion. It is always you as trainer who decides what to discuss and for how long. Be worthy, respectful and predictable in your intentions and behaviour.

8 Closing of trainings

I never teach my pupils; I only attempt to provide the conditions in which they can learn. [Albert Einstein]

When you have done as Einstein suggested, and provided the right conditions for learning, then the closing of the training will simply be the next natural step in the process. Closing the training should be much more than just saying "thank you and goodbye", in fact it should be part of the learning process, not the end of it. In this chapter we explore some closing tactics that you can adopt.

8.1 How to properly wrap up a training?

Wrapping up a training is an opening, not a closure. It opens the way for the trainees to actually use what they have learnt. And possibly they will opt for further learning. So the use of your training does not stop when it ends: that's the time that it really begins. Once you understand this fully, you can devise a sensible wrap-up. We give two suggestions here:

- Check during the training and during wrap-up if the learning objectives have been met. This requires that you have clear, achievable learning objectives – we already advised you to have such. If they are clear, you can ask simple questions and find out. It definitely has to be more than "ok, we're done, is all clear to you now?"
- If the topic allows this, you can send the trainees away with some additional materials, printed and/or electronic, around the theme "now this is what you can do when you get home". So this would typically be checklists, including suggestions for application of the knowledge and how to achieve further learning. The idea is to make sure that the trainees never get stuck in working what they just learnt.

8.2 Testing & tasking

Your training may include a test near the end – oral, written, or computerized. Whatever test you do, make sure that it supports the learning objectives. See the test as part of the learning process, not as a punishment for the trainees for behaving so well during the course. Ideally, make the test results known before the training ends. If passing the test is a requirement, and someone does not pass – then communicate this in private, discuss available options (Take the test again later? Take the course again? At extra cost?) and suggest clearly what the trainee needs to do and prepare to pass the test next time.

In rare cases, you can task the trainees when they leave the training. This means – give them a task that they need to fulfil within a given timeframe, and provide you with satisfactory feedback. This will only work when they have agreed to this in advance, or when their management supports it. When it happens, make the tasking very clear: they need to exactly know what to do, as you won't be around for asking questions. The timeframe also needs to be set. And finally, the feedback to you needs to be clearly defined, or else you will just get a mail which says "I did it". Say for instance they need to prepare a demo – then ask them to make a video of that demo while they give it, and send you that video.

8.3 Evaluation

The worst way of evaluating the course is not evaluating it at all, but just say "that's about it, thanks guys, safe travels home and good luck!" You may have been brilliant as a trainer, but how are you ever going to know? How are you going to improve the training materials and your own performance? In short, it is useful to do a proper evaluation.

The method most used is usually no good either, because poorly implemented: the written evaluation form that you fill out at the end of the training. They are usually filled in hastily, remark fields (which are the most useful to your growth as a trainer) get ignored and if you ask people to rate on a scale of one to five then one and five will hardly be used and you end up with bland results. If you do choose to use this kind of evaluation then pre-frame it before you hand over the forms. Tell them you will absolutely pay attention to what they fill out, to use the full scale for rating, and to please, please write down some remarks, as those are really helpful.

Probably the most useful kind of evaluation during the training is done orally. You do this all the time – especially in breaks. This kind of evaluation is veiled – you don't ask your trainee "how was that last session and was I any good?" but you might ask "do you think you can apply now what we just discussed? Did you miss any insights or learnings?"

Additionally, you can ask an experienced tutor to attend your training and write down comments and suggestions for you to use afterwards, to improve the materials and your teaching. Also ask them for a verbal debriefing. The evaluator is ideally a fellow tutor, but can really be anyone with a critical mind and open eye: but make sure he is independent and brave enough to criticize you. If an evaluator is assigned to a training then do make sure that the trainer knows this well in advance, and that evaluator and trainer have a chance to meet before the training starts. You don't want the trainer to feel ambushed – this might well affect the quality of the training in a negative way.

Another option is a follow-up interview one month later. Your trainees need to agree with this in advance. You can explain them that this has a dual purpose – for you to find out how successful the training was and how it might be improved – and for the trainee as an opportunity to ask additional questions a month later. In 2012 ENISA conducted a survey asking the average perceived value of various trainings, and the results are presented in the Roadmap to provide more proactive and efficient Computer Emergency Response Team training[56]

In case there is an opportunity and need to test the effectiveness of a training one very good way might be to organise an exercise where previously taught skills are exercised individually. The results need to be addressed with caution though, because it is nearly impossible to correctly evaluate a skill not taking into account the previous experience and many other factors.

8.4 Acknowledgements

As formal acknowledgement that the trainees have successfully done the training, you can do a number of things:

- A nice certificate on paper, with their name on it, a characterisation of the training content, the number of hours they spent in preparing and following the training[57] , the names of the trainers, and a signature by the lead trainer and/or some other relevant figure of authority. The authors recommend to always make such a certificate.

- A letter to the trainee, repeating much of the same which should be on the paper certificate, and again signed by the lead trainer. It's useful if they receive this letter as a pdf attached to an e-mail sent to them, because that way they can easily send the pdf to their management, to accreditation instances, etc.

- Accreditation points. If you can register your training with some accreditation body (like CISSP in information security for instance), then your training can be rated with a certain number of points in their education system. This is very helpful for trainees who are a member of such programs, as they need to continuously collect such points to remain in good standing.

[56] http://www.enisa.europa.eu/activities/cert/support/exercise/roadmap-to-provide-more-proactive-and-efficient-cert-training/at_download/fullReport

[57] The specification of the number of hours spent can help the trainees gathering "points" for professional education programmes or accreditations they participate in.

8.5 Stay in touch

It depends on the kind of training and environment you work in, but sometimes it's useful to have a way of staying in touch with your ex-trainees. We suggest the following options:

- Encourage the trainees to exchange contact details – you should have those already, otherwise, make sure you do.

- Create a mailing list containing you and the trainees. If you do, then use it. If you don't use it, it will be dead and forgotten within three months. Typically such a list is only for the participants of one training.

- Create a web presence for this purpose and give the trainees access. If you do you had better make it really inviting and useful, or else no one will ever use it more than once. A web presence can work for the participants of all trainings on that topic.

- One option could be an interview after one month as an option to consider. A comeback event is another option – this will be a rare possibility, but if it is possible, go for it. This event will typically be a few hours or half day. Do it around threeto six months later. Annual comeback events are a real luxury if you can afford them, but can be great for ongoing learning – both for the trainees and yourself as trainer. Such events are clearly meant for sharing the learnings – so it should not be just you talking.

9 ANNEX A: Logistics checklist.

Use this checklist to prepare a successful training. The suggested timeline given is just an example to help to think ahead. The checklist is written assuming you cover all items on the list on your own as a trainer, in case you have help in the form of logistics person, or co-trainer, then divide the work, but make sure that everything in the checklist will be covered – as the a trainer you are responsible of the process! Examples about the training content and buildup could be found from ENISA CERT Exercises and training material page[58].

9.1 Training Materials (six months before training)

- ☐ Customised version of this checklist
- ☐ Training plan
- ☐ Training timeline
- ☐ Training goals
- ☐ Slides sources (powerpoint, keynote or otherwise)
- ☐ Slides in presentation format (as sources, or pdf or otherwise)
- ☐ Trainer notes for slides (possibly part of slides)
- ☐ Trainee preparation instructions (to do before training)
- ☐ Trainee printed manual / course contents
- ☐ Trainee printed slides
- ☐ Trainee printed notes for slides
- ☐ Trainee printed timeline (training schedule for trainees)
- ☐ Trainee printed logistics handouts
- ☐ Trainee other printed handouts (e.g. for exercises)
- ☐ Trainee handout medium (e.g. USB stick with all relevant materials)
- ☐ Trainee other materials (e.g. books that are complimentary)
- ☐ Other training related materials (for exercises, programs, VMs, etc)
- ☐ Commercial materials (for PR)

9.2 Trainee Preparation (starting three months before training)

- ☐ Consolidate list of trainees with all relevant data (including e-mail address)
- ☐ Send training overview including: training location (and how to get there), hotel suggestions (if stay needed), basic training timeline, training topics to be covered
- ☐ Send trainee preparation instructions (if any)
- ☐ One to two weeks before training: send reminder including: location (including training room) and how to get there, final training timeline, emergency contact number (in case of travel delays or illness) and any last moment details

9.3 Training Site Inspection (one month before training)

- ☐ Logistics contact person including emergency access
- ☐ Audio-visual facilities contact person including emergency access
- ☐ Management contact person for escalations including emergency access
- ☐ Opening times for early arrival and late departure (exception procedure?)
- ☐ Guided tour with logistics and/or management contact(s)
- ☐ Training room identification

[58] http://www.enisa.europa.eu/activities/cert/support/exercise/

- ☐ How will trainees find training room
- ☐ Instruct logistics contact on room lay-out (discuss if needed)
- ☐ Demonstration of environmental room facilities (air-conditioning and its control, windows, etc.): **try it yourself** (do you know how to set the air-conditioning?)
- ☐ Demonstration of audio-visual room facilities (projector, screen, flip-over, whiteboard, markers, etc.): **try it yourself** (e.g. using your own laptop and slides)
- ☐ Emergency exits: **try it out together with your contact(s)**
- ☐ Fire instructions (any special? e.g fire alarms)
- ☐ Toilets men, women and challenged
- ☐ Room to receive trainees before training opens (if none available, use training room)
- ☐ Room for breaks (if not in training room)
- ☐ Smoking area
- ☐ Other site specific instruction/information (ask your contacts)

9.4 Training Room (two hours before training)

- ☐ Entrance instructions in place (e.g. how to find training room)? If needed address with reception or your contacts
- ☐ If different training room allocated than was agreed on: escalate immediately, go back to "training site" checklist and do a fast version with your contacts
- ☐ Go to training room and double-check again on environmental and audio-visual facilities and room lay-out: anything incorrect address with your contacts
- ☐ Do routine check on toilets: address with your contacts if needed
- ☐ Find your logistics contact person and double-check emergency access
- ☐ Go through timeline with logistics contact, including breaks (coffee, lunch etc)
- ☐ Find your audio-visual contact person and double-check emergency access
- ☐ Place relevant banners near the stage (or anywhere else)
- ☐ If you have additional materials for sale or to look into (e.g. books), set-up a table with those
- ☐ Place the personal name-tags for the trainees near the entrance
- ☐ Set up each trainee position with a name-plate and all training materials (if no tables, you need to place all this near the entrance too)
- ☐ Make sure the trainees are well received (by reception, any helpers you may have, or yourself), preferably not in training room
- ☐ Display the opening slide before the first trainees enter the room
- ☐ If trainees were received elsewhere, open the training room ten minutes prior to training (with many trainees, as much earlier as needed)

10 ANNEX B: Synergy in the CERT Training Field

The CERT training field is still emerging, incomplete, without standards and not coordinated. Following an overview with recommendations is presented.

10.1 Existing international CERT Training Initiatives

We offer a list of international CSIRT training initiatives here, with a regional focus on Europe:

- TRANSITS: http://www.terena.org/activities/transits/
  TRANSITS offers a two-day introductory course for CSIRT members (TRANSITS I) and a three-day course with advanced topics (TRANSITS II: forensics, netflow and human communication).
  TRANSITS' aim is to foster the education of CERT professionals and keep the threshold (including the cost) for that as low as is feasible. The programme is run not-for-profit and was set up in Europe by the European research network community (TERENA). ENISA supports TRANSITS. TRANSITS is given all over the world, also thanks to cooperation with FIRST.
  TRANSITS also offers a train-the-trainer course, to get experienced CERT professionals up-and-running as TRANSITS trainers – the body of trainers exists of volunteers.

- ENISA exercises: https://www.enisa.europa.eu/activities/cert/support/exercise
  ENISA offers a set of more than 30 exercises for CERTs which anyone can use for free. The topics range from organisational, via legal and law enforcement oriented, towards highly technical. You can run the exercises "off the shelf" as **all** materials (including VM images for some technical exercises) are included.
  TRANSITS uses some of the ENISA exercises in their trainings.
  On request, ENISA can offer guided exercises and related trainings – get in touch with cert-relations@enisa.europa.eu .

- CERT/CC training courses: http://cert.org/training/
  The CERT Coordination Center was the first CERT on the planet and still is one of the most eminent organisations in the field. They have trainings in the areas if incident handling, network security and risk assessment & insider threat. Their trainings are commercial and take place in the USA. Their incident handling courses are also offered in Germany on request: http://www.pre-secure.com/ir/courses/index.html

- SANS training courses: http://www.sans.org/courses/
  SANS offer a great variety of commercial security courses. Many are relevant to CERTs, to name just a few:
    - Incident Response Team Management
    - Hacker Techniques, Exploits & Incident Handling
    - Advanced Computer Forensic Analysis and Incident Response

  All courses are offered in the USA – some also in other regions of the world. You can get SANS to come to you and offer trainings, at a price.

- FIRST Education Committee: http://www.first.org/about/organization/committees#edc
  Not a training per se but an international group of CERT experts working together on education issues. You can join them or get in touch with them. The Education Committee supports the TRANSITS framework and as such also organizes train-the-trainer training in cooperation with TRANSITS.

10.2 National & Local CERT Training Initiatives

Many bigger CSIRTs organize their own trainings locally – sometimes also inviting the members of other teams, usually in the same country. Some use their own materials for these courses, others use e.g. TRANSITS What speaks for these trainings is that they are given by experienced professionals.

We advise you to get in touch with a well respected CERT in your country, e.g. the national or government team, and ask them if they offer trainings or can recommend trainings for your team. The most up-to-date list of European CERTs (including national and governmental ones) is found at https://www.trusted-introducer.org/directory/country_LICSA.html . A world directory at http://www.first.org/members/map .

Commercial security training companies are only now starting to offer CERT related trainings. One example is an "Incident Response Practitoner" training offered in The Netherlands by the Security Academy.[59] We have no overview of such courses, nor hands-on experience with them. Ask experienced CERTs in your countries if they can recommend such courses.

10.3 Synergy

In the following are suggestions that can improve the CERT training field and its coherence:

- ENISA's "Roadmap to provide more proactive and efficient CERT training" has already been partially implemented. The following recommendations still apply in the context of "synergy" here and are highly recommend to follow up on:
  - Run ENISA CERT exercises at universities. This way students can participate in training that will teach them about the CERT area, but at the same time the cooperation with university teachers will prove beneficial for engaging universities more in the CERT area.
  - "Fire Drills" for the CERT community. Get CERTs to do "fire drill" exercises together. This is a very effective educational tool. Make sure that very experienced CERT members are the mentors of the drill.
  - ENISA CERT Training Hubs (ECTH). The idea here is to accredit existing CERTs or commercial security training providers as providers of CERT related trainings. This will help emerging CERTs pick the best educations for their staff, and it will encourage existing training providers to improve their trainings to meet a minimum set of requirements.
  - Certification paths. This is again about working together with universities, but also with ECTHs (see above), to define education paths for (future) members of the CSIRT community – and to add the element of certification to that. Ideally, this certification would become an internationally recognised quality seal. Such a programme would be very helpful for improving the education of (future) team members.
- We recommend that each country make a list of available CERT related trainings in their country. This could be an initiative of the national or governmental CERT. Ideally, some quality seal or minimum set of requirements would apply to trainings listed in that way, but this may still be a bridge too far in most countries. We recommend any party who sets up such a listing, to get in

[59] No link offered as this is just one arbitrary example.

touch with ENISA first to look for synergy, as ENISA is aware of most ongoing developments in this area.

- We recommend that existing regional CERT meetings like e.g. TF-CSIRT in Europe (see http://www.terena.org/activities/tf-csirt/) add an element of education to their meetings, as in an extra day before or after the meetings. To start with, such regional fora could ask existing training providers such as TRANSITS, or indeed ENISA or experienced CERTs who have their own training programmes, to come and fill such “training days”. Another option is to do a “fire drill” at such days, as recommended above. This recommendation is a cost effective and relatively easy way to organize trainings for a big number of CERTs. As a side effect, it will increase the standing and reputation of such fora as TF-CSIRT.

- We recommend that FIRST (e.g. by means of the Educational Committee) and/or ENISA set up a dialogue between the various training providers, most notably including ENISA, FIRST, TRANSITS, CERT/CC and SANS. Such a dialogue should include topics like certification paths in time. It is in the interest of all to define education standards for the CERT area. Those responsible for programmes like CISSP and CISM should be included at some stage, so that educations in the CERT area could give “points” for the ongoing accreditation process involved in such programmes as CISSP and CISM.

- We recommend that a train-the-trainer programme is set up for future trainers in the CERT area, but also to improve the skills of existing trainers, who are often great technical experts but less experienced as a trainer. TRANSITS is well suited to set this up as they already have offered several of such trainings, run by one of the authors and one of the reviewers of this guide. It is recommended that this is set-up in cooperation with ENISA. Collaboration with the FIRST Educational Committee is recommended.

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Catalogue Number: TP-04-14-898-EN-N

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