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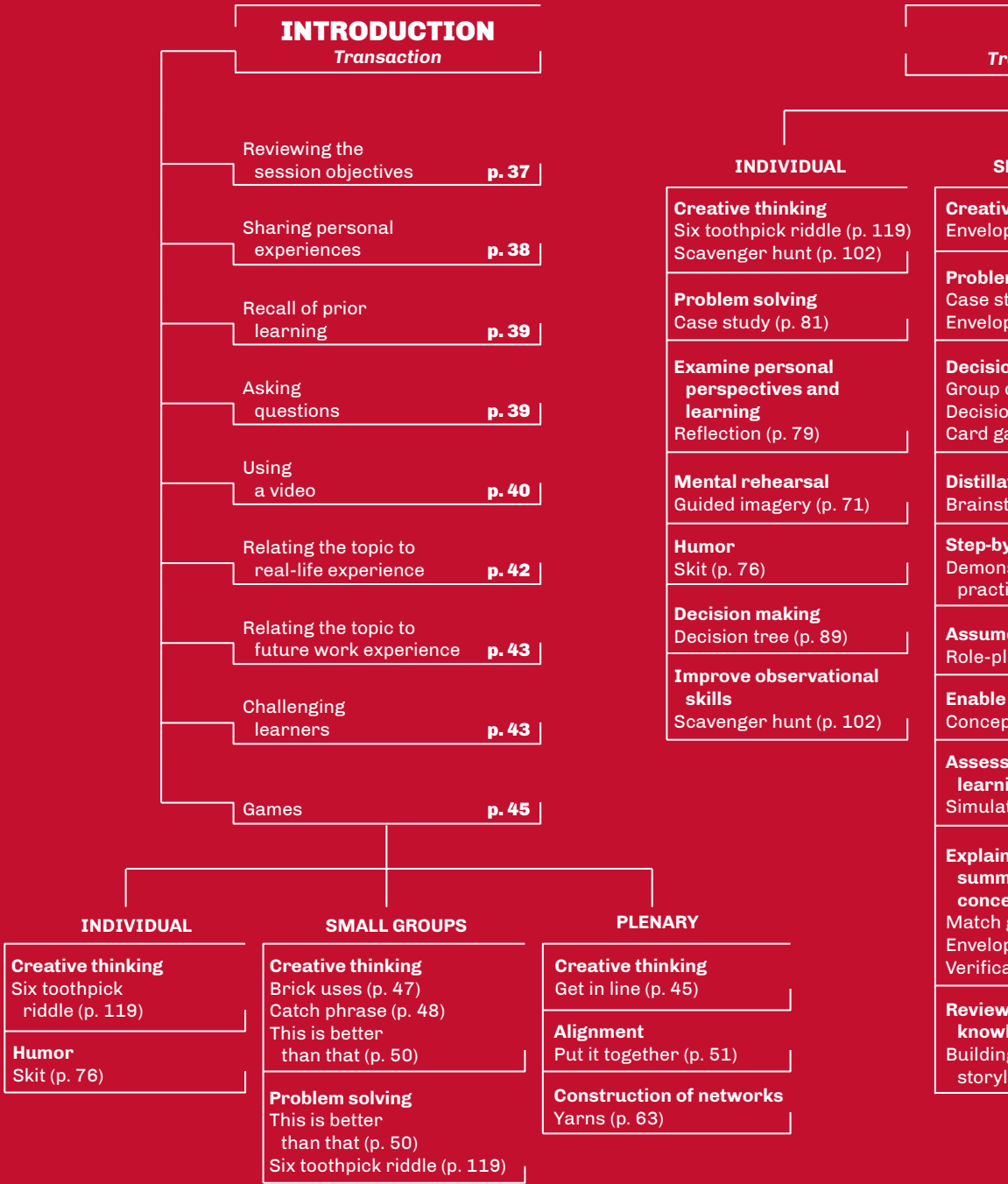
GO
AUTHENTIC

Activities that support learning

The underground classic that explains how authentic activities help learners explore, discuss, and meaningfully construct new knowledge.

Your graphic summary of activities to go au

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ÜMİT H. KARTOĞLU

GO AUTHENTIC

Activities that support learning

Extensio et Progressio

GO
AUTHENTIC

Activities that support learning

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To my daughter **Deniz Nala**, a master of the flipchart, who helped me in "Facilitation Skills" courses, and continues to be my fascination and inspiration...

Deniz, 14 years old, "Facilitation Skills" course, Antalya, Turkey, 2014

Foreword

*"Without culture, and the relative freedom it implies, society, even when perfect, is but a jungle. This is why **any authentic creation is a gift to the future.**"*
Albert Camus

A quarter century ago, I had the good fortune to be invited to teach and conduct research at Edith Cowan University (ECU) in Perth, Western Australia for five months. There, my wife, Trisha, and I made many lasting friends, all of whom we cherish to this day. Two of them, Ron Oliver and Jan Herrington, have had an enormous impact on education by defining and refining the design principles underlying authentic learning. When I met Ron in the early 1990s, he was already recognized as one of the top educational technology experts "down under," and his reputation as an amazingly productive scholar was quickly spreading globally. Not surprisingly, he had attracted a cadre of talented doctoral students including Jan Herrington, then working as an instructional designer at ECU. Jan and Ron were co-developing an elegant model of authentic learning, and they invited my input. Our collaboration flourished in many forms and eventually led to the publication of an award-winning book (Herrington, J., Reeves, T. C., & Oliver, R. (2010) *A Guide to Authentic E-Learning*. London: Routledge).

Ten years ago, fortune smiled again when I met Ümit Kartoğlu from the World Health Organization when we were both invited to speak at the Biennial Training Conference of the Parenteral Drug Association (PDA) in New Orleans. There, I introduced Ümit to another friend and colleague, Jim Vesper, from Rochester, New York, and soon the three of us began to collaborate on teaching several of the courses described in this book. As soon as the authentic e-learning book that Jan,

Ron, and I co-wrote was published, I sent Ümit a copy. When I visited him in Geneva a few months later, he showed me his copy. Every author is pleased when someone reads their book; imagine my delight when I saw how Ümit had marked up virtually every page of his copy with different colored highlighters and numerous post-it notes sticking out of it!

Ümit's courses were already quite experiential and effective before we met, but he strongly desired to enhance them. Thus, with Ümit's leadership and unfailing commitment to quality, we sought to more rigorously incorporate the principles of authentic learning throughout these learning environments, painstakingly evaluating and refining the courses each time they were implemented. The results of these more authentic learning courses have been outstanding, truly transformational for the people who have completed them. Interviewing some of them six months or more after they completed these innovative courses, I have been thrilled by the stories of how their performance has been improved and how they have extended the application of their new expertise into other aspects of their professions. They attribute most of these positive changes to how much and how differently they learned within the courses that so comprehensively exemplify the principles of authentic learning.

In this book, Ümit further elaborates on these principles for others to emulate. *Go Authentic: Activities that Support Learning* is, as Camus put it, a "gift to the future." A future when learning will be active rather than passive, collaborative learning will be commonplace, tasks will be as authentic as possible, and assessment will be cherished rather than dreaded. In that hopefully near future, learning events will be as well-aligned as a precision racecar, and learning outcomes will be personally and professionally empowering. Ultimately, we hope that even participants in online versions of these authentic courses will shed tears when the courses are over just as they do now on the last day of the face-to-face courses.

The need for transformational learning opportunities is evident in many fields beyond public health and pharmaceuticals. Enhancing human performance is absolutely essential if we are to meet the challenges facing humankind with respect to climate change, poverty, war, corruption, and the like. Arguably, we live in a time when education and training opportunities across all disciplines must become as transformative as the courses described in this book. To do this, the design and implementation of learning environments must be acts of "authentic creation" more than ever before. Please join us.

Thomas C. Reeves
Professor Emeritus of Learning, Design, and Technology
The University of Georgia

Behind the pages

When Risintha from Sri Lanka told me that he would never be the same again because he had discovered a life beyond PowerPoint, I thought that I had to share our approach to creating transformational value through authentic learning.

The course activities that I share in this book have transformed people into change agents, and helped them excel in their performances.

Arnulfo incorporates these activities into his cold chain training programmes in the Philippines. Abdul from Afghanistan has transformed the national cold store to adhere to the WHO-UNICEF effective vaccine store management principles. Kelly from the USA conducts risk assessments more confidently now. Jurijs from Latvia tells that our course is a shock therapy that has changed his attitude to training process.

The course activities have been adapted into a number of different programmes, and, most importantly, influenced people's personal lives. When Kehinde from Nigeria started teaching his children how to think critically with the same approach that we use, they asked if they could meet me over Skype to thank me for teaching their father. Such moments are very emotional. It was no less emotional for me when I watched Christine and her team run the "Good Clinical Practices Inspection" course in Indonesia, skillfully incorporating new, creative activities and games into the programme.

Our courses are filled with fun and laughter. We build strong relationships and learn from each other. Imagine swimming for the first time in your life? Caleb from Nigeria, Amarjargal from Mongolia, and Milind from India, all non-swim-

mers, jumped into the Mediterranean Sea for the first time ever. Supported by life savers, mentors, and participants, they knew to trust us.

The last day of all our courses is very emotional. I have seen both women and men cry, reflecting on their experience – not because they feel sad that it is over and they have to go, but because our courses touch their soul and help them reach a high level of understanding, strengthening their self-esteem, and they feel grateful.

The activities shared in this book work because they are well thought-out and aligned with all other elements of the course. They work because we do not lecture. They work because we believe that every single participant brings a wealth of experiences to our course environment. We respect each and every one of them as a "more knowledgeable other". This is what makes the collaborative learning so valuable to all of us, including mentors. The activities described in this book work because they are part of a long learning journey, where we believe the end is nothing, but the road is all. They also work in eLearning programmes, because it is never "me and the computer screen", there is always a human face, a mentor who supports learners whenever they need. They work because instead of shoveling information into learners' brains and asking them to regurgitate it later, we focus on critical thinking, communication, collaboration, creativity, and, most importantly, on conation. They work, because we view failures as an opportunity to learn. They work because we understand that creativity and innovation is a long-term, cycli-

cal process of small successes and frequent mistakes. They work because we do not stop the clock and distribute a test. Instead, assessment is embedded in all of our authentic tasks. This is what makes the biggest difference. Nothing is abstract - all activities are based on authentic learning principles, just like how things work in real-life. These activities help learners to explore, discuss, and meaningfully construct concepts and relationships in contexts that involve real-world problems and projects that are relevant to them.

I licensed this work under Creative Commons (CC) Attribution-NonCommercial-ShareAlike 4.0 International License (CC BY-NC-SA 4.0) so that it can be reproduced, remixed, tweaked or built upon non-commercially. Through this license, I continue offering a hand in support of open knowledge and free culture as I did with my previous two books.

I am thankful to Jim, Kevin, late Andrew, Robert, Paul, Tamara, Christine, Ratna and Endang, my mentor colleagues from wheels, eLearning, "Facilitation Skills," and "GCP Inspection" courses, for their creativity and inspiration. I had so much fun mentoring, facilitating, and learning with you all! I value Hanna's help in evaluating my eLearning course. I cannot thank Gençer enough for the beautiful photography he has made during my courses. I thank Hakan, Mr Fix It, for his excellent logistic planning. I deeply appreciate Amy's continued support on copyediting, and Ümran-Gökhan's help in developing the book's website. I feel grateful to my wife Nellie and my daughter Deniz Nala for their love and support. Nellie also co-facilitated several courses with me, and I admire her ingenuity. Since the age of eight, Deniz Nala was with me on various occasions during "Facilitation Skills" courses and never stopped surprising everyone with her amazing creativity and help. Special thanks to Tom, my mentor and colleague, who introduced me to authentic learning.

When it comes to helping learners, you cannot waste their time.
Go authentic!

Ümit H. Kartoğlu, MD, DPH
Collonge-Bellerive
December 2017

Contents

Abbreviations

°C	degree Celsius
ADR	adverse drug reaction
BCG	bacilli Calmette-Guérin (tuberculosis vaccine)
cm	centimeter
CAPA	corrective action and preventive action
CV	curriculum vitae
EPELA	Extensio et Progressio, Authentic eLearning
EUQPPV	qualified person for pharmacovigilance in the European Union
GCP	good clinical practices
GDP	good distribution practices
GMP	good manufacturing practices
GLO	Global Learning Opportunities
HepB	Haemophilus influenza type b (vaccine)
HPV	human papilloma vaccine
HSA	health surveillance assistant
ICDRA	The International Conference of Drug Regulatory Authorities
ID	identification
L	liter
m	meter

MDVP	multi-dose vial policy
MIT	Massachusetts Institute of Technology
MR	measles-rubella (vaccine)
NAP	nodding at presentations
P21	The Partnership for 21st Century Learning
PCCM	pharmaceutical cold chain management
PDA	Parenteral Drug Association
PDF	portable document format
PhD	Doctor of Philosophy
PreK	pre-kindergarten
SOP	standard operating procedure
TED	Technology, Entertainment and Design
UNICEF	United Nations Children's Fund
USA	United States of America
VVM	vaccine vial monitor
WHO	World Health Organization

21ˢᵗ century learning or 5Cs
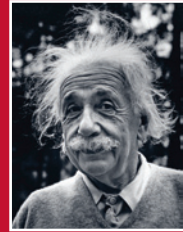
Learning is an exceedingly complex process. The days when people believed that delivery of training was sufficient to assure learning have long since passed, though such approaches are not extinct today. Based on extensive research, we know that knowledge is not received, but constructed.

P21, The Partnership for 21st Century Learning (formerly the Partnership for 21st Century Skills) was founded in 2002 as a coalition bringing together the business community, education leaders, and policymakers to position 21st century readiness at the center of US K-12 education and to kick-start a national conversation on the importance of the 21st century skills for all students. P21 has developed a learning framework with inputs from teachers, education experts and business leaders to define and illustrate the skills and knowledge students need to succeed in work, life and citizenship, as well as support systems necessary for 21ˢᵗ century learning outcomes. The framework also applies to adult learning especially with its refined 4Cs approach (critical thinking, communication, collaboration and creativity).

Critical thinking (and problem solving) as a concept has been refined throughout the past 2500 years since Socrates, Plato and Aristotle's times, but as a contemporary term it has its roots in the mid-20ᵗʰ century. Critical thinking is an intellectually disciplined process of actively and competently analyzing how parts

P21 framework for 21st Century learning
21st Century student outcomes and support systems
(www.p21.org ©2007)

Learning and
Innovation Skills – 4Cs
*Critical thinking • Communication
Collaboration • Creativity*

Key Subjects – 3Rs
and 21st Century Themes

Life and
Career Skills

Information,
Media, and
Technology
Skills

Standard and Assessment

Curriculum and Instruction

Professional Development

Learning Environments
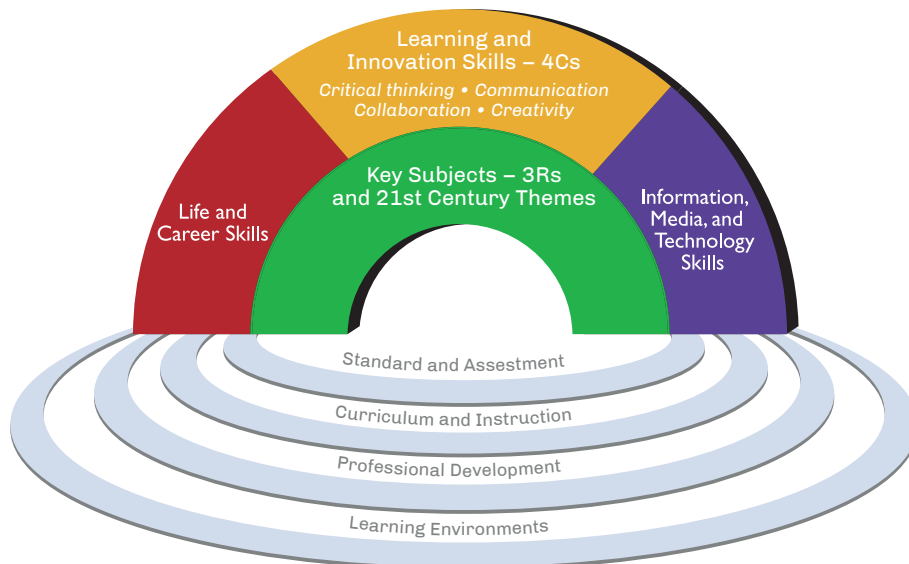
of a whole interact with each other to produce overall outcomes in complex systems using inductive or deductive tools. In this process, we need to effectively analyze and evaluate evidence, arguments, claims and beliefs gathered from, or generated by, observation, experience, reflection, reasoning, or communication as well as analyze and evaluate major alternative points of view. We also synthesize and make connections between information and arguments and interpret information and draw conclusions based on the best analysis. Critical thinking raises vital questions to problems, formulating them plainly and precisely. A critical thinker thinks open-mindedly with alternative systems of thought.

To communicate, we need to articulate our thoughts and ideas effectively using both written, verbal and non-verbal communication skills in various forms and contexts. To become a good communicator, we need to actively listen to understand and interpret meaning, including knowledge, values, attitudes and intentions. Utilizing multiple media and technologies and being aware of their effectiveness and impact are critical to good communication. Giving our growing knowledge of the different cultural contexts of the world, communication has become even more sensitive and challenging, and requires attention to these differences.

Though we work alone from time to time, often we work together with others through idea sharing and thinking to accomplish a common goal. Collaboration takes team work to a higher level with a strong sense of purpose. Team members need to demonstrate ability to work effectively and respectfully in diverse environments, utilizing the strengths and skills of everyone involved. Collaborative work often allows team members to come up with ideas and solutions at a faster pace compared to individuals working alone.

We need to be creative and craft new and valuable ideas, and turn them into reality. We need to have the ability to perceive the world in new ways, to find out imperceptible patterns, to make connections between ostensibly unrelated phenomena and create solutions/suggestions. In summary, creativity is the process of bringing something into new being. If you don't act on new ideas you have, you would remain as imaginative, but not creative. In this process, we also need to view failure as an opportunity to learn, understand that creativity and innovation is a long-term process of successes and frequent mistakes. Thomas Edison described why failures are important in learning while he was seeking a suitable filament to make the incandescent electric light a viable device: *"I never allow myself to become discouraged under any circumstances. After we had conducted thousands of experiments on a certain project without solving the problem, one of my associates, after we had conducted the crowning experiment and it had proved a failure, expressed discouragement and disgust over our having failed to find out anything. I cheerily assured him that we had learned something. For we had learned for a certainty that the thing couldn't be done that way, and that we would have to try some other way."*

You may ask where is the fifth C. The fifth C is the "conation". For many years, educators have focused on three major learning domains: the cognitive, the affective and the psychomotor. The cognitive domain is the most widely recognized and applied in education at all levels, however, it is always said that we value the higher level cognitive skills (analyzing, evaluating and creating), but often train and test focusing on the lower level cognitive skills (remembering, understanding and applying).
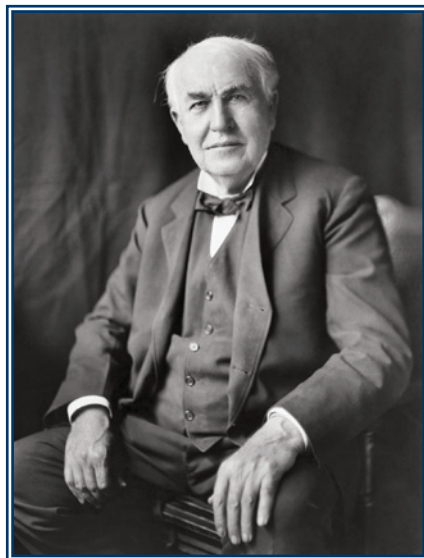
Revised taxonomy of the cognitive domain (after Anderson, 2001)
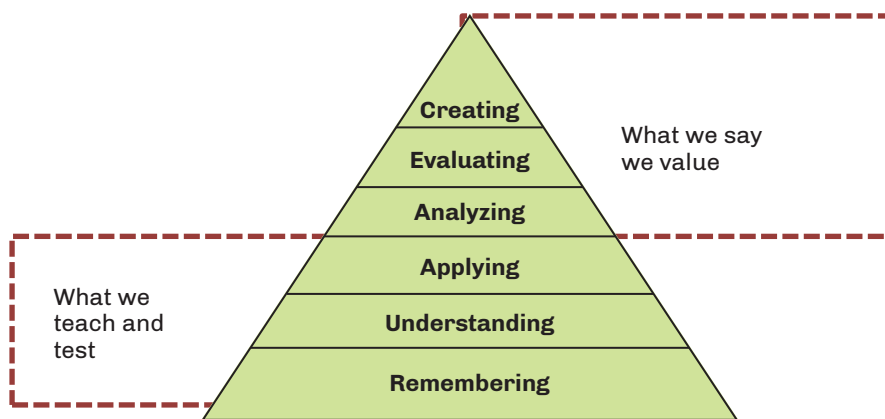
The conative domain encompasses human capabilities such as will, directed effort, striving, impulse, and intention. Unfortunately, the conative domain, even though it goes back to Aristotle's time (as he used the word *Orexis*) still does not get enough attention. "The 1,000 most obscure words in English language" defines conation as *"the area of one's active mentality that has to do with desire, volition and striving"*. Conation is also referred to as the *third faculty of the mind* (along with the affective and cognitive domains). In summary, conation is defined as the mental process that activates and/or directs behavior and action: the cognitive part of the brain has to do with intelligence, the affective part deals with emotions and conative part drives how one acts on those thoughts and feelings. Kathy Kolbe in *The Conative Connection* book explains the differences/linkages between these three domains as illustrated in the following figure:
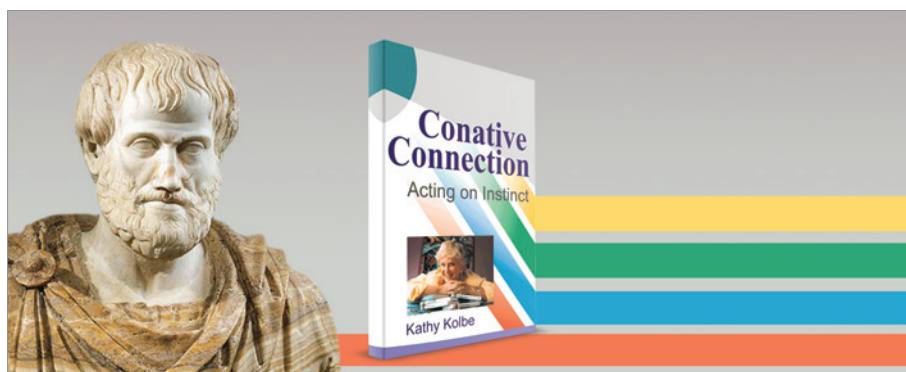
Differences/linkages between cognitive, affective and conative domains
(Kolbe, 1990)

COGNITIVE	AFFECTIVE	CONATIVE
To know	To feel	To act
Thinking	Feeling	Willing
Thought	Emotion	Volition
Epistemology	Esthetics	Ethics
Knowing	Caring	Doing

When we design a learning event, in addition to applying certain learning theories, we take into account the 5Cs. Designing learning events requires multidisciplinary team work. Content experts surely know the subject but are not necessarily the best in designing effective learning events. Here is where the role of learning experts comes into the picture. However, regardless of whichever learner-focused theories are used (humanist, social or constructivist), the effectiveness of learning events depends on the alignment of the following eight critical factors with the 5Cs:

Critical element	Nature
Objectives	The best courses focus on a blend of higher order, general skills such as problem solving and evaluation, as well as specific facts and skills.
Content	The best courses encourage learners to construct multiple interpretations of real world data rather than simple answers to simple questions.
Instructional design	The best courses use innovative activities such as video, games, or authentic tasks to enable enhanced learning.
Learning activities (tasks)	The best courses incorporate tasks that are as authentic as possible such as ill-structured problems, meaningful context, enough time and multiple solutions.
Learner roles	Learners must shift from being passive to being actively engaged in collaborative learning.
Facilitators roles	The best courses focus less on what facilitators will do and more on what their participants will do as learners.
Technological affordances	The best courses use technology to engage participants in the active construction of original knowledge representations with real world data. In these courses, computers are used as "cognitive tools".
Assessment	The best courses focus assessment on robust mental models and higher order knowledge and skills, not just memorized concepts.

In other words, we expect learners to become equipped with the abilities from all four domains as illustrated by Reeves below:

Comprehensive learning outcomes for 21st century learners (Reeves, 2006)

Cognitive capacity to think, problem-solve, and create

Affective capacity to value, appreciate, and care

Conative capacity to act, decide, and commit

Psychomotor capacity to move, perceive, and apply physical skills
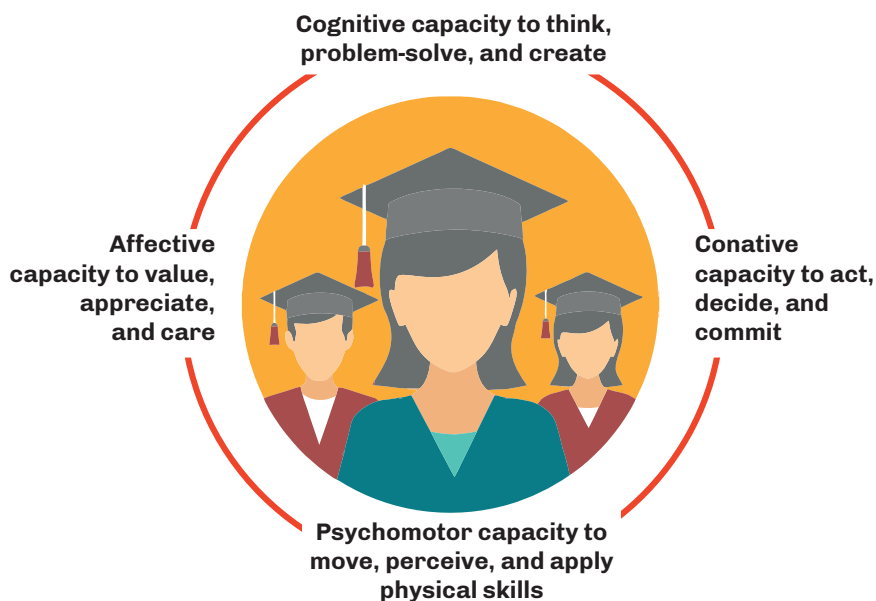
Why go authentic?

Authentic learning is a real-life learning. It is an instructional approach that allows learners to explore, discuss, and meaningfully construct concepts and relationships in contexts that involve real-world problems and projects that are relevant to learners. In authentic learning, facilitators provide opportunities for learners to construct their own knowledge through engaging in self-directed inquiry, problem solving, critical thinking, and reflections in real-world contexts. Facilitators mainly work to create a safe, nurturing and positive learning climate for participants. Albert Einstein said, *"I never try to teach my students anything… I only try to create an environment where they can learn."*

Current literature suggests that useable knowledge is best gained in learning environments which feature the following characteristics (Herrington, Reeves and Oliver, 2009):
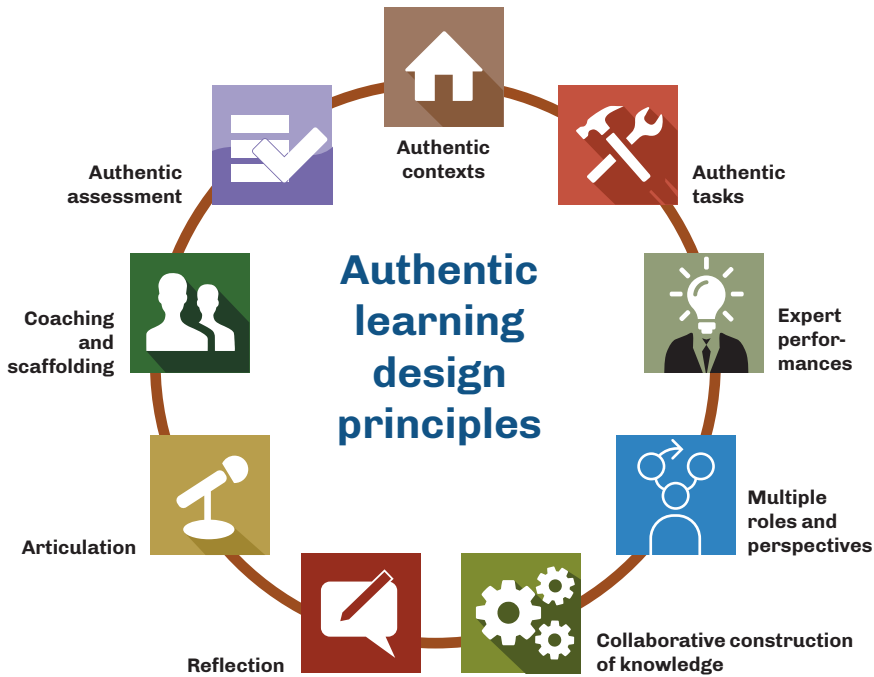
Authentic context is created not only to provide real world examples, but also to provide the purpose and motivation for learning. At the same time, authentic context provides a sustained and complex learning environment that can be explored at length. An authentic context reflects the way the knowledge will be used in real life; therefore, it also preserves the complexity of the real-life setting.

Authentic tasks stand at the heart of an authentic learning design by providing strong real-life relevance. Authentic tasks are ill-defined to the point that learners must figure out the specific actions needed to complete such tasks rather than simply applying existing rules to do so. Authentic tasks require learners to investigate and accomplish them over a sustained period of time. In the online Pharmaceutical Cold Chain Management (PCCM) course, three-member teams of learners spend the last five weeks of the 12-week course collaborating to prepare recommendations for solutions to actual vaccine management challenges. The latter are submitted to the course by the public health ministry of a specific country. Following weeks of intensive work, they offer their solutions to the ministry of health authorities.

Access to expert performances and the modelling of processes are drawn largely from the apprenticeship system where learners are assigned to experienced practitioners. This means an opportunity for the learners to observe how experts solve problems as well as learn with and from their colleagues. In our courses, opportunities to observe expert performances are provided in a variety of ways, such as live demonstrations or interviews with experts (via Skype) in face-to-face courses; video and chat programmes in eLearning.

Promoting multiple roles and perspectives ensures that learners are exposed to controversies, debates, and discussion, as well as to various sources of information rather than a single textbook or trainer's perspective. As learners work in teams and perform tasks such as writing procedures or identifying risks in a process, and attempt to find a path forward, the learners see that a variety of viewpoints gives a much richer and more robust solution. Not all good solutions are exactly the same. Using a variety of resources rather than a limited number of pre-selected references allows learners to detect the relevant information from irrelevant one. In this sense, single perspectives may not be false, but they are often inadequate. Abraham Maslow wrote, "*I suppose it's tempting, if the only tool you have is a hammer, to treat everything as if it were a nail.*"

Collaborative construction of knowledge is a key characteristic of authentic learning. Collaboration is integral to the task, both within the course and the real world. Collaboration builds relationships, which provide social support, as well as serves as a vehicle for reflection and articulation.

Reflection in authentic learning is promoted by enabling learners to make choices and reflect on their learning both individually and socially. Little learning occurs without reflection. Reflection can be done alone, but while this does support learning, sharing your reflections with others and inviting their responses yields much greater learning.

Articulation is encouraged when the tasks require participants to discuss their growing understanding, negotiate meaning, and publicly present and defend arguments. It is not enough to simply construct new knowledge. It must be articulated and shared with others who can provide feedback. The late Professor Seymour Papert of MIT promoted "constructionism" as an important principle of meaningful learning. This principle requires learners to articulate their understanding and skills in the form of external knowledge representations

that can be shared, critiqued, and revised over time. Extensio et Progressio Authentic eLearning (EPELA) courses provide ample opportunities for this principle to be instantiated. For example, as shown here (page 8), learners create Flipgrid videos of their understanding of the evaluations they receive, and others provide reviews.

Coaching at critical times, and **scaffolding** of support are provided by mentors in an authentic learning environment. Rigorous research has shown that feedback is the most important factor in any type of learning environment.

Authentic assessment is not separated from the learning process, but is seamlessly integrated in the activities. Moreover, authentic assessment requires that learners are provided with the opportunity to become effective performers with the skills and knowledge they have acquired. In the online "Pharmaceutical Cold Chain Management (PCCM)" course, most of the solutions generated by the teams of learners are subjected to expert, peer, and self-review, rather than "graded", using a predefined scoring scheme. While some solutions are clearly better than others, creativity is encouraged and there is no penalty for being "wrong", but feedback helps learners to improve their solutions to complex problems. The kind of learning that is supported through authentic learning cannot be easily measured with multiple choice tests.

In summary, authentic learning engages all senses allowing learners to create a meaningful, useful, and shared outcome. Through either real-life, or simulated tasks, authentic learning provides learners with opportunities to connect directly with how professionals actually apply their knowledge and skills, and prepares them for better performance as professionals themselves. Authentic learning works with 5Cs through using all cognitive, affective, psychomotor, and conative domains.

This book focuses on selective activities that support learning. Each of them is reviewed from the 5Cs perspective and is accompanied by explanations about why

to select them, where they fit in a learning event, and how they contribute to learning.

All activities have elements of critical thinking, communication, collaboration and creativity. When it comes to conation, it is the active engagement of participants that we promote in order for them to experience that they can do it. With motivation and positive feedback, as well as post-learning event support systems, we help learners to incorporate what they have learned into practice. Though all these activities are given within a specific context, they can be adapted to other settings. It is important to align the activity and the objectives with special focus on the learner and instructor roles.

Building relations

The authentic learning approaches we use in our courses are all about building relations. Our learners build relations through the authentic context that reflects the way things happen in real-life. They relate their previous experiences and future roles to the context designed into the learning events. This helps each of them to build relations with "more knowledgeable others" as well as with the coaches and mentors. As a result, collaborative working and collaborative construction of knowledge take place in a web of interactions, rather than by simply consuming the content through passive listening, and note-taking. The role of technology here is to facilitate such interactions that could be manifested in the following ways:

- by enabling the creation and sharing of an authentic context;
- by enabling collaborative knowledge construction and engagement in authentic tasks; and
- by enabling communication and building of a learning community.

In this positive learning climate, coaches and mentors maximize the learning potential of every learner. They understand that the key to unlocking learners' potential is by developing positive, respectful relations with the learners even before the course starts. We use Flipgrid to motivate all, starting with coaches and mentors presenting themselves and asking learners to tell us about their expectations from the course. The 90-second Flipgrid videos show that excitement is contagious. Here are some examples on how coaches welcome learners to the "PCCM on Wheels" course.

Umit Kartoglu: *"Ladies and gentlemen, welcome on board the "Pharmaceutical Cold Chain Management on Wheels" with service from Athens to Thessaloniki. This is your captain speaking. We will be cruising approximately at 90 km per hour for about 648 km ahead and it will take us six days. But who cares?!? For us, the end is nothing, road is all. This course contains collaborative learning and is approved for the more knowledgeable others; such as each and every one here. Take a minute to locate more knowledgeable others on board, they may be sitting next to you, in front of you, or even behind you. Although you might be sitting where you are sitting right now, this seat is not assigned to you for the whole trip – you are requested to change seats and sit with different more knowledgeable others. Cell phones and other electronic devices may be used throughout the journey, you do not need to switch them off, but please put your cell phone into vibration. We apologize for not delivering any lectures in this learning journey. We believe every one of you brings a vast set of experience to the group and we all are impatient to learn from each other. We would like to hear from each of you regarding your expectations from this learning journey. Thank you for choosing GLO, and enjoy your journey."*

James Vesper: *"Hi, I am Jim Vesper, and I am going to be one of the crew members on this year's pharmaceutical cold chain management on wheels course that's taking place in Greece. In preparation of our journey, I have been doing some research – I have been looking at maps, I have been reading books, but the good news is that I won't be driving the bus. Instead, we will be having an adventure, looking at how time and temperature sensitive pharmaceutical products are handled in Greece. As we do that, we are going to talk about risk management, we're going to use terms like hazard, harm, uncertainty, controls, and impact. And at the same time, we are going to have a lot of fun. So, get ready for a learning event like you've never had before in your life. It all starts in Athens, Monday morning, June 12. See you then..."*

Alan Kennedy: *"Welcome to the 2017 WHO Time, Temperature and Space Odyssey. My name is Alan Kennedy but you can call me HAL! H, A, L... I am a member of the starship flight crew and my role will be to assist Captain UMIT and the rest of the capsule in making this the most valuable, the most enjoyable and the most memorable learning experience you have ever flown. One of my duties during the voyage will be to observe our daily ups and downs, tasks, successes and interactions for issue as a light-hearted daily news-*

sheet and I will need you all to help with this project. Apart from this I will be wearing several hats ... here's one of them! And don't forget, the purpose of the trip is not just to gain knowledge, but to share knowledge. With our amazing mix of backgrounds it is going to be a whole lot of fun. Finally, you may have detected that I speak with a slightly strange tongue. This is because I am NOT English. Instead I come from a remote northern land called Scotland famous for its monsters, its castles, its kilts and its fine whiskies. And much much more! That's all from me. I am really looking forward to meeting you all and can't wait for Captain Umit to press the launch button for our interstellar journey together into the unknown. Thank you very much."

The web of such interactions for building relations can be summarized as follows:
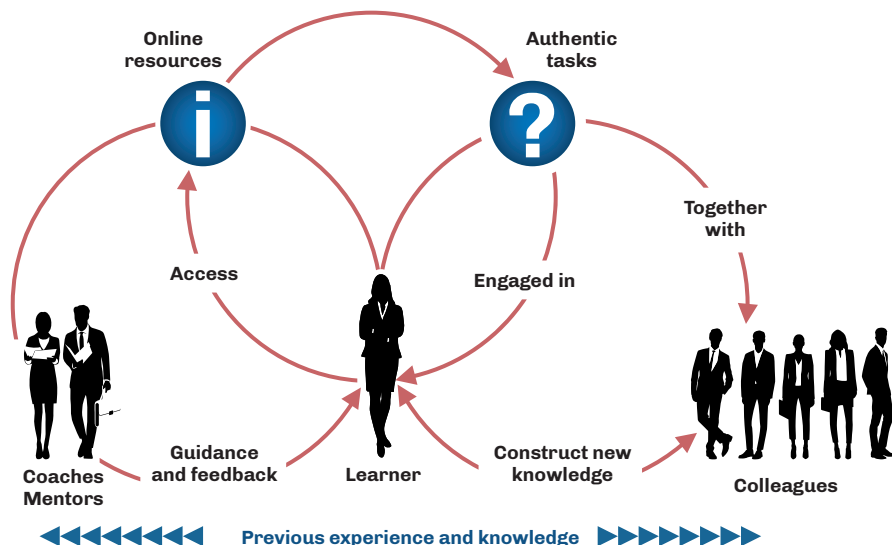
Who sits where?

In all learning events, participants who know each other beforehand tend to sit together. Nothing is wrong with this. But we want participants to get out of their comfort zone from the beginning. This creates more stimulus to carry on throughout the course. In all our courses, we assign seats to participants. By doing so, we take into account their nationalities, languages spoken, gender and their workplaces. Having conducted courses for more than 25 years, we have never come across any objection to that . In order to assign seats properly, you need to know

your participants. CVs work to some extent but you may need to do some research about them. Today, you may find more information about anyone through a simple internet search. Pre-course questionnaires could also be helpful.

Learners need to focus and see what is going on in the learning space at any given time. In face-to-face courses, the seating arrangement can help or hinder their learning. Although no perfect arrangement exists for all learning events, in our face-to-face courses, we prefer U-shaped seating. A U-shaped layout creates a sense of equality within the group, encourages discussion, and makes it easier for the facilitator to observe learners and provide one on one help when necessary. A U-shaped layout also extends the facilitator's space compared to traditional classroom seating or circle arrangements, and makes the facilitator always visible.

Where do the facilitators sit? As a participant, I have been in some courses in which participants and trainers were sitting in a mixed fashion. It did not make any sense to me. A trainer's purpose to be in the training room when not running a session is different than mine as a participant. In our courses, facilitators sit behind the U-shaped table. Depending on the number of facilitators we may have one or two tables placed obliquely at the back.

There are many reasons why facilitators should sit behind the group. First of all, they do not disturb participants. Second, they have a pretty good viewpoint from which to observe what is happening during the session delivered by their colleague. They can take detailed notes to discuss during the facilitators' meeting

in the evening. Third, they have good eye contact with the facilitator running the session. They can send signals to each other without disturbing participants.

We require all facilitators be present at all sessions. This is important from several perspectives. First of all, facilitators benefit from constructive feedback from their fellow facilitators. For example, as a facilitator who runs the session, I need to know what I did best and what things I could have done differently. This is how we keep coaching and improving ourselves. At facilitators' meetings, we all speak in turn. Although some facilitators may feel much more comfortable in certain technical areas and would like to run those sessions, things happen and another facilitator may need to step in on the spot. I have been on courses where a facilitator got sick the night before his session and I had to step in. If I had not been watching these sessions in previous years, it could have turned out to be quite a flat session.

A typical room set up for 15 participants and minimum of three facilitators
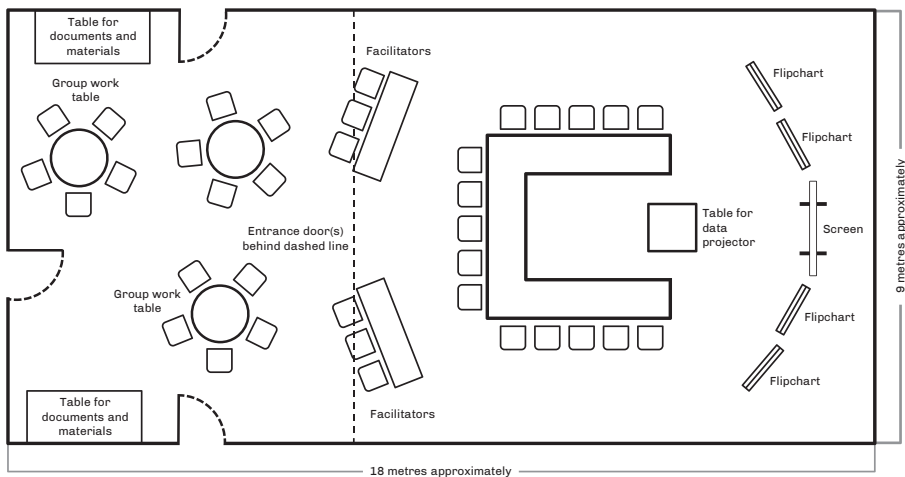
There is a big difference between a course and a conference. You may present at a conference and walk out and never come back again, but this must not happen in a training session. We do not like it when facilitators show their faces just before a session and disappear afterwards, and thus we do not allow this in our courses.

Before we start

All activities presented in this book are arranged for 15 participants and three facilitators. You may use the same activities with smaller groups; however, they might not be appropriate for larger groups – especially from the time perspective. You may need to do serious adjustments and/or find other activities that would suit larger groups.

Each activity is presented in a session plan form followed by more details. In session plan tables, the following icons are used as quick visual guide for facilitators:

	Handouts		Video		Music		Grouping
	VIP cards		Prize		Projection		

Each activity is explained from the perspective of a facilitator as if he/she is explaining to the group. This also helps readers easily incorporate these ideas into their course designs. The relation of each activity to the 5Cs is also indicated with the following icons:

	Critical thinking		Communication		Collaboration
	Creativity		Conation		

Icebreakers
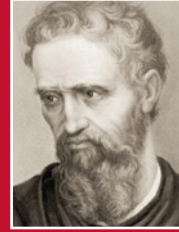
"Ancora Imparo."
(I am still learning)
Michelangelo

We always use an icebreaker before moving into the technical content of a course. Icebreakers help to clear the way for learning to occur by making learners more comfortable and encouraging a conversation. There are all sorts of icebreakers that are available online, but whether they really help everyone to get to know each other and begin to build community remain questionable. The ones here are tested for years and always work.

In order to make this activity more personal and fun, we go around the table first for everyone to introduce themselves very briefly – where they come from, what their main responsibilities are, and how they would like to be called (for example, Dashpagam from Mongolia says we can call her Dashka, or Mwadini from Tanzania tells us to call him Dini). We include everyone (both participants and facilitators) in this icebreaker.

Though we have table names for everyone, we do not distribute name badges in the beginning. We link the icebreaker activity with distribution of the name badges.

Here are our favourite ones. It should be noted that they are not short. Remember? Our courses are all about building relations! We value the time we spend to get to know each other in the beginning and always block at least 45 minutes (and sometimes 60 minutes) for such an activity.

Tombola (Bingo)

Invented in 1929 in the US, **bingo** is a game of chance played with different randomly drawn numbers which players match against numbers that have been printed on 5×5 cards. The Italian version **tombola** evolved as a children/friends/family game and today is played in many cultures. As an icebreaker, we follow tombola rules, but create our own cards.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources*
60	Icebreaker: Tombola	Participants and facilitators speak to each other and fill in a tombola card. After 20 minutes, everybody stops and goes back to their seats. Now, name tags are drawn from a bag, and whoever talked to that person tells the group about that person.	▪ "Tombola" templates ▪ a bag ▪ name tags ▪ pens/pencils ▪ prize(s)

* For pictorial references of equipment and stationery materials, please refer to Annex 4 on page 192

You must prepare three small and one bigger gift for this icebreaker.

The facilitator prepares A4 template sheets (see Figure below) for all participants and facilitators. The number of cells in the blank template should be 3-4 fewer than the total number of participants and facilitators. In principle, the number of rows should not be more than four.

Blank template for "Tombola game" (for 15 participants and 3 facilitators)

			Bingo!

The facilitator should explain the instructions for the icebreaker. It is always safe to have the instructions printed on a piece of paper so nothing is missed.

1. The objective of this game is to gather information about as many people as possible in 20 minutes.
2. You will be using your blank Tombola templates to gather information about people.
3. When the time is started, get up, approach a person and start talking.
4. You should first write his/her name in one of the cells of your template, then ask 2-3 questions; and write brief answers in the same cell.
5. Try to obtain unique information about the person; we already know their jobs and countries. Ask questions such as what have they always dreamed of doing, or where would they most like to visit, what profession they would choose if not doing what they are doing now, what animal they would like to be if not human, what instrument they play, their favourite food, and so on.
6. When you have obtained information from one person, move on to another person. Try to speak as many people as possible, and fill in all the cells in your template.
7. Before the 20 minutes is finished, if you fill all the empty cells in your template, take your seat.
8. If you cannot fill all the empty cells in the given time, you lose your chance of winning the biggest prize. Time management is important.
9. Any questions?
10. If all is clear, let's get started!

The facilitator gives 20 minutes for mingling, and then invites all to be seated. When all are seated, the facilitator explains the rules of Tombola (clear to anyone who has played Tombola/Bingo before, but possibly not obvious to others.)

1. We will draw a name badge from a bag, and will give the badge to the person whoever it belongs to. By doing this step by step, all of us will have our name badges.
2. If you have talked to that person and his/her name is on your paper, cross it out.
3. Whoever talked to that person should raise his/her hand to present him/her to others. Naturally the same questions might be posed to the person by different participants, so in order to save time, if you are the second or third in giving your answers to the group refrain from repeating previously mentioned characteristics.
4. When you have crossed all names in any of the one row in your template, shout "Chingo".

5. First Chingo winner receives a prize.

6. Next prize goes to a person who crosses out all the names in two rows. If you cross out all the names in two lines, you must again shout "Chingo".

7. Next prize goes to the person who completes all three lines.

8. Final prize that is "Bingo" goes to one who completes the whole list. You need to shout "Bingo" as soon as you cross out all the names.

9. Of course, there could be more than one person who completes first, second and third Chingo as well as the Bingo. Whoever shouts first gets the prize.

Three truths and one lie

This icebreaker originated from a typical history quiz, giving 3-4 facts from history to students and asking them to spot the "wrong" one. Here is an example:

- Alan Shepard walked on the Moon
- Buzz Aldrin walked on the Moon
- James Lovell walked on the Moon

The correct answer (the wrong one) is James Lowell, because he flew to the Moon twice with Apollo 8 and Apollo 13, but never walked on it. Alan Shepard was the fifth and oldest person to walk on the Moon during Apollo 14 mission (1971). Buzz Aldrin accompanied Neil Armstrong in Apollo 11 mission and was the second person to walk on the Moon (1969).

This icebreaker brings a lot of fun to the group with unexpected and fascinating results.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
60	Icebreaker: Three truths and one lie	Participants and facilitators speak to each other to obtain four statements about the other person (three of these statements should be true and one a lie). After 15 minutes, name tags will be drawn from a bag, and whoever talked to that person presents the other to the group.	- Dividers for pairing "Three truths and one lie" templates - a bag - name tags - pens/pencils - prize

For this ice-breaking activity, you ask everyone to write down on a piece of paper four things about yourself. Three of these things must be true, and one of them must be a lie. For example, if Jane was playing she might write:

1. As a child, I owned a pony named Goldie
2. My favorite type of candy is licorice
3. I was a registered nurse before I entered the field of public health
4. I have five brothers

You also need to work in pairs. To save time, the best is to ask participants and facilitators to pair with a colleague sitting next to them. Alternatively, you may use dividers to pair everybody in the room. The pairs tell each other their "Three Truths and a Lie" (but without revealing which one is the lie). We then draw a name badge from a bag, and give the badge to the person it belongs to. By doing this step by step, all of us will have our name badges. Instead of reading your own list, the person with whom you paired should read your list to the others. Then, each person will write down on the scoring sheet which of the things you listed they think is a lie. To know which one was a lie, we ask the person to confirm.

When it is your turn, you will get one point for each person you fool as indicated by someone thinking something you wrote is a lie when it is really true. When it is someone else's turn, you can also earn one point by correctly identifying that person's lie. There is a scoring sheet below (you add rows for each player). At the end of the activity, whoever has the highest points wins a prize.

As a real example, here are my (Umit's) Three Truths and One Lie:

1. I was singing in a church choir for a year.
2. My last cartoon exhibition Le Chiendent was in 2008 in Paris.
3. Although I am originally Turkish, I was born in Thessaloniki, Greece and moved to Turkey at the age of three.
4. The longest run I have completed was in 1993 for 12 kms for UNICEF.

Which of these do you think is Umit's lie?

Name	Lie	Score
Rodrigue		
Aphaluck		
... (add rows as appropriate)		
Fadela		
TOTAL SCORE		

One alternative to this game is to replace the "lie" with a "wish". In this alternative, you give three truths and one wish, that is, something that is not true, yet something that the person wishes to be true. I would change my four statements as follows for this alternative icebreaker:

1. I have four children.
2. The most unforgettable trip I had was to Norway to watch the Northern Lights.
3. I went to a very special primary school where we had no school bells.
4. I like to bike.

Which of these do you think is Umit's wish?

If the group is bigger than 15+3, you may want to reduce the number of truths and go for two truths and one lie or alternatively two truths and one wish instead of three truths to save some time.

Chat chat

The origin of this icebreaker is not known. You may have already experienced it in different ways in some courses. Chat chat brings a lot of energy to the group. From the start, the noise level increases with a lot of laughter.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
60	Icebreaker: Chat chat	Ask participants and facilitators to stand up and move outside the sitting area. Ask all to get in two lines facing each other. Explain that when you say "go", they will have one minute to chat with the facing participant/facilitator and try to get to know the person through some personal questions. When the time is over, you will clap your hands and everyone will shift to the next person (best is that one line moves to the right and the person at the end gets to the other side of the line). Then everyone again will have one minute to chat. This will continue for about 10 minutes. After 10 minutes, name tags will be drawn from a bag, and whoever talked to that person gives information about him/her to the group.	▪ a bag ▪ name tags ▪ Promotional material (optional)

The facilitator explains the instructions as follows:

1. The objective of this game is to gather information about as many people as possible in 10 minutes.
2. Please take a notepad and a pen, and stand up, and move outside the sitting area.

3.   Get into two lines, facing each other.
4.   When I say "go" you will have one minute to chat with the person across from you. You try to learn as much as possible about the person by asking simple and short questions, such as, "What is your favorite food", "Are you married?", "How many languages do you speak?" and so on... Both of you should ask questions to each other.

5.   When one minute is over, I will clap my hands, and this line will move down one person to change the person you will chat to next. The last person will move to the other side of the line.
6.   You will again have one minute to chat with the person across from you.
7.   I will again clap my hands when one minute is over. We will do this for 10 minutes.
8.   Any questions?
9.   If all is clear, let's get started! Go!..

At the end of the 10 minutes, ask everyone to take their seats back. Explain that we will draw a name badge from a bag, and will give the badge to the person it belongs to. By doing this step by step, all of us will have our name badges. And with each person, anyone who talked to the person would tell us what you have learned about the person.

If there are any promotional materials (such as course t-shirts), this is the best time to distribute these gifts.

Preferences

The origin of this icebreaker is not known. It is typically played in child/youth camps and is favored by the young since it forces all to move by simply giving two options to select from.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
30	Icebreaker: Preferences	Ask participants and facilitators to stand up and move outside the sitting area. Draw an imaginary line in the room (alternatively mark the floor with easy-to-remove packing tape). Start asking questions of preferences and let participants/facilitators move depending on their preferences. This will continue for about 15 minutes. After 15 minutes, name tags will be drawn from a bag, and whoever remembers his/her preferences mentions them.	▪ packing tape ▪ name tags ▪ Promotional material (optional)

Create an imaginary line in the room (alternatively you may mark the floor with packing tape). Make sure there is enough space for all to stand anywhere along this line. Explain to the group that left and right sides of the line is for preferences.

To play the game, you will start asking questions about preferences and show which extreme belongs to which side of the line and let everyone to move where their preferences are. If they have no preference, then they stay in the middle. Ask everyone to observe who goes where so that they can mention it when we ask at the end of the game. You may ask many kinds of questions of preferences, such as:

- tea or coffee?
- winter or summer?
- shower or bath?
- classical or pop music?
- morning person or night person?
- Italian or Indian cuisine?
- chocolate or strawberry?
- married or single?
- boy or a girl child?

- blue or green?
- sweet or savory?
- white cheese or gouda cheese?
- to be rich or beautiful?
- big city or small town?
- Antarctica or Maldives?
- basketball or football?
- still water or water with gas?
- red or white wine?
- action or comedy movies?

As for the questions, use your imagination and have fun.

At the end of the 15 minutes, ask everyone to take their seats back. Explain that

we will draw a name badge from a bag, and will give the badge to the person it belongs to. By doing this step by step, all of us will have our name badges. And with each person, whoever remembers his/her preferences would tell us what you remember about the person.

At the end of the game, if there are any promotional materials (such as course t-shirts), this is the best time to distribute these gifts.

One alternative to this icebreaker is to play it without an imaginary line. You may invite all participants and facilitators to sit or stand depending on their responses, which brings less energy to the group compared to participants running to either sides of the imaginary line.

One other version of this icebreaker is played as "would you rather". In this example, again the main facilitator asks a "would you rather" question for all to decide their answer. Here are some examples of "would you rather" questions:

- Would you rather be the most popular or the smartest person you know?
- Would you rather go without television or junk food for the rest of your life?
- Would you rather have a shower or a bath?
- Would you rather sun bathe at the beach or go skiing in the mountains?

Mix and meet

This icebreaker involves using cards to get to know each other. Here how it goes:

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
45	Icebreaker: Mix and meet	Ask participants and facilitators to pick four cards from the deck you shuffled. Explain that there are four categories of cards: hobbies, family, food and travel. Ask all to find a pair in the group and show each other the cards and tell some facts about the category they have in their hand to the other person. They take notes. This will continue for about 10 minutes. After 10 minutes, name tags will be drawn from a bag, and whoever remembers his/her preferences mentions them.	• special cards • name tags in a bag • pen/pencil and paper • promotional material (optional)

You need to prepare special cards for this icebreaker. There will be four different categories of cards and each player will draw 4 cards. Therefore, if you have 15 participants and 3 facilitators, you need to prepare 18 sets of the four cards shown below:

Back side
of the cards
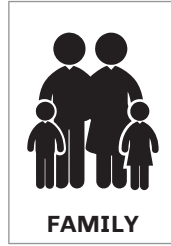
Of course, you may decide which categories to include in the icebreaker. You may include friends, school, movies, music, books, and so on.

You need to shuffle the cards very well and put them back side facing up so nobody could see the categories. Ask participants to draw four cards. It is possible that one may draw more than one card from the same category. This is nothing to worry about.

As a next step, ask participants to pair with another participant who is next to them.

Participants should show the cards to each other and tell things about the categories they have in hand to the other participant. They take notes. For example, if I draw two hobbies, one family and one food, I have to tell two of my hobbies, explain something about my family (whether I am single or married, whether I have kids, where do we live, etc.) and food preferences (which dish you like best, do you like cooking, etc.). Once all participants finish with explaining to each other, you invite everybody to take seats again.

Explain that we shall draw a name badge from a bag, and give the badge to the person it belongs to. By doing this step by step, all of us will have our name badges. And with each person, his/her pair will present him/her to the group.

Similarities

This icebreaker is played in teams and energizes the group for a good start. The origin of this icebreaker is unknown. Each team should find a certain number of things they all have in common. Although it is introduced as a competitive game, we never discredit the other teams; at the end the icebreaker everybody receives a gift.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
45	Icebreaker: Similarities	Divide participants and facilitators into groups of three. Instruct each team to talk among themselves and find at least six common things (similarities) that every group member has in common with the other two. The team who announces that they have reached six, ask all teams (starting with the one who finished first) the similarities they have found. Once you are done with one group, distribute the name badges to the members and continue with the next group. At the end, distribute the gifts to all.	▪ name tags in a bag ▪ pen/pencil and paper ▪ promotional material (optional)

Divide all participants and facilitators into groups of three. If you have 15 participants and three facilitators, you will end up having six groups. Depending on the group size, you may adjust the size of the groups.

Instruct groups to talk to each other and try to find similarities that every single group member has in common with others. Explain that the groups should not take easy picks such as hair color, wearing similar clothing, physical height, gender, etc., but rather non-physical things that they learn by talking to each other, such as languages spoken, marital status, number of children, music liked, favorite movies, food preferences, books, and so on. Tell the groups that they should not agree with any of the similarities just for the sake of reaching consensus. Here the idea is talking to each other as much as possible so while you find similarities, you also discover different things about each other. Once a team reaches six similarities before the other groups, or once the time set aside for the game has expired, ask all participants to make a circle but without breaking their groups. Distribute the winning teams' name badges and ask the group to explain the similarities. Then move on with distributing name badges of other groups and asking them to explain their similarities. When it is all over, distribute any promotional gifts to all players.

Alternatively, this icebreaker can be played in a free form without forming the groups in the beginning. In this version, you may decide and announce the categories and the size of the groups to be formed. For example, you may announce that you are looking for groups of three people who visited the *USA*, who like *Chinese cuisine*, who are married, who watched *Gone With the Wind* movie, who read a book from *Dostoyevski*, and so on… When you are picking the categories, you should not make them too difficult to find matches, but you should also not pick categories that would be too easy to form groups. Then you ask everybody to talk to each other to find their matches to make groups of the required number. This version naturally is a quicker alternative.

Connecting stories

Another fun icebreaker that is also played in groups. The origin of this icebreaker is not known. It helps us to learn interesting facts about each other with the help of creativity each team member comes up with. The whole logic is that one team member shares an experience and the next team member picks something up from that story and adds his/her own experience.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
45	Icebreaker: Connecting stories	Divide participants and facilitators into three groups. You need at least five players in each group. The groups should develop a story with facts that have happened to themselves or in their experience. In each group one participant tells his/her fact or experience, and the other members should find something in that story to explain their own experience or fact, and this continues until all members' stories are put together. It is important that the groups write these things down onto sticky note papers. Once all groups are ready, invite groups one by one to present themselves and tell their fact to be followed with the following story by another member of the team until the story of the group is told. Distribute the name tags to the groups	▪ Sticky note papers ▪ name tags in a bag ▪ pen/pencil ▪ promotional material (optional)

Divide participants into 3-4 groups. You should have minimum of four participants in each group, some groups may have five. Distribute sticky note papers and pens to each group. The objective of this icebreaker is to connect mini-stories each participant will share in an interesting way so that each of them is linked. Re-

mind all groups that they should write the mini story on sticky note papers, not to forget. Even after completing a chain of mini-stories with everybody's contribution, they may continue to prolong the story as much as they can. Give 15 minutes to groups to create the chain of mini-stories. Give an example to the groups as follows, explaining the links between stories (below underlined):

- Though I like coffee, I cannot drink much in the afternoon. If I do, I cannot <u>sleep</u> at all.
- I like to <u>sleep</u> especially in the mornings, but I have two small children who I have to prepare for school and have to get up every morning early except <u>weekends</u>.
- We live next to a lake and every <u>weekend</u> we take a long walk around the <u>lake</u>.
- There is no <u>lake</u> where we live. Lake Leman was the first lake I have seen when I went to Geneva for a <u>meeting</u>.
- Every Monday morning, we have a stand-up <u>meeting</u> in our office. Since nobody is sitting, it is short, always to the point and we get to know who is doing what in that particular week in the <u>office</u>.
- Although we have a big cafeteria in our <u>office</u>, I'd prefer to carry my <u>lunch</u> from home. I am quite picky.
- I usually skip <u>lunch</u>, but here during the course I do not think I will skip because the buffet yesterday looked so yummy.

Once all the groups are finished, or the time is expired, invite groups to present themselves and tell their chain of mini-story.

If you want, you may introduce some competition to this icebreaker and announce in the beginning that the group that comes up with the longest chain of mini-stories will be the winner. Distribute the promotional gifts to all players.

Waving the flag
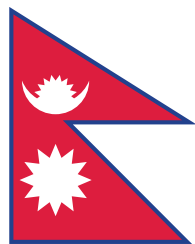
A flag is a piece of fabric with a distinctive design that is used as a symbol, for signalization or for decoration. Flags come in many shapes, though the majority of national flags are rectangular, we also know that some flags come in square, triangular, and even swallow-tailed shapes as well. The most unusual flag shape comes from Nepal in the shape of two stacked triangles.

This icebreaker is about asking participants to create personal flags that represent them (or what is important to them). Unlike the other icebreakers, it does not involve any interaction with others, but gives a chance to each member of the group to express themselves freely.

Since artistic abilities of each member in the group may vary greatly, we should not get stuck with the artistic presentation but rather value how each member would explain their flags.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
45	Icebreaker: Waving the flag	Ask participants and facilitators to create a personal flag that would symbolize them. They may include symbols, objects, colors to reflect. You may show your own flag and explain to the group as an example. After 15-20 minutes, name tags will be drawn from a bag, and everybody in turn will explain his/her flag to the group. Place all flags on the wall with names.	• paper • colored pencils, crayons, markers • name tags in a bag • promotional material (optional)

Explain to participants some facts about flags. Announce that we will be creating our own flags that represent us. Distribute papers, colored pencils/crayons/ markers to all participants. Tell participants that they can use symbols, drawings, icons, color, etc., to design their flag and that everything included in the design should have an explanation that represents them. This is a chance for each to speak about themselves to the group through the flags they have designed.

You may show your own flag to them both as an example and to motivate. Otherwise, you may join the group to create your flag with everybody.

You may give 15-20 minutes to participants to create their flags. If they complete before the time is up, you may proceed with presentations. Ask everyone to take their seats. Explain that we will draw a name badge from a bag, and will give the badge to the person it belongs to. By doing this step by step, each of the participants will show the flag they created and explain how it represents them.

Once everybody explains his/her flag, place all flags to a wall to create a "quilt" of individual flags.

During this presentation, you may also want to take notes that you can use to design one flag for the whole group. Here you have an opportunity to explain to the group that the next challenge is to create one flag for the whole group. You may ask a volunteer to come to the flipchart to take notes and to draw the flag. You now ask the group what could possibly represent common interests and qualities of this group. So, you brainstorm ideas on what to draw for a large group-wide flag. Once you agree on the points, you decide all together how to draw the group flag that the participant who volunteered could help to illustrate it on the flipchart. However, you should always be aware that this could prolong the icebreaker unnecessarily. If you have time constraints, you should not go for the group

flag. As an alternative, you may create a group flag based on the presentations and present to the group as a surprise either in the afternoon, or the next day.

Here is one example of a flag:

Blue is for sea. I love to go to seaside and swim...

Sun and sunset colors... I find it very inspiring. Red is also one of my favorite colors...

I love to read books...

I love to listen to music, and I play piano...

Lavender is one of my favorite colors. It makes me happy and reminds me of my childhood...
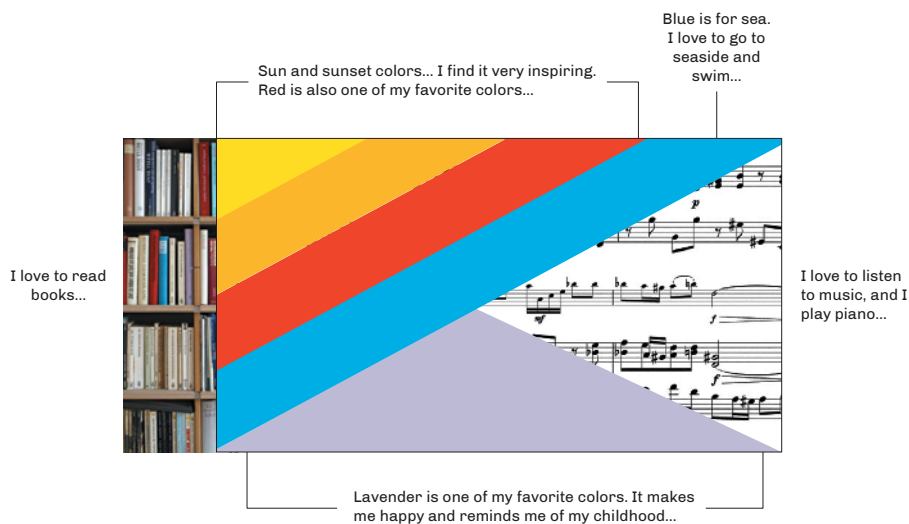
Deniz

Anatomy of a session
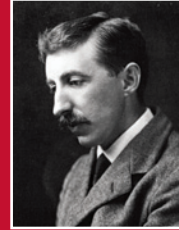
"Spoon feeding in the long run teaches us nothing but the shape of the spoon."

E.M. Forster

Course developers should not self-identify as belonging to one learning theory camp or another to be successful. Instead, we should identify the most appropriate learning principles to apply in the development of activities that will most effectively support the learning of our course participants. To help participants to develop robust mental models of how to prevent inadvertent freezing of vaccines, lectures or direct instructional tutorials are unlikely to be as effective as some sort of real world or virtual experiential learning approach. On the other hand, if participants are expected to be able to conduct a shake test to determine whether a vaccine had been affected by freezing, then a short video demonstration, a live demonstration and/or a step-by-step interactive tutorial followed by practice would probably be the most effective.

Any course that we develop is unlikely to adhere to only one learning theory or a single perspective on learning throughout the course. It is much more likely that different sessions within a course will be designed based on the principles of a blend of learning theories as well as different perspectives on the nature of learning. This variance will draw from the nature of the content and the specific learning objectives within a session.

We view learning primarily as the construction of a complex web of different types of knowledge, skills, attitudes, and intentions. We learn as we build relations within the content of the course. Based on this, the activities as well as games we come up with in our learning events are all derived from the following principles:

- Learners should be the most active people in a learning event because they must actively try to do things, take risks, make mistakes, and then try again for meaningful learning to occur.
- Learning is derived from trying to solve complex, challenging problems rather than passively attending to messages transmitted by an instructor.
- Learners are not empty bins to be filled with knowledge, but active minds that already possess considerable prior knowledge and experience that form the foundation of new knowledge (as defined by Lev Vygotsky, each participant can be a "more knowledgeable other").
- Knowledge and skills should be learned in a context much like the ones in which the knowledge and skills will eventually be applied if the learning is not to be inert.
- Transfer of learning from one context to another is very difficult and therefore learners must try applying their knowledge and skills in multiple contexts and domains.
- The primary role of an instructor is to "scaffold" people as they construct new knowledge. Scaffolding involves providing learners with just enough help they need in a new context (akin to training wheels on a bike) and then gradually removing this support as learners make progress.

In our learning events, we include sessions in which facilitators explain the core of the issue to prepare participants for hands-on practices. The facilitator who is able to maintain participants' interest with an exciting and dynamic delivery, using a variety of methods, is more likely to be successful in helping participants reach their learning objectives. Such sessions have three major parts:

- Introduction
- Body
- Summary

The structure of these sessions is similar to Robert Gagné's (1985) nine events of instruction. It provides a framework for an effective learning process that follows a systematic instructional process sharing the behaviorist approach to learning.

The very first three steps in Gagné's nine events may be considered as "preparation" which corresponds to "introduction" in our approach. It is all about preparing the learners to learn and participate in activities by presenting a stimulus to gain their attention, as well as explaining the objectives of the session and helping learners to make sense of new information by relating it to something they already know or something they have already experienced. The "body" of a session in our approach is presenting the content, providing learning guidance, helping learners to internalize new skills and knowledge and confirming correct understanding of these concepts and providing timely feedback. Gagné's nine steps do not include "summary" to underline the critical information. It rather continues with assessing performance and helping learners so they retain information by transferring their new knowledge or skill to situations that are different from the ones they have been trained on. In our approach, we incorporate assessing performance within the tasks rather than having a separate evaluation such as pen-and-paper tests. Enhancing retention and transfer of knowledge and skills is supported by a post-course support mentorship programme.

Robert Gagné's (1985) nine events that provide a framework for an effective learning process

RECEPTION	EXPECTANCY	RETRIEVAL	SELECTIVE PERCEPTION	SEMANTIC ENCODING	RESPONDING	REINFORCEMENT	RETRIEVAL	GENERALIZATION
Gain attention	Inform learners of the objective	Stimulate recall of prior learning	Present the stimulus	Provide learning guidance	Elicit performance	Provide feedback	Assess performance	Enhance retention and transfer
INTRODUCTION			BODY				SUMMARY	MENTORSHIP POST-COURSE SUPPORT

The first few minutes of any session are the most critical ones. Participants may be thinking of other matters, wondering what the session would be like, or have less interest in the topic. Human attention spans are dwindling. In 2015, a survey of Canadian media consumption by Microsoft concluded that the average attention span had fallen to eight seconds, down from 12 in the year 2000. The study dramatized this finding in that we now have shorter attention spans than goldfish. So, you have to capture learners' interest. Introduction should be as short as possible, having the target of attracting attention of the learners, excite them about learning, and help them to focus on the subject.

Body of the session is where both the information is delivered/discussed and participants take an active role in learning through various activities that support learning.

Summary is used to reinforce the contents of the presentation and provide a review of its main points.

In a nutshell, in all sessions we say what we are going to say first (introduction), then we say it (body) and at the end we say that we said it (summary). Repetition is good, it helps learners to grasp and retain information.

In all sessions, we use a variety of activities that support learning. Games generate tremendous interest through direct involvement of participants, and are widely used in introduction, body or summary sections of a session. Some activities fit better to certain parts of a session, and sometimes certain activities cannot be used in all parts. For example, you cannot summarize the session with a brainstorming activity.

In the following sections, we shall focus on activities we use in sessions that support learning.

Introduction

"He who laughs most, learns best."
John Cleese

Since the main idea of the introduction is to grab the participants' attention and explain the session's objectives, activities including introductory games must be carefully selected to support this purpose. They must be directly related to the content of the session and must have clear outcomes. Some of the activities we explain below may be adapted to other content.

Reviewing the session's objectives

The most direct way of introduction to a session is to review the session's objectives by a simple restatement. Although this might be considered the flattest introduction compared to all other activities that could be integrated to the introduction of a session to grab learners' attention, in some cases you may not find a suitable activity to the topic you will be presenting. In such cases, there is no need to push the limits and simply go for reviewing the session objectives. In all cases, you must have these objectives on a flipchart. Presenting the session's objectives through PowerPoint is not recommended. Once presented, the flipchart can go on-to the wall and can be referred to throughout the session whenever necessary. This cannot be done with a PowerPoint slide. Here is an example from a temperature monitoring devices session from "Vaccine Management" course:

"This afternoon we are going to work with various types of temperature monitoring devices used in the vaccine cold chain. Our objective is to be able to choose the most appropriate one for different purposes and read each one correctly. We begin by...."

Sharing personal experiences

Sharing personal experiences always works as a strong introduction. What is important here is that participants can relate themselves to the story. Bryan Stevenson in his Ted talk (We need to talk about injustice) starts to explain the topic with a story about his grandmother.

When he is asked in an interview why he started with it, his answer was simple: *"Because everyone has a grandmother"*. This was his way of making an immediate connection with the audience.

Here is an example, in one of our courses, where Jim Vesper told his story to immediately connect with the participants before his session on contingency plans:

A few years ago, I was flying from the US to Manchester, England. We had just finished our meals and everyone was beginning to relax for the remainder of our seven-hour flight. The captain came on the intercom system.

Pilot: "We have about 4 hours remaining in our flight, but the computer up here in the cockpit is saying that we have a fault in our right engine – it could stop working at any moment. We have two engines on this plane and we know that we can make it all the way across the ocean on one engine and we have enough fuel to do that." The captain continued, "We think, however that it is better if we turn around right now and land back in the US. We're not in any danger, so just relax and we will have you safely on the ground in 3 hours."

The airplane got very quiet. I was sitting at the front and when the captain came out of the cockpit, I started talking with him.

Me: "I have flown a lot, but have never been in an emergency situation like this. Has this happened to you before?"

Pilot: "This isn't an emergency situation."

Me: "What do you mean? You have an engine that is ready to fail, and we're over the Atlantic Ocean."

Pilot: "It's not an emergency. We've practiced this in simulators. We know what to do. We're following a checklist that has been written by experts. A REAL emergency is something that we've never thought about or never practiced."

Recall of prior learning

In principle, by design, each session in a learning event (course) should build on another. Referring to a previous session and linking it with the topic you are going to cover is a great way of introduction. In his Ted talk (Do schools kill creativity?), Sir Ken Robinson references *"There have been three themes running through the conference which are relevant to what I want to talk about. One is the extraordinary evidence of human creativity in all of the presentations that we've had and in all of the people here. Just the variety of it and the range of it. The second is that it's put us in a place where we have no idea what's going to happen, in terms of the future. No idea how this may play out (…)And the third part of this is that we've all agreed, nonetheless, on the really extraordinary capacities that children have -- their capacities for innovation.".* This was a reference to the TED conference at which he was presenting.

We use a lot of flipcharts in our courses. All flipcharts go onto the walls, and thereby start constructing a visual history of the course. When we need to refer to a previous session either to build upon it, or to link it with the topic we are going to cover in a new session, referring to the flipcharts from that session is a great way to recall the prior learning. Referring to a previous session also reinforces the messages from the previous one. When it is done gently, "repetition" is always good.

Asking questions

Another way to grab attention is to ask participants questions about the subject. For example, during the introduction of *planning for an inspection* session at the "Pharmacovigilance Inspection" course, the facilitator distributes index cards and asks participants to write one characteristic of a good plan, and paste them onto the wall. Once everyone is done, the facilitator reviews the responses, brings the

issue to the importance of having a good plan for an inspection by underlining important characteristics mentioned by the participants and presents the session's objectives.

In this example, the facilitator chooses to use cards for participants to write down their answers. Alternatively, the facilitator could simply let participants speak. Asking them to write down their answers removes participants' anxiety of being put on the spot. Nothing is wrong in asking questions directly. However, if not handled well, participation may become an issue. In the cards example, it is not known which characteristic is written by which participant.

In some cases, the facilitator may simply pose questions, not necessarily directing them to participants to answer, but just to raise curiosity on the subject.

Here are some other examples of questions we used in our Global Learning Opportunities (GLO) courses:

"Can someone give an example of stock management software they are familiar with?"

"Let's discuss cold chain adequacy. What are some of the things you would focus on when you are conducting an assessment of cold chain adequacy in your region?" And, after a pause, facilitator continues, "Anaya, what do you think?"

"Eddie, this is a slide showing the floor plan of a primary vaccine store. There are some problems here. Would you like to comment on one?"

No matter how you formulate your question, there is always a risk involved in direct questioning. When you pose a question to a particular participant, you put that person on the spot from the beginning. The questions posed to Anaya and Eddie above are those types of questions. The risk in using such a questioning technique is that the participant may either not know the answer; decides to remain silent, or may respond with an incorrect answer. Of course, if not handled well by the facilitator, this would not foster a good start to a session. In this sense, the first question in the above example is much safer, the question is posed to the entire group, and anyone who wishes to volunteer may respond to it. However, if you always use this pattern (asking the question to the entire group), you may end up having the same dominant participants responding to your questions all the time. Using a variety of questioning techniques is the best.

Using a video

If chosen correctly, use of video is a very powerful introduction. We use a variety of clips, some prepared by us, and some from known movies. In all cases, the facilitator must explain what is expected from participants by watching the video clips.

In a "PCCM on Wheels" course, during the introduction of the session *conducting an inspection*, the facilitator shows the video of an awareness test from Daniel Simons and Christopher Chabris, known as the "invisible gorilla" video. The facilitator explains that there are two teams passing a ball to each other. One team is dressed in white and the other in black. The task is to count how many times the white team passes the ball. Following the video, the facilitator asks for the answer. The correct answer is 15. Then he/she asks whether anyone saw a gorilla? Usually, around half of the group does not see the gorilla. Replay the video until the gorilla appears. The facilitator asks again how they could miss something right before their eyes. And then explains that this form of invisibility depends not on the limits of the eye, but on the limits of the mind. We consciously see only a small subset of our visual world, and when our attention is focused on one thing, we fail to notice other, unexpected things around us - including those we might want to see. Then the facilitator brings the issue to being vigilant during the inspection that inspectors' minds should be trained to see the invisible gorilla. Then he/she presents the objectives of the session with the pre-prepared flipchart.
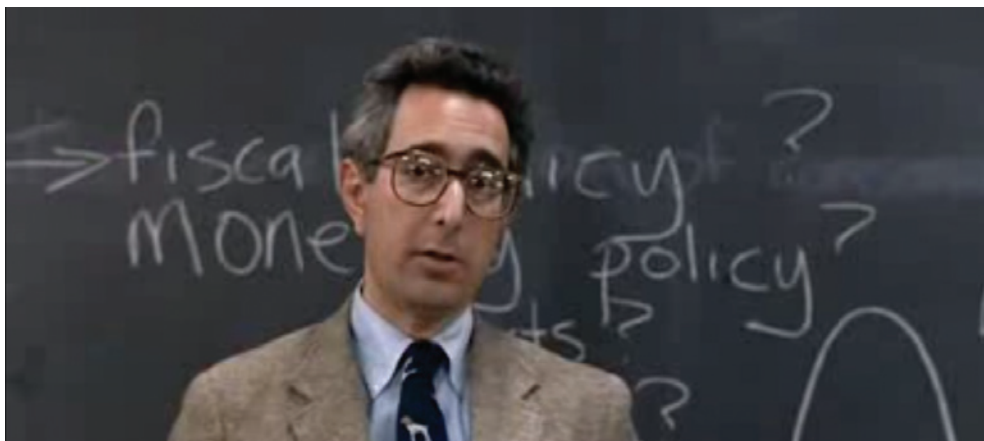
Ferris Bueller's Day Off

In the "Facilitation Skills" course, we often use two video clips for the introduction of *creating a positive learning environment* session. The first clip is from

Dead Poets Society

Ferris Bueller's Day Off and the second one from **Dead Poets Society**. They serve as extreme examples of one bad and one good learning experience. Following the short clips, the facilitator discusses similar experiences from participants and brings the point to the session objectives.

Relating the topic to real-life experiences

Relevance is a major component of many motivational models. Applications of theoretical material in real-life situations make content easier to understand. In the introductory part of sessions, the facilitator should demonstrate the relevance of content with real-life examples. This technique not only grabs the learners' attention, but also facilitates learning because people learn best by anchoring new information to known material. Relevance is particularly important if learners' experiences can be used as a basis for new learning. The experience may be either from the everyday world or relate to a specific process, or a piece of equipment.

In the "Facilitation Skills" course, we also use this technique in the introduction of "creating a positive learning environment" session instead of using videos as explained in the previous example. We simply ask learners to tell us their best and worst experiences with trainers. After listening to several examples given by learners, we explain the objectives of the session indicating how we are going to be building on their experiences.

Relating the topic to future work experiences

Learners' interest in a topic will increase when they see a relationship between a learning activity and their work. A facilitator can capitalize on this by relating objectives, content and activities of the session to the future role that is expected from the learners.

In the shake test session of the "PCCM on Wheels" course, we explain to learners that they do not only to learn when and how to conduct the shake test correctly and decide which vaccines to be used, but that they are also to become role models and resource persons in their work environment when there is a need for a decision in cases when vaccines are exposed to freezing temperatures. We explain the following:

"In this session, we shall review when and how to conduct a shake test. I shall also demonstrate the shake test to you, and each one of you will have the chance to practice and excel in the test. In fact, it is one of the most useful tools for use in the field, and you will have a critical role in your work environment as a shake test expert. When there is a situation that vaccines are exposed to freezing temperatures, you will be the ones to take correct decision. You may also help others learn how to conduct a shake test. Are you ready for the challenge?"

The hook: challenging learners

Although challenging learners as an introductory technique to a session may sound awkward, if done in a fun way, it may create a lot of interest on the subject. In an audio-visual aids session at the "Facilitation Skills" course, we review all au-

dio-visual aids and their creative use in learning programmes. Learners may think that the session would be quite flat since they have already been using various audio-visual aids for years. But from the very beginning, we challenge them to draw a given photograph while the facilitator also takes the same challenge with them using his/her flipchart. Here is the challenge and the photograph:

We tell learners that they are going to run a session on correct positioning of the child for intramuscular vaccination and we want them to explain this by using a simple drawing. Here is the sample photograph. The challenge is to draw it on a paper while the facilitator will use his/her flipchart to draw the same image.

In this activity, the trick is that the facilitator simply draws on the light pencil drawing he traced by projecting the image onto the flipchart the evening before

the session. The light pencil trace will not be seen by any of the participants from their seats. Naturally, his drawing will be much more realistic than anyone in the room, though you may have some real artists. But on average we see the following results:

As you expect, the reaction of the learners is a shock when they see what Tom (facilitator) has come up with, thinking that he is an artist. So, the hook works. Then Tom reveals his secret and elaborates on the session objectives:

"Here we are going to review new and creative ways of preparing audio-visual aids to help transmit the message in our sessions. You may not be an artist at all, but using simple tricks you will be able to create very attractive tools for your sessions..."

Games for introduction

We play many games in our courses. In addition, both morning and afternoon sessions always begin with a warm-up, in some cases in line with our learning topics, in some cases just for fun. There is constant "noise" in our courses. We explain to learners at the very beginning of all our courses that we are there for three things. "Choice, voice and noise: We want you to make choices, and voice your choices, and in doing so we want you to make a lot of noise."

Ultimately, we are not there to transfer certain information to learners, but rather help them to construct the knowledge in a collaborative way and build robust mental models so that they can apply their knowledge and skills in real-life situations when they perform in their work environment.

Children love to play games. Games provide them with an invaluable experience to interact with others and enrich their social and many other skills. Games are played indoors and outdoors. Some games are calm and quiet, some are noisy, some are orderly, and some are messy, some are serious, but mostly, games are fun. Games accompany children as they grow and change, as they explore and learn new things. There is no special reason why games would not have a similar impact on us, adults.

'Play' is about using our body and mind; it's all about interacting with environment, materials, and with other people. In some cases, 'play' helps us to explore the unknown by taking non-real-life risks. We share information and knowledge through 'play' regardless of what type of communication we are in, be it verbal or non-verbal. Many times, 'play' is exciting, and engages our sense of humor. We can become deeply absorbed and focused when we play. 'Play' helps us to better concentrate on what we do. It also has a lot of symbolic values as we imagine and pretend when we play. We try out ideas, feelings, and our different roles through playing. It helps us to express, to work through our emotions and experiences.

The following games are the ones we play as part of the introduction of a session.

Get in line

In the "PCCM on Wheels" course, participants visit private/public sector facilities handling time and temperature sensitive pharmaceutical products and run a preliminary risk assessment. This practice requires participants to identify hazards, calculate the risk score of the unwanted event and come up with control measures to detect, prevent and/or mitigate. When we explain how they are going to work

in facilities and the importance of coming up with best control measures, we play this game.

I learned about this game in the book *InGenius: A crash course on creativity* by Tina Seelig, Professor of the Practice in the Department of Management Science and Engineering (MS&E) at Stanford University. In addition to leadership-related courses, she teaches creativity and innovation.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
5	Game: Get in line	Ask all participants to stand up and move outside the sitting area. Ask participants to get in line based on their day and the month of birth, 1 January being at the left end and 31 December being at the right end. And you also explain that the rule is that nobody is allowed to speak. Tell participants that they have only one minute to get in line. After a minute, ask participants to tell their day and month of birth starting with the left end. It is very unlikely that they will be in line without any mistakes. Discuss the critical thinking and creativity for finding solutions to problems, and present the session objectives	▪ Pre-prepared session objectives on flipchart

Remember, we ask participants to get in line with their birth day and month without speaking in one minute. Each time we play this, after a second or so thinking, everybody starts to show their birth days and months with their hands.

After a minute, when we ask participants to tell their birth days and months, there always is at least one mistake and often many mistakes. Then we explain that they were not allowed to speak, but they came up with a solution using sign language. Most likely, nobody thought of writing down or showing an ID to each other with a birth date on.
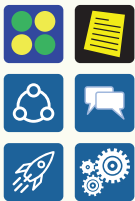
The lesson learned in this game is that the very first solution you find to a problem may work but might not necessarily be the best one. It is always better to put it aside and think of other solutions.

In our course, we also ask participants to come up with redundant controls since one control measure may not be enough to prevent the unwanted event. This game serves the purpose of demonstrating that participants do not go for the easiest solution when thinking of control measures. Instead, they always come up with several solutions, some better than the others in terms of detection, prevention and mitigation.

This game is an ideal one for introduction if your course (or session) is about finding solutions to problems and/or situations (through critical thinking and creativity).

Brick uses

When it comes to sessions that require finding solutions to problems through creative thinking, *brick uses* serve as a good introduction.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
12	Game: Brick uses	Divide participants into two teams. Distribute the printed instructions to each group and explain that groups have five minutes to write down what is required. Once completed, collect the papers and read out loud and compare results. Following this, explain the session objectives.	▪ Dividers ▪ Printed instructions for both groups ▪ Pens/pencils ▪ Papers ▪ Pre-prepared session objectives on flipchart

You need to put participants into two groups, dividing the U-shaped table from the middle as left and right. You then randomly distribute to the groups two sets of instructions printed at the top of a page:

Group 1
A brick manufacturer has experienced a sharp decline in sales due to the drop in new homes being built. The manufacturer is seeking new marketing strategies for bricks, and has called you in as a consultant. Think about this problem and write down all of the solutions that come to mind.

Group 2
In the space below, list at least 30 possible uses of a brick.

Explain to the groups that they have only five minutes to come up with solutions. Once done, collect the papers back, and, reading out loud, compare the results. It is highly likely that Group 2 will come up with many more ideas compared to Group 1. Discuss the implications of this for learning. Explain that it is important to free up your mind to be open to new ideas so that you can be more creative instead of focusing too much on the narrow parameters of a specific task. Then proceed with presenting the session's objectives.

Catch phrase

Catch phrase is a typical word guessing party game. It is also available commercially from toymakers both in manual and electronic forms. Original catch phrase consists of discs of 72 words on each side, a timer, and a scoring sheet. Most famous categories are everything, tech/innovations, history buff, entertainment, sports/games, geography, transportation, around the house, food/drink, plants/animals, and family.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
12	Game: Catch phrase	Divide participants into two teams. Explain that in each turn someone from the team should volunteer to explain the word/ phrase. One minute is given for each word/ phrase. You show the word/phrase on the card to the volunteer and he/she should try to explain it with gestures to his/her team. If the team guesses the word/phrase correctly, they win a point. Then it is the other team's turn. This continues until you finish with all words/phrases. The team with the most points wins the game. Following this, using the key words, you underline the importance of them and explain the session objectives.	▪ Dividers ▪ List of 10 key words/phrases relevant to the session (transferred on cards) ▪ Timer (you may use the timer on your phone) ▪ Pre-prepared session objectives on flipchart

We play this game both as an introduction and a warm up. All you need to make a list of key words related to the session you are conducting. You may make the following list for an introduction for quality management system session of the "Good Manufacturing Practices (GMP) Inspection" course. In general, 10 phrases (or words) are enough. If needed, you may make a longer list.

- Production
- Storage
- Packaging
- Quality assurance
- Clean area
- Controlled area
- Containment
- Quarantine
- Return
- Specification

You write these words on separate cards. The game is played in two teams. The goal for each player is to get their team to say the word or phrase written on the card. One member of a team volunteers and tries to get his or her team to guess the given word or phrase. He/she can make any physical gesture and give almost any verbal clue, but may not say a word that rhymes with any of the words, and if more than one word says the number of words. When the team guesses correctly, the other team take its turn. In the original game, teams have only one chance to guess the word or phrase, with team members allowed to confer; a correct answer earns a bonus point. Since you are playing this game to raise interest, you may allow all team members to guess an answer. In this case, they may come up with many answers, trying to get the right one.

In terms of timing, you may either give one minute for each word/phrase or a total of five minutes to each team. Play continues until your list is fully used. You also keep score. The team with the highest points wins.

An alternative of this game is played without any gesture but by drawing. In this case, you may need two flipcharts and board markers. However, this may take longer than mimicking.

Once the game is over, underline some critical terminology you used in the game, and explain the session's objectives to the group.

This is better than that

This game is used to inspire participants' creativity in problem solving. It can be effectively used as an introduction game for sessions dealing with problem situations and finding solutions.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
10	Game: This is better than that	Divide participants into groups of three. Distribute deck of cards to each group. Explain the scenario/situation and ask groups to rank the objects (on the cards) on their usefulness in that specific scenario, along with their reasoning written on the back side of the selected cards. After five minutes, ask groups to explain their ranking. Underline differences and creative reasoning, then move onto session objectives on problem solving.	▪ Dividers ▪ Pictures of five items printed on separate cards (deck) – you need one deck of cards for each group. ▪ Pre-prepared session objectives on flipchart

Prior to the game, pick five or more objects that are different. Transfer these onto cards separately to make a deck of cards (reverse sides are blank). Also prepare a scenario (situation). Split participants into even groups (if you have 15 participants, best is to split participants into groups of three – resulting in five groups). Distribute the deck of cards to groups, and explain the scenario/situation. Have each team rank the objects based on their usefulness in that specific scenario, along with their reasoning written on the back side of the selected cards. After five minutes, ask groups to explain their ranking. Underline differences and creative reasoning, then move onto session's objectives on problem solving.

The idea is to not make the scenarios too easy so it becomes obvious which objects are most useful. Alternatively, you can pick items that are not too directly related to the situation.

Here are some ideas:

Objects to pick: Chewing gum, belt, hat, Swiss knife, mobile phone
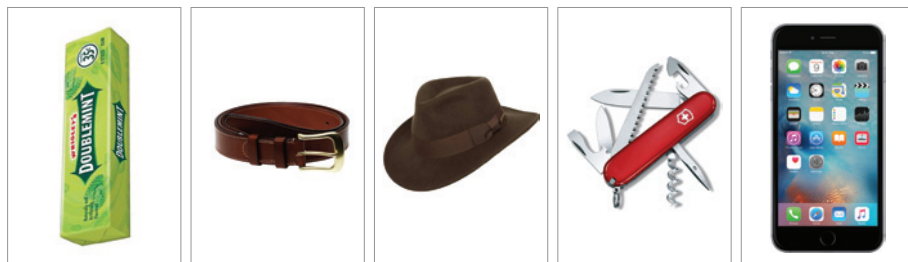
Possible situations: stranded on a desert island, meeting with your friend for a date, or giving a presentation in a conference.

This game can also be used in the body of a session – in this case, it requires more time than you would dedicate in an introduction. We use this game in an eLearning programme for a session where participants are given a list of potential clauses that can go into a quality agreement on outsourcing transport for a wholesaler (situation). This will be explained further in the body chapter.

Put it together

We use this game as the introduction for the *creating a well aligned course* session in the "Designing Courses for Learning" course. All courses have eight major components that need to be aligned. These are objectives, content, instructional design, learning activities, facilitator roles, learner roles, technological affordances, and assessment. The game brings a lot of energy to the group while they discover these eight major elements. The example below is given for a group of 15 participants.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
10	Game: Put it together	Shuffle all 15 decks of eight cards, and randomly distribute eight cards to each participant. Explain that for a course to be effective, its eight major elements must be well-aligned. Tell that the task is to mingle in the group to trade cards to make the full deck of eight components. They can only trade one card at a time with another participant. Once participants complete putting the deck of cards together, underlining the importance of alignment, explain the session objectives.	▪ 15 decks of 8 cards (eight major components of a course)

Here are examples of cards for this game:

OBJECTIVES

CONTENT

INTRUCTIONAL DESIGN

LEARNING ACTIVITIES

FACILITATOR ROLES

LEARNER ROLES

TECHNOLOGICAL AFFORDANCES

ASSESSMENT

You may also modify the game for your session if the session's topic includes (preferably) more than five components, points or situations that cover the whole session. For example, if you are to run a session on Gagné's nine events that provide a framework for an effective learning process, you may also prepare 15 decks of nine cards.

The body

The body of a session is where you run the major activities to support learning and achieve your session's objectives. This is not a time when you lecture to the participants, often putting them to sleep with endless and boring PowerPoint presentations.

Here is a series of photographs from a course where participants show Power-Point poisoning symptoms:

First of all, not only the body, but all sessions, and, therefore, the whole course should provide a nurturing positive learning climate. A positive learning climate is a multi-dimensional space in which participants experience safety and support so that they can effectively and efficiently acquire knowledge and skills.

When I took the responsibility of managing a training network in WHO, the very first thing I did was to recruit a consultant and send her as a participant (undercover) to one of the courses to report back to me on a daily basis. I often give examples from her diary when I facilitate the session on running effective sessions in the "Facilitation Skills" course. Here are some excerpts from her notes:

• DAY 1 •

Today we were exposed to a conference for 120 minutes non-stop... I failed to count the number of PowerPoint slides!.. I do not know how many times I nodded off (I know my limits, but trainers do NOT)...

• DAY 2 •

Trainers explained that we were to have conferences in the mornings and group works in the afternoons. Mainly because they expect us to be more awake in the mornings. Interesting approach!..

• DAY 3 •

Even though the lunch break was scheduled at 1pm, they started a new session that would take another hour which was initially scheduled for the afternoon. I could not stand and raised my voice...

• DAY 4 •

We were asked to read an article at night, on which I spent 2 hours... When trainers asked it turned out that no one else read it! They wanted to cancel the discussion, but I insisted. At the end of the discussion it was still not clear why we were asked to analyze this article.

• DAY 5 •

Throughout the course we were called by the name of our countries... Nobody called me by my name. Who am I and what am I doing here?..

Attention span

In 2004, three NAP (Nodding at Presentations) investigators, Kenneth Rockwood, David Hogan, and Christopher Patterson published an article on Incidence of and risk factors for nodding off at scientific sessions in the Canadian Medical Association Journal. In the abstract they wrote: *"We conducted a surreptitious, prospective, cohort study to explore how often physicians nod off during scientific meetings and to examine risk factors for nodding off. After counting the number of heads falling forward during 2 days of lectures, we calculated the incidence density curves for nodding-off episodes per lecture (NOELs) and assessed risk factors using logistic regression analysis. In this article, we report our eye-opening results and suggest ways speakers can try to avoid losing their audience."*

The following figure speaks for itself:

Special incidence density curve, showing number of nodding-off events per lecture (NOELs) per 100 attendees over length of time of presentation
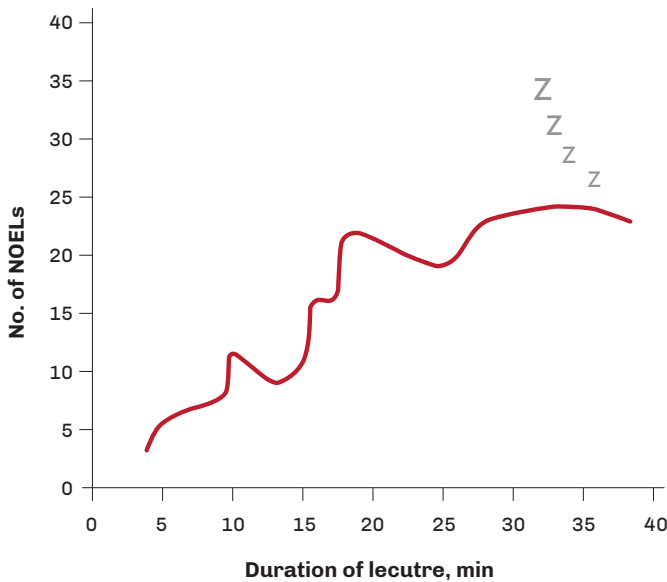
It is worth reviewing the alignment of eight critical dimensions before giving examples of learning activities, including games for the body of a session.

Alignment of critical dimensions

The success of any course is largely determined by how adequate the alignment is among the eight critical factors or dimensions:

1) objectives
2) content
3) instructional design
4) learning activities (tasks)
5) facilitator roles
6) learner roles
7) technological affordances
8) assessment

Evaluations of courses in both education and training indicate that assessment is the most commonly misaligned factor. These evaluations revealed that instructors may have lofty goals, share high-quality content, and even adopt advanced instructional designs, but most assessment strategies tend to focus on what is easy to measure rather than what is important or expressly desired.

Alignment within a course design cannot be overemphasized. For example, if the instructional design of a course is based upon constructivist learning principles, then the remaining factors must be in alignment with the constructivist pedagogical dimensions. For example, constructivism stresses the construction of original interpretations of knowledge, and therefore assessments in a constructivist course would rarely require participants to respond with just one right answer that has been memorized as typically used in multiple-choice question tests. Instead, the assessment strategies would require the participants to create some sort of an external artifact, e.g., a presentation that represents their own unique construction of the knowledge that has been learned in the course. Another example of poor alignment would be targeting a high cognitive level skill that requires drill and practice, e.g., conducting a shake test, and attempting to teach it with a PowerPoint slide show without any demonstration nor any practice session. The misalignment here comes from the learning activities (tasks) being out of sync with the objectives. In such an approach, it is highly unlikely that participants will be able to successfully conduct the shake test and interpret the results with 100% accuracy.

The eight critical factors can be described as follows:

Nature of Objectives: The objectives of a course define the knowledge, skills, attitudes, and intentions that learners should develop as a result of participating in that course/session. Objectives are ideally stated as measurable outcomes rang-

ing from discrete knowledge (e.g., students will be able to identify all distinguishing properties of various levels of epidemics) to higher order thinking (e.g., students will be able to develop a plan for community engagement to help control an outbreak of measles).

The anatomy of a learning objective reveals three distinctive parts: conditions, behavior, and criteria.

Conditions explain how the learner will be able to do it; behavior explains what the learner will be able to do; and finally, criteria explain the degree of accuracy. Here are three examples – the first one is of a lower level cognitive skill, while the other two are of higher ones:

Conditions	Behavior	Criteria
Given a loading pattern of a passive cooling box	explain potential risks for freezing	by basing the explanation on three ways of heat transfer
Given a negative frozen control and two test vials of pentavalent vaccine (one frozen and one not-frozen)	using the shake test, distinguish the vial affected by freezing	with 100% accuracy
Given a video of a cold chain storage system from a private warehousing facility	cite observable violations of Good Distribution Practices (GDP) regulatory requirements within a cold chain management system	with 100% accuracy

Nature of content: The content of a course encompasses the information and data that are components of both the substance and context of a course. Content may be presented in highly structured formats such as textbooks, but more and more content today is accessed in ill-structured, real-world formats such as original source documents or scientific data accessible from other organizations. Indeed, the increasingly ubiquitous nature of the Web means that the content within a course may often be accessible in multiple formats, including text, images, audio, and video.

Instructional design: The overall arrangement of activities, resources, structure, and activities that a course provides to promote learning is ideally

structured by applying appropriate instructional design principles. Traditional instructional designs found in many public health courses are focused on information delivery via lectures, static content presentations in the form of textbooks or journal articles, and fixed assessments, e.g., via multiple choice test questions seeking one right answer. Such designs are common, but the evidence for the efficacy of these traditional instructional methods is unacceptably weak. Alternative instructional designs include authentic tasks, problem-based learning, and project-based learning.

Learning activities (tasks): Specific tasks or activities utilized within a course should be more authentic than academic. This means that rather than engaging course participants in passively listening to PowerPoint lectures, they should be engaged in tasks that require them to use information to solve realistic problems or accomplish practical tasks. In traditional courses, information is usually presented via abstract presentations, and it is left up to the learner to generate connections between conditions (such as a real-world problem) and actions (such as the use of knowledge as a tool to solve the problem). Research shows that people who are quite adept at 'regurgitating' memorized information in tests, often cannot retrieve that same information when confronted with novel conditions that demand its application.

Transfer of learning from the context of a course to the real-world is greatly enhanced when the tasks participants complete are as much possible like the ones they would complete on the job.

Facilitator roles: Ideally, a facilitator of a course provides most of the learning support that participants require when they are engaged in learning. Facilitators accustomed to a didactic teaching approach, wherein they deliver packaged information to students in the form of lectures and assigned readings, may struggle with the necessity of allowing their participants to grapple with the inevitable complexities of authentic tasks or problem-based learning.

Efficient facilitators must be willing to surrender some of their status as content experts and become co-learners with all other course participants. In other words, they need to move from a teaching-centric mindset to the one that is learning-centric.

Learner roles: When course participants are challenged with authentic tasks, dynamic content, and collaboration with other learners, their roles inevitably change as they become actively involved in the cognitive, psychomotor, affective, and conative learning domains. Those participants who are accustomed to more passive roles in traditional training courses may initially resist the active requirements of innovative instructional designs. Effective learning designs often require collaboration and teamwork, and participants who dislike working in groups may initially resist collaborative learning approaches. Resistance to changing roles may be especially strong among those learners who feel most comfortable and successful in more passive roles.

Technological affordances: Cognitive tools, visualizations, simulations, role-playing games, and other interactive resources provided by today's Web 2.0 technologies are impressive, but they must be viewed as secondary to instructional design. An affordance is interaction possibilities posed by objects in real or cyber worlds. Thinking of technology as a cognitive tool is an effective strategy in higher education. Jonassen and Reeves defined cognitive tools as *"technologies that*

enhance the cognitive powers of human beings during thinking, problem solving, and learning". By "enhance", they meant that people can have deeper, more reflective thoughts by distributing mundane tasks to the tools (e.g., calculations), or are able to perform cognitive tasks that would otherwise impossible without such tools (e.g., modelling complex interactions).

Technology is, of course, always a central component in any type of eLearning, but there are very different approaches to how it can be used to build an effective online learning environment. Learning FROM technology is a common and widespread approach used in eLearning as well as face-to-face courses. In this FROM approach, technology is used as a platform through which content is delivered to participants, participants submit assignments to demonstrate their understanding of this delivered content, and the tutor/teacher assesses the work submitted. In summary, technology is controlled and provided by the teacher. The FROM approach keeps learners in a largely passive mode.
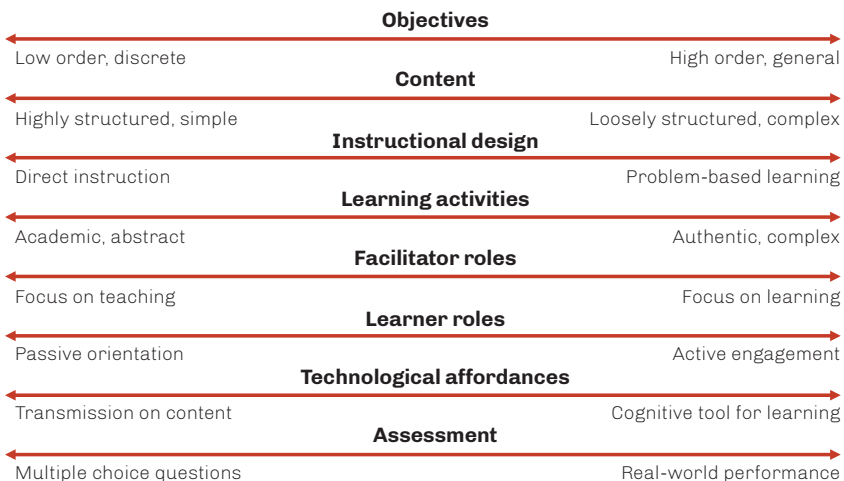
Learning WITH technology, as applied in the courses that we design, is different. The WITH approach places technology in the hands of the participants to be

used as cognitive tools for complex tasks, such as problem solving, knowledge construction, creating meaningful products and collaboration. Learning WITH technology requires that technologies are used for authentic purposes. It creates the conditions for active, rather than passive, learner engagement.

Assessment strategies: Methods used to estimate learner accomplishment of course objectives can range from formative to summative and from traditional to alternative. Assessment is often the weakest aspect of both traditional and innovative courses. Many training courses include no formal assessment strategies, and learning is just assumed to have occurred. Even when assessment is present, it is usually based upon multiple-choice tests that have not shown adequate reliability and validity. Although it is difficult, assessment can be based upon observations of learner engagement and analysis of artifacts produced in the process of completing tasks within a course. Rather than using just one method, robust assessment requires a critical analysis of multiple forms of evidence that learning outcomes have been attained.

The eight factors described above can be utilized to analyze alignment within a particular course. The figure below illustrates the factors in the format of multiple dialectical dimensions. Of course, the world is rarely divided into strict dichotomies as illustrated in this figure. It is more important to consider the pattern of design factors across the eight dimensions in order to ensure that they are properly aligned.

Critical factors in learning design alignment

Objectives

Low order, discrete ←————————————————→ High order, general

Content

Highly structured, simple ←————————————————→ Loosely structured, complex

Instructional design

Direct instruction ←————————————————→ Problem-based learning

Learning activities

Academic, abstract ←————————————————→ Authentic, complex

Facilitator roles

Focus on teaching ←————————————————→ Focus on learning

Learner roles

Passive orientation ←————————————————→ Active engagement

Technological affordances

Transmission on content ←————————————————→ Cognitive tool for learning

Assessment

Multiple choice questions ←————————————————→ Real-world performance

Almost all the activities and games described above for the introduction of a session may also be used in the body of a session. In this section, we'll focus on the activities and games that cannot fit to an introduction session either purpose-wise or time-wise.

Yarns (constructing a network)

The yarn exercise is focused on the importance of seeing learning as building constructing a network as opposed to a one way transmission of information. Too many people view teaching as simply standing and delivering messages (often via boring PowerPoint slides that results in PowerPoint poisoning) with the learners being very passive. But teaching is more than simply dumping information on the learners. To learn, people must be engaged in some sort of meaningful activity with opportunities for responses and feedback. The yarn exercise can also be played in conjunction to any other topic that construction of networks is critical. Same exercise was also played by us in a communication workshop to illustrate one way and two way communication.

| Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources

10	Yarns (constructing a network)	Invite all participants to form a circle. Explain the training paradigm by one way transmission of knowledge. Toss a yarn ball to a participant while holding onto one end of the yarn. Second facilitator jumps in and cuts the yarn close to the hands of person to whom the yarn was tossed. The piece of yarn falls to the floor. Explain that such approach is always one way. Repeat this several times.
		    Afterwards, start again, this time wrapping the yarn around the waist first, while explaining the learning paradigm that learning is about constructing networks. Then, tossing it to a participant and ask them to wrap it around their waist and toss it to someone else. Give additional yarn balls in different colors to other participants and ask them to do likewise. Very soon, there is a lovely network of yarn between all of us, symbolizing the collaborative construction of learning.
		    After discussing the principles for a couple minutes, and responding to questions and comments, we gently squat and leave our network of learning on the floor.
			▪ Different color yarn balls
			▪ Scissors

We start the exercise by asking the participants to stand in a circle. The facilitator tosses a yarn ball to one of the participants while holding onto one end of the yarn. Then second facilitator jumps in and cuts the yarn close to the hands of the person to whom the yarn was tossed. That piece of yarn falls to the floor. The facilitator asks that participant to toss the yarn ball to someone else while holding onto the end, second facilitator snips it again, and the long piece of yarn ends up on the floor.

After doing this three or four times, we start again, but this time, wrapping the yarn around the waist first. Then, tossing it to a participant and ask them to wrap it around their waist and toss it to someone else. We give additional yarn balls in different colors to other participants and ask them to do likewise. Very soon, there is a lovely network of yarn between all of us, symbolizing the collaborative construction of learning. After discussing the principles for a couple minutes, and responding to questions and comments, we gently squat and leave our network of learning on the floor.

Brainstorming

Brainstorming is a creative group activity during which participants generate creative ideas for solving a problem or completing a task. The primary purpose of brainstorming is to generate a creative list of ideas, thoughts or alternative solutions which focus on a specific topic or problem. This list may be used to form the basis of a group discussion. Naturally, brainstorming requires that participants have some background related to the topic.

The technique was first described by an advertising executive named Alex Faickney Osborn in Chapter 33, *"How to organize a squad to create ideas"* of his 1948 book *Your Creative Power.* He was frustrated by employees' inability to develop creative ideas individually for advertisement campaigns. In response, he began hosting group-thinking sessions and discovered a significant improvement in the quantity and quality of ideas produced by his employees. The term was popularized following his book *Applied Imagination* in 1953.

In his book, Osborn claimed that two critical principles contribute to *ideative efficacy* of brainstorming sessions: *deferring judgement* and *reaching for quantity.* He also underlined that such techniques reduce social inhibitions among group members, stimulate idea generation, and increase overall creativity of the group. Then, he defined four golden rules of brainstorming:
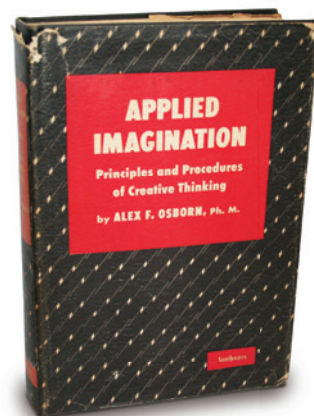
1. **The more ideas, the better**: The assumption is that there is greater chance of producing an effective solution to a problem with a bigger number of ideas generated. It is the application of *quantity breeds quality* that enhances divergent production, aiming to facilitate problem solving.

2. **Practice no criticism**: In all brainstorming sessions, criticism of generated ideas should be put *on hold.* Generation of unusual ideas is only possible if participants feel free when the judgement of ideas is suspended by all. Of course, suspension of criticism applies to the idea generation part only. Once the ideas are exhausted, then the *critical stage* of the process begins by *distillation* of ideas.

3. **The wilder the idea, the better**: In order to get a good long list of suggestions, wild ideas should always be encouraged. In Osborn's words *"It's much easier to tame a wild idea than invigorate one that has no life in the first place".* These wild ideas can be tamed during the *distillation* phase.

4. **Complement and improve already existing ideas**: If it is conducted in a verbal form, such activity, by a process of association, always stimulates participants to improve existing ideas.

There should be always only one problem that is being brainstormed. Multiple questions, even if they are interrelated, tend to produce inefficient results. It is also important that the facilitator explains the rules in detail, for example: *"During this brainstorming session we shall follow two basic rules. All ideas will be accepted, and my colleague Paul will write them on sticky note papers and stick them to the flip chart. Also, at no time we are going to discuss or criticize any idea. Later, after we have our list of suggestions, we shall go back and discuss each one. Are there any questions? If not, ..."*

There are several ways to conduct brainstorming, the verbal approach being the most frequently used. In this activity, the facilitator may need some help from one of his/her facilitator colleagues to write down the ideas that the group will generate. Writing up things and conducting the brainstorming at the same time might be not ideal. Some facilitators write down the ideas on the flipchart, we prefer to write them down on sticky note papers and stick them either to a wall or on a flipchart. By doing this, when it comes to *distillation* phase, you may move around the sticky notes, group them, remove them, and so on.

You may also ask participants to write down their ideas instead of conducting a verbal brainstorming. In this nominal group technique, participants are asked to write down their ideas anonymously. You need to distribute enough papers, cards, and sticky notes to participants along with preferably board markers (so that what is written is more legible). The facilitator then may either ask participants to stick their cards onto the wall randomly, or he/she collects them, and does this him/herself. We prefer that this is done by participants.

Some facilitators go for voting on each idea as the distillation. We prefer that each idea is verbally discussed and decided whether to eliminate or include it for a further distillation. In order to reach to a more refined list of ideas, you may decide to form smaller groups and give remaining ideas to the groups to further discuss and rank them. In this process, groups may also come back to the plenary with ideas that were previously dropped.

A frequent misconception of brainstorming is to use it when **group discussion** would be a better choice. If you take a question such as "circumstances where vaccines can freeze," you cannot expect *creative* and/or *wild* ideas brought forward by participants since we know all the "why"s about vaccine freezing. This topic, instead, should be the subject for a group discussion, not as a brainstorming activity.

Use of Cool Water Packs To Prevent Freezing During Vaccine Transportation at the Country Level

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ABSTRACT: **Objectives:** To study the impact of the use of cool water packs (water packs refrigerated at 2 to 8 °C) on the cold life of vaccine transport boxes and the shelf life of the vaccines. **Methods:** Data loggers were used to measure the temperatures of vaccine shipments with cool water packs in laboratory studies and country evaluations. The temperature recordings were mathematically translated into reduction of vaccines shelf life, which are illustrated through degrees of color changes of Vaccine Vial Monitors. **Findings:** Laboratory studies at extreme ambient temperatures (43 °C) showed that, with the use of cool water packs, temperatures inside the cold box rise to around 20 °C within 48 h. When this exposure scenario was repeated four times, the impact of the temperature history on the different heat stability categories of vaccines varied between 2.4 and 36.0% shelf life loss. Oral polio vaccine was found to be the most affected vaccine. All other vaccines were affected with 2.4 to 10.4% life loss. Country assessments (real life situation with temperature variations between day and night) showed between 0.4% to 4.6% life loss when the boxes were exposed to ambient temperatures ranging from 11.7 to 39.8 °C over the 98 h 15 min test period. **Conclusions:** The use of cool water packs is found to be a legitimate and safe practice for vaccines other than oral polio vaccine, so that cool water packs can safely replace frozen icepacks without any serious consequences on the ability of vaccines to confer protection against disease.

KEYWORDS: Cool water packs, Freezing, Transportation, Vaccines, VVM, Nepal, Myanmar, Turkey, Zimbabwe.

Introduction

World Health Organization (WHO) guidelines recommend that liquid formulations of vaccines containing diphtheria, pertussis, tetanus, hepatitis B, *Haemophilus influenzae* type b and their combinations should not be frozen (1). Freezing of these vaccines provokes a loss of potency and, as a consequence, can result in compromised protective immunogenicity in recipients (2–5).

Freezing of vaccines occurs when vials are exposed to temperatures below 0 °C either during storage or transport depending upon a host of factors, including the duration that vaccine is exposed and whether the vaccine is agitated during that time period. Studies have shown exposure of vaccines to both subzero and freezing temperatures at all levels of the cold chain. Practices that put freeze-sensitive vaccines at risk are common not only in the developing world, but also in industrialized countries. Studies have shown freeze damage to vaccines in Australia (6, 7), Bolivia (8), Canada (9), Hungary (10), Indonesia (11), Malaysia (12), Papua New Guinea (13), the United Kingdom (14–17), and the United States (18).

The severity of the problem has been highlighted in a recent publication in which, of 14 shipments that were monitored, 12 experienced temperatures below 0 °C at one or more points in the cold chain in Indonesia (11). Ten of those were exposed to temperatures below 0 °C during district or sub-district transport in cold boxes.

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Although we know a wide list of control measures to *prevent* inadvertent vaccine freezing, you may go for brainstorming since some participants may come with some wild ideas that have never been thought of. "Elimination of ice" and "replacing icepacks with cool water packs" to prevent freezing during vaccine transportation were brought up by me in a brainstorming session in 2001 – until then there was no "cool water packs" concept in vaccine management. This idea

was then further developed into a series of field studies, resulting in introduction of cool water packs and elimination of ice from in-country vaccine transport (Kartoglu et al. 2010).

Brainstorming is one of the most difficult activities to run in a course. If you are not really an expert in conducting such an activity, you may end up with a very short list of ideas that would bring the energy of the group down to zero. Depending on your handling, one or more of the following barriers may become a problem:

- *Blocking* (when an idea is given by a participant, other participants might forget the idea they were going to give, and even if they remember afterwards, they may see it as no longer important).
- *Evaluation apprehension* (real-time personal judgment of ideas).
- *Free-writing* (individuals feeling their ideas being less valuable when combined with the ideas of the group at large).
- *Personal characteristics* (extraverts outperforming introverts in the group), and
- *Social matching* (participants tending to alter their rate of productivity to match others in the group).

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
45 *Timing should be flexible since you may need to go for small group distillation*	Brainstorming How can we prevent freezing of vaccines in storage and in transport?	Explain the brainstorming rules to participants (the more ideas, the better; practice no criticism; the wilder the idea, the better; and complement and improve already existing ideas). Also explain that your co-facilitator will help writing down the ideas onto sticky note papers and stick onto the wall. Once we exhaust ideas, then we start discussing each and every idea to decide whether we keep or eliminate it. Depending on the outcome, we may go into smaller groups for further distillation.	▪ Sticky note papers ▪ Board markers

Group discussion

Group discussion is a technique in which most of the ideas, thoughts, questions, and answers are developed by participants. It stimulates decision making, increases learning engagement, fosters sharing of differences as well as arrives at consensus. A facilitator typically moderates discussion and guides participants as the discussion develops. Group discussion is useful after viewing a video, following a demonstration, after reviewing a case study, after a role play, after a brainstorming session, and any other time when participants have prior knowledge or experience related to the topic. Attempting to conduct a group discussion when participants have limited knowledge or experience with the topic often results in little or no interaction, and thus, an ineffective session. When participants are familiar with the topic, the ensuing discussion is likely to arouse participants' interest, stimulate thinking and encourage active engagement.

Enough time should be allocated for group discussion. Very brief group discussion sessions bring nothing but frustration. Discussions involving more than 15-20 participants may be difficult both to lead and give each participant an opportunity to participate. If there is no or little control, a few participants may also dominate the whole discussion while others lose interest.

Group discussions could be arranged either as a plenary activity with participation of the whole group, and the facilitator leading or in smaller groups where participants work together with a leader they select. In the latter, it is expected that groups make presentations to a wider group with the outcomes of their discussions.
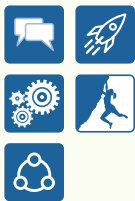
In all group discussions, the topic should be clearly indicated, and timing should be communicated to all. Seating arrangements are critical in group discussions. Classroom type conference seating is not a good choice. Participants should see each other to interact. Therefore, tables and chairs should be arranged in either a U-shape, or a square, or circle. It is also important that the facilitator (or the leader in small group discussions) summarizes the discussion points periodically – this is important to ensure that the discussion stays on track. Providing positive feedback to all contributors is important, this encourages participation. In the end, you should conclude the discussion with a summary of main ideas. It is also important that the facilitator conducting the discussion takes notes (and also other facilitators as well). These notes are critical when it comes to concluding and summarizing the discussion.

In small group discussions, such conclusions should be preferably transferred onto a flipchart or into PowerPoint to be presented to bigger group.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
45	Group discussion: What do we know on the quality of Oxytocin in the field? Are there any knowledge gaps?	Explain the topic and the questions you would like the group to discuss as well as the expected outcomes (list of known quality concerns related to Oxytocin and what additional information needs to be created as a response). During discussion, if needed, ask additional questions that may help discussion of the main question. Take notes to refer to when concluding.	In case of small group discussions: ▪ Group dividers ▪ Flip charts ▪ Board markers

Guided imagery

Guided imagery is a mind-body intervention that is frequently used for meditation purposes. Guided imagery is also called *mental rehearsal.* We often see athletes closing their eyes for some seconds just before the start of a 100m final or just before leaping off the diving board, most likely imagining how a perfect start and dive feels like.

Seconds before Tom Daley's dive for gold at the London 2012 Olympics

Although its use is limited in learning activities, guided imagery can be very successful. We ask our participants in the "Designing Courses for Learning" course to visualize successful completion of a task or solution of a problem. Though it is called "imagery", it refers not only to visuals, but all other senses as well. Guided imagery stimulates *meta-cognition* and *reflection.* It encourages participants to see how they can perform successfully. Moreover, it gives the confidence that a complex task can be completed.

I use guided imagery in some talks at international conferences. Once, delivering a keynote on the tools and approaches to ensure quality of pharmaceutical products throughout the cold chain, I wanted to conclude my talk with a strong message that whatever we do in pharmaceutical supply chain management, we do it for the end users. So, before concluding, I asked everyone to close their eyes and imagine an apple. After a short pause, I asked participants to tell me what they have visualized. The majority of participants described a red apple, while some, although in small numbers, said it was a green or a yellow one, all intact and not bitten. Then I showed the following slide, and continued to the next image. Another *Apple* which nobody spoke of, but someone might have thought of.

Then I asked them to close their eyes again, and this time think of *pregnancy*. Regardless of the gender, the answer was always a woman with a round belly. It is not surprising that nobody thought of any morula phase of the pregnancy.

And then I moved to my last bit, this time asking them to close their eyes for the last time and imagine time and temperature sensitive pharmaceutical product logistics. The answers were images that anyone can find in a Google search of pharmaceutical logistics, such as containers, cold boxes, palettes, trailers, boxes, etc. I showed my last slide of a child and said that this was the image I have for pharmaceutical logistics, because whatever we do in the supply chain, whether it is related to storage, distribution, and dispatch, it is the end-users in need of that product to reach them in full effectiveness. We should change our image of logistics from boxes to a human face...

Demonstration, drill and practice

Demonstration is a method for showing a step-by-step procedure for a complex task. It helps participants to see how something is done correctly. All demonstrations should be followed by a drill and practice where participants take turns to practice the new skill. Drill and practice enable mastery of psychomotor and/or cognitive skills by enhancing performance.

For all demonstrations, you should always have a learning guide. Learning guides illustrate complex tasks in consecutive steps and reinforce the standard way of performing a procedure.

Here is an example of a learning guide which we use in "PCCM on Wheels" course to help participants excel in conducting a shake test.

Shake test learning guide Name of the participant:			
NOTES: 1) **This protocol must not be altered.** There is only one correct way to conduct a Shake Test. 2) The test procedure described below should be repeated with all suspect batches. In the case of international arrivals, the shake test should be conducted on a random sample of vaccine. However, if there is more than one lot in the shipment, the random sample must include a vial taken from each and every lot.	**Practice no.**		
	1	2	3
1. Take a vial of vaccine of the same type and batch number as the vaccine you want to test, and made by the same manufacturer.			
2. Clearly mark the vial as "FROZEN."			
3. Freeze the vial in a freezer or the freezing compartment of a refrigerator until the contents are completely solid.			
4. Let it thaw. Do NOT heat it!			
5. Take your "TEST" vial from the batch that you suspect has been frozen.			
6. Hold the "FROZEN" vial and the "TEST" vial together in one hand.			
7. Shake both vials vigorously for 10-15 seconds.			
8. Place both vials on a flat surface side-by-side and start continuous observation of the vials until the test is finished. *(NOTE: If the vials have large labels, which conceal the vial contents, turn both vials upside down and observe sedimentation in the neck of the vial.)*			
Use an adequate source of light to compare sedimentation rates between vials. **IF,**			
9. The TEST vial sediments slower than the FROZEN vial, **THEN,**	10. Sedimentation is similar in both vials **OR** The TEST vial sediments faster than the FROZEN vial **THEN,**		
11. Use the vaccine batch.	11. Vaccine damaged: Notify your supervisor. Set aside all affected vaccines in a container marked "DAMAGED VACCINES FOR DISPOSAL – DO NOT USE"		
	12. Discard all affected vaccines once you have received permission to do so.		
	13. Fill in the Loss/Adjustment Form.		

We also add a lot of fun to this activity by presenting the Shake your tail feather video by Blues Brothers and invite participants to dance and shake their vials for Step 7 of the learning guide.

Learning guides may also be used by participants in turns to assess each other. Learners can work in pairs, and use the learning guide to tick whether all steps were followed and performed correctly to give feedback to each other.

In the demonstration and coaching session of the "Facilitation Skills" course, we demonstrate how to make a Samurai hat, and let participants practice both how to make it and coach each other, as well as to assess the performance of the coach in turns.

We also take this as an opportunity to have a group photo (participants decorate their Samurai hats first).

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
30	Demonstration and coaching: Samurai hat	Explain to participants that you will demonstrate to them how to make a Samurai hat. Distribute the Samurai hat learning guide to all participants. Ask the participants to watch you and NOT try to make their hat during demonstration. Do the demonstration according to the steps in the demonstration learning guide. After the demonstration, coach the whole class in making Samurai hats. Make sure that the whole group moves together from one step to the next one.	▪ Flip chart papers for each participant ▪ Samurai hat learning guide ▪ Demonstration learning guide ▪ Add the roles handout for each participant during demo. Coaching evaluating practice.
60	Practice: Demonstration and coaching	After everybody succeeds in making a Samurai hat, distribute the demonstration and coaching learning guides and assessment. Divide participants into groups of three. Give each participant one of the following roles: coach, learner, observer. Explain the roles of each as follows: While the participant is a coach, he/she will use the Samurai hat learning guide, first he/she will demonstrate how to make a Samurai hat, then he/she will coach the learner in making a Samurai hat. While the participant is a learner, he/she will use the Samurai hat learning guide, first he/she will observe the coach giving the demonstration, then practice making one him/herself. While the participant is an observer, he/she will use the demonstration skills learning guide to assess coach's demonstration. When the learner is practicing, then he/she will use coaching learning guide to assess the coach's coaching. Afterwards participants change roles and each participant practices all three roles.	▪ A4 paper for each participant ▪ Samurai hat learning guide ▪ Demonstration learning guide ▪ Coaching learning guide

Samurai hat, demonstration skills and coaching skills learning guides are given in the Annexes (page 187).

Skit

Skit is an activity in which participants (or facilitators) present a brief play that has been rehearsed beforehand. The major difference of skit from role play is that role play is not rehearsed, and is performed on the spot. Skit fosters application in

areas where social and negotiation skills are critical. It also stimulates active engagement and increases the interest of the group. It is best to use a skit to try out sensitive or controversial behaviors or to develop/change attitudes.

My favorite skit comes from Jim Vesper. Jim was running a session where he was to talk about attention span. At that particular moment, one of the participants who was sit-

ting in the middle of the U-shaped table, takes a sleeping mask from his pocket, puts it to his eyes, leans back with a sign on his chest: *Please do not disturb!* Naturally everybody started to laugh... Jim gave his message that attention span is short and participants may fall asleep. Of course, it was a planned and rehearsed funny act (skit).

In the introduction of the demonstration and coaching session, we sometimes include a skit. In the 2017 course, Jim Vesper led a session where he invited me as the origami expert to demonstrate how to make a Samurai hat. I called everyone to stand up and come closer to me. Then I used extremely small paper to make the

hat at a fast pace (nobody could see anything). I told participants how easy it is and asked them to make their own now. Everything took about a minute. Everyone looked confused! Then Jim stepped in to explain how a demonstration should not be done, and afterwards, the session objectives.

Roleplay

Roleplay refers to activities where participants simulate a scenario by assuming specific roles related to the learning objectives. Roleplays create a highly motivational climate because participants are actively involved in a realistic situation without having to take real-life risks. It gives participants an understanding of the person's situation (empathy) through *being in somebody else's shoes.* It allows participants to see how they react to a situation *in the moment.* Roleplay helps to change attitudes and behaviors and it enables participants to experience a different perspective and think creatively. Preferably, role plays should be debriefed with a group discussion.

In role plays, facilitators should explain what the participants should do and what the audience should observe, so an effective group discussion could take place afterwards. During the group discussion, posing questions to both the players and observers is important, especially the ones who performed could respond in their assumed role as well as themselves to analyze the interactions and feelings. Summarizing the session with what was learned and how it applies to the skill or activity being learned should always be done.

The major difference between skit and roleplay is that a skit is a short comic performance while roleplay simulates a scenario by assuming roles and does not need to be funny. Skit is always rehearsed whereas role playing is done at the spot – though a short preparation is always allowed.

We use roleplay in almost all our courses. One typical example is the *active listening* session in the "Facilitation Skills" course. We put participants in pairs (if they are an odd number, one facilitator pairs with the last participant), and give a situation to one of them while that person roleplays and the other practices active listening skills by restating, rephrasing, identifying emotions and empathizing.

After practicing roleplay for about 5 minutes, we switch roles and give another situation to the other participant to roleplay.

Here are two situations we use for this session:

Situation 1

You have been working on a project on harmonization at your job. Despite initial objections from your supervisor and co-workers that it was not possible to do, it has devel-

oped well, and there is a lot of interest in it from other regulatory authorities. There will be an international conference sponsored by ICDRA next year and your organization has been invited to present your work. Your supervisor decided not to send you, but a co-worker instead, who was initially opposed to the project, saying that by working on it and presenting it, he will be more committed to it. You are very disappointed because it is your work that has made the project successful, and you would like the recognition for the work that comes from going to an international meeting.

Situation 2

You found out before coming to this course that your best friend lied to your supervisor – saying that you have not done your work properly and that they have been covering for you. A day after you return from here, your supervisor is having a party and you are invited. So is your best friend. You cannot make up your mind as to whether you should tell your supervisor about your best friend's lie or not. You also do not feel you can face your best friend at that party and act as if you don't know anything about the situation.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
20	Active listening	Divide participants in pairs. If you have an odd number of participants, ask one of co-facilitators to pair with one of the participants. Ask one member of each group to step outside the room. Tell the participants who stay inside to practice active listening with their partners when they come back in (naturally the ones inside would not know anything of the details of Situation 1). Go outside and tell the participants that they should act out Situation 1 (read the story together with participants and distribute handouts). Let participants work on active listening for about five minutes. Once the first part is completed, this time invite the other members of each group to step outside the room. Go outside and tell the participants that they should act out Situation 2. Let participants work on this new situation for about five minutes. Have a plenary group discussion when both groups are finished, ask the group to reflect on their experience. Talk specifically about the steps of active listening. Which ones were easier to follow, which ones were more difficult? Why? How could we make it better?	▪ Group dividers for pairing ▪ Handouts

In both examples above, the focus is put on active listening rather than the role-play itself. As for the group discussion following the roleplay, we ask participants to reflect on their experience and talk specifically about the steps of active listening; e.g., which ones were easier to follow, which ones were more difficult, why, and how one could make it better?

In another case, we select three participants and give them roles of a vaccine store manager, an immunization manager and a deputy undersecretary with the following situation:

You (vaccine store manager) are scheduled to take off for a vacation you have planned for months. The last day before your leave, you experience a serious electricity cut. The immunization manager calls you telling that the electricity cut is more serious than they thought and they have learned that it will take at least a week, which puts all programme supplies at risk in the store. He also says that he is instructed by the deputy undersecretary to cancel all staff leave until he fixes the problem. The immunization manager calls you for a meeting at deputy undersecretary's office.

In this example, the focus is on the roles that are assumed, and the discussion following the roleplay focuses on reflections on different roles.

Reflection

Reflection is an activity wherein participants are given time to review and think about what has been presented, discussed and learned. Reflection allows personal perspectives to be examined in the light of new ideas and integrate new knowl-

edge with the existing one. It helps to refine the mental models related to complex content, and enhance learning transfer.

Though reflection is used following roleplays, in general, its best use is at the end of the day or following a full session. In this case, participants review what has been done, how they performed, what worked well, what did not, and how would they address the same issues if they face it again.

Reflection could be done both verbally and in writing. In the "GMP Inspection" course, we run reflection activity to review the day. This activity is repeated at the end of each day:

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
15	Reflection: What was important to me?	Describe how reflection helps people learn. Ask all participants to think back on the day, write in their notes the specific things that they found valuable and ways that they can use this information when they perform inspections.	▪ Programme of the day and other flipcharts from day's activities (on the wall)

In eLearning courses, we also run reflection activities following completion of each module. This is done as a *diary* activity. We ask all participants to keep a *learning diary* with the following instructions:

Learning diary

As part of your participation in this course, we'd like you to create a Learning Diary. Specifically, at the end of each virtual visit and during your final project, we would like for you to pause for a few minutes and consider following three questions:

- *What did I learn in this section?*
- *What specifically am I going to take back to my work and use?*
- *What comments, suggestions, ideas, or issues do I want to communicate to the mentors and course leaders?*

When you are writing in your diary, try to be as descriptive as possible. Reflecting on your learning experience is also critical in the whole learning process. Your comments will be read periodically by your mentor; he or she may share the ideas with the other mentors. Your diary will not be seen by other participants. If you want to share your ideas more broadly with the other participants, please use the DISCUSSION page.

Here is an example of a learning diary from a participant from Cuba following the completion of *Farmalojistik Wholesaler* module in the "e-PCCM" course.

> *Dear Diary,*
>
> *I had a great expectation for the cold chain management course in order to improve my performance and abilities at work and although the course is just beginning I could say that the experience has been amazing.*
>
> *I had the opportunity to learn more deeply of the performance of a distribution center like Farmalojistik. We were able to be in the inspector's shoes and audit the procedures and GDP of Farmalojistik with critical eyes and at the same time to suggest actions in order to improve the performance. What surprised me more was the barcode tracking system that they have implemented, I haven't seen such an experience before. With the barcode tracking system Farmalojistik can manage all the processes that took part in this distribution center like reception of goods, preparation of the request, packaging and dispatch with no risk to confusions.*
>
> *One of my favorite task was the temperature excursions that brought many comments and discussion from all the participants. It helps to understand the thermodynamics inside an insulating container filled with time-and-temperature sensitive pharmaceutical products and frozen ice packs, it also helped me how to lead the investigation focusing only in the relevant factors and causes that have contributed to a temperature excursion.*
>
> *I also appreciate from the mentors the feedback and comments from all the tasks, they do it professionally without hurting anybody.*
>
> *I also want to mention that I'm pleased to share a group with Lisa and Diana who are two exceptional women, very intelligent and capable.*
>
> *So far, I'm very pleased with this course and the professors who have made me study and run with all the tasks.*

Case study

Case study is a method based on real scenarios focusing on specific issues, topics or problems. Participants read, study and react to a case study in writing or orally during a small group session. The most important advantage of the case study is that it focuses the group's attention on a real situation. Although it is suggested to run case studies in small groups, participants may take some time to read and analyze a problem individually before the groups delve into a discussion.

Reactions to case study often provide different perspectives and different solutions to problems presented. This helps participants develop problem-solving

skills. Although case studies can be developed by facilitators, it is best to obtain real cases and modify, if necessary.

For all case studies, you need to clearly state the questions you want participants to answer. There can be more than one question to be answered for one case study. Here is one example of a case study presented as an individual work on the "e-PCCM" course. It should be noted that once the reports are due (in Google Drive), participants read each other's reports and do a peer-review. Following this, the mentor goes through each report and writes comments highlighted with a different color. The mentor also prepares a paper, summarizing the activity with comments and suggestions to improve. Participants then write in their learning diaries.

FARMALOJISTIK – TASK (individual)
Analyzing a temperature excursion

*You are the **Logistics Manager** at the Farmalojistik. Your responsibilities in general encompass organization of the storage and distribution of goods. Essentially you ensure that the right products are delivered to the right location on time and at a good cost. More specifically, your main responsibilities can be summarized as follows:*

- *monitoring quality, quantity, cost and efficiency of the movement and storage of goods;*
- *coordinating and controlling the order cycle and associated information systems;*
- *analyzing data to monitor performance and plan improvements and demand;*
- *allocating and managing staff resources according to changing needs;*
- *liaising and negotiating with customers and suppliers;*
- *developing business by gaining new contracts, analyzing logistical problems and producing new solutions.*

Farmalojistik sent off 750 packs of Insulin in 25 L Avatherm model containers to Star Pharma Store in Izmir on 1 February 2011. The shipment was in 15 containers, each containing 50 packs of Insulin, all packed correctly following the standard operating procedure (SOP) for packaging. Each container had one Trix8 LogTag data logger. The containers were dispatched at 17:29 pm. The shipment arrived at its delivery point on 2 February at 10:59am. The Logtag data logger showed an alarm in container #4. As per the SOP, products from this container were put on hold at Star Pharma Store pending the analysis of the temperature monitoring data.

The head pharmacist from Star Pharma Store called you to report on the alarm. He said that all the 15 LogTag data loggers have been sent back to you via over-

night mail and he demands an urgent analysis of the data and is looking forward to hear your recommendations. You told him over the phone that you will come back to him tomorrow.

On the following day, in the morning you receive the package containing 15 LogTag data loggers. The data from the 14 data loggers with no alarms indicated that the lowest temperature reached was +2.3ºC. The following report was created for the data logger that showed alarm:

FORM No: 000117	
PACKAGING AND DISPATCH	
Packaging date and time	01 FEB 2011 at 17:30
Type and model of the container	F40
Temperature inside the container	7ºC
Temperature of the product	7ºC
Temperature of the ice packs	-11ºC
Number of icepacks used	3
AT THE POINT OF DELIVERY	
Client	Izmir - Star Pharma Store
Arrival date and time	02 FEB 2011 at 11:00am
Transit time	17 hours 30 minutes
MKT (Mean kinetic temperature)	2.4ºC

7000061058 - FT000117 STAR PHARMA STORE
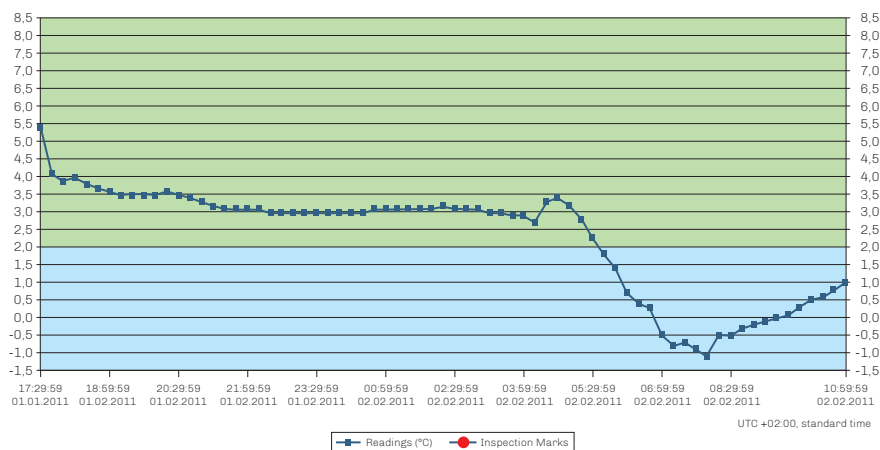
Please note that you will be working individually through Google.doc.

You are required to record your answer in Flipgrid video (max 90 seconds) for the following questions:

1. Why do you think there was a temperature excursion only in one box out of 15?
2. What could be the contributing factors this to happen?
3. What would you recommend to be done in order to prevent this happening in future shipments?

In order to record your answer video, you need to go to https://flipgrid.com/63a057ec (password protected) and follow screen instructions to record your answer.

In addition to your Flipgrid video, you are required to write a report in Google Drive for the following question:

"What data do you need to make your decision to recommend to Star Pharma Store to accept or reject this particular box?

What data do you need to provide to the head pharmacist in order to support your decision?"

In the Google Drive, you first find the task folder that is "Temperature excursion" under Farmalojistik folder. Under this folder, you will see personal folders created for each participant. If you would like to work directly in Google Drive, under your name, you should create a document and work on it. Alternatively, you may create this document in your hard drive and then upload it to your personal folder under this task.

Once you complete the assignment, you have to visit other personal folders to see their responses and comment on each other's work. We also encourage you to start a discussion (in discussion forum) on this particular temperature excursion task, from the perspective of Star Pharma Store head pharmacist receiving this advice from the logistic manager of Farmalojistik. Mentors will give you feedback in the documents you have created marked as MENTOR (name).

You may visit the document and video library for the following documents/videos that may be helpful to you to solve the problem:

Document Library
- *Model requirements for the storage and transport of time and temperature sensitive pharmaceutical products (WHO)*
- *Distribution practices (James Vesper)*
- *Good distribution practices for pharmaceutical products (WHO)*

Video Library
- *Kevin O'Donnell – Packaging design*
- *Kevin O'Donnell - Thermodynamics*

Keep in mind that total time allocated to this assignment is two days.

In the above case study, in addition to written reports and peer-review, we ask participants to *articulate* their thinking through recording a Flipgrid video for only 90 seconds. We often use Flipgrid in our courses both face-to-face and eLearning. Flipgrid is the leading video discussion platform used by millions of PreK to PhD educators, students, families, and organizations in more than 150 countries. We create a grid (that's our classroom or group), add topics (questions) to spark the discussion, and our community builds a dialogue as they share short video responses. For further details on the Flipgrid platform, visit https://flipgrid.com

Here is an example of a grid created for the "e-PCCM" course participants to introduce themselves and talk about their expectations from the course.
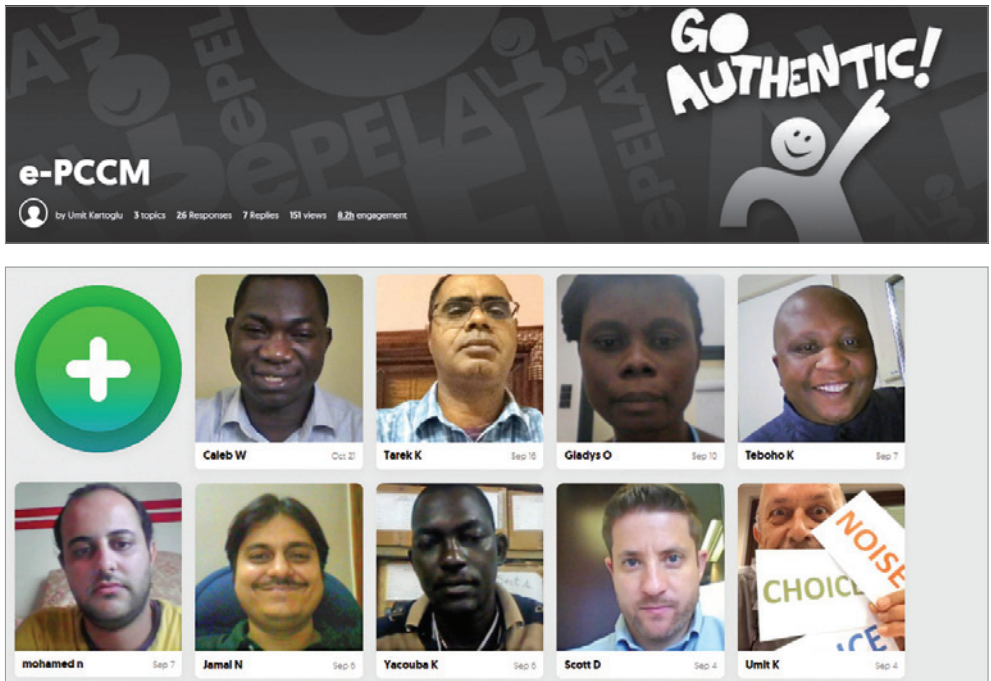
The following image shows a snapshot of Google Drive of a participant's report (see peer-review notes on the right side of the screen and mentor comments with a different color text).

Once all reports, peer-review and mentor comments are completed, mentors prepare a summary of observations, give comments, and suggest improvements for the case. This document is sent to all participants via email in PDF format. This particular example below is a five-page document.

Timing (days)	Activity/ Task	Methodology	Equipment/ Resources
2	Case study: Temperature exposure	Participants are given a case study (analyzing a temperature excursion – Farmalojistik) and requested to work individually to solve the problem. Participants respond writing their reports (Google Drive) and recording their videos (Flipgrid). Participants are also requested to review other reports and comment on each other (peer-review). Mentors visit the reports and add comments (using in a different text color). At the end of two days, mentors prepare a summary of the discussions and share the document with participants via email.	▪ Case study ▪ Recommendations for video and document library ▪ Google Drive ▪ Flipgrid

Concept mapping

Concept mapping is a method of visually displaying participants' understanding of a complex concept. It engages both hemispheres of the brain at one time and increases retention. Concept mapping is a perfect choice to enable self-assessment as well as to enable correction of misunderstandings.

For example, following a session on how the WHO ensures safety of vaccines, you may ask participants to draw a concept map, illustrating their understanding of the role of the WHO.

Since participants work in groups and discuss where to place what, it is best to work with sticky notes so they can modify the concept mapping as necessary, based on their deliberations.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
60	Concept mapping: WHO's role in assuring vaccine quality	Ask participants to illustrate the role of WHO in assuring vaccine quality along with linkages between components, elements and roles based on the session you have just completed. Once it is completed, discuss the outcome, make corrections as needed.	▪ Different color sticky notes ▪ Board markers ▪ Flipchart

The following is an example of concept mapping of factors affecting vaccine management performance (with a highlight of the cold chain adequacy).

Cold chain adequacy and the big picture
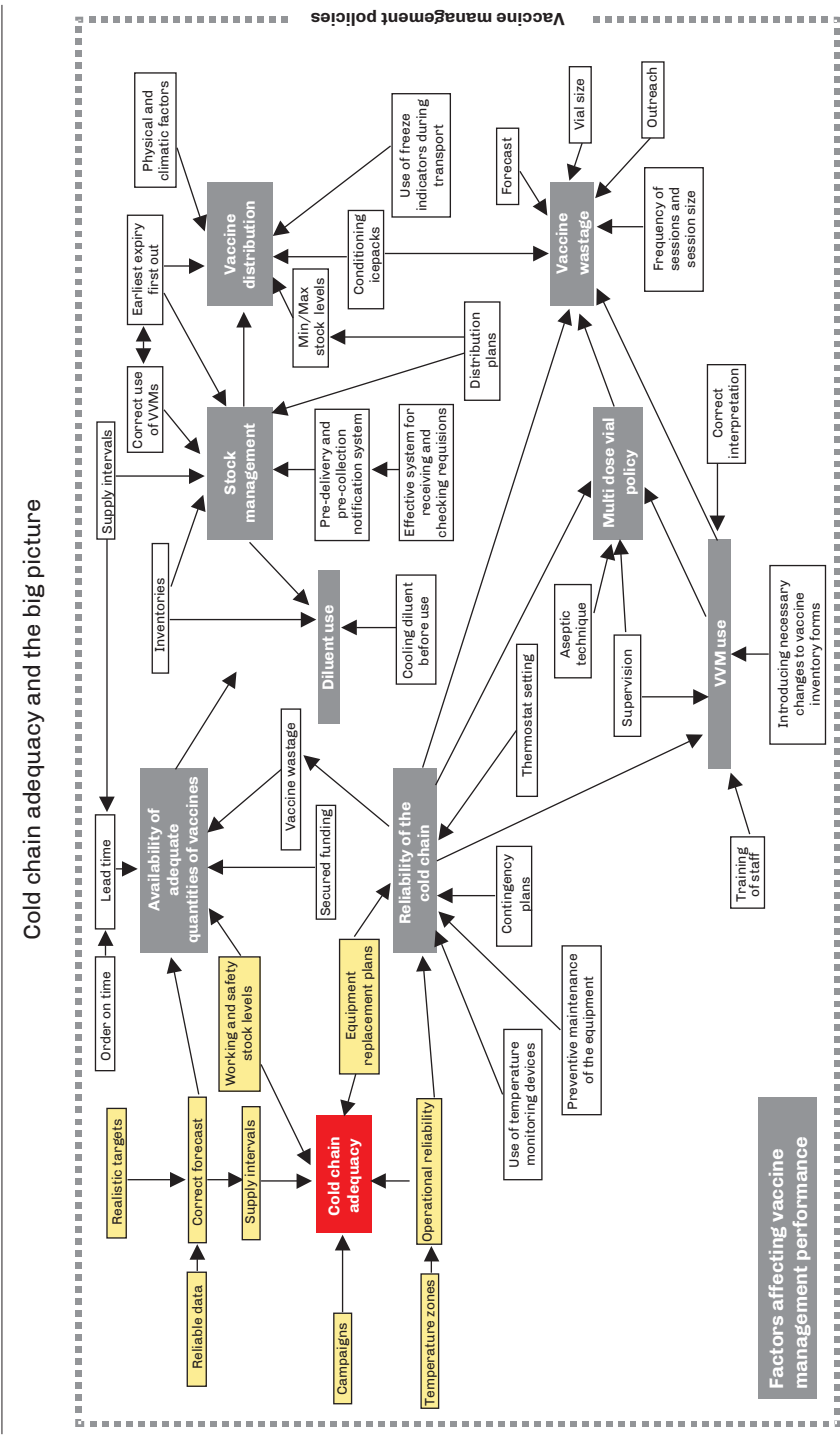
Decision tree

Similar to concept mapping, decision trees may be developed by participants, following a complex task to illustrate by summarizing the steps and all other elements involved in a decision-making process in a visual display. *Decision tables* that are created through *what if statements* are an alternative to flow-charts. Decision trees, likewise with concept mapping, help participants to self-assess themselves on their understanding of certain complex processes. It increases retention. Corrected decision tables may also be considered as *side products* of a course and be put into practice by participants when they go back to their work environment.

Although visual charts are easier to be reviewed and followed, it is best to start with *what if* statements, and once completed, convert the statements into a visual format.

Following a series of sessions on vaccine vial monitor (VVM) functions and interpretations compared to other temperature monitoring, in the "VVM Based Vaccine Management eLearning" course, we ask participants to develop a decision tree to illustrate the decision-making process in accepting or rejecting international vaccine shipments.

The rudiments of the decision tree process begin by asking questions - the more basic, the better - starting from a specific point in the process (in our case receiving an international shipment), and then illustrating all possible options. The same principle is then applied to each and every scenario in the diagram that is constructed until all end points are exhausted.

A *decision tree* is a decision support tool that uses a tree-like graph or model of decisions and their possible consequences. In this regard, it should include all factors that would affect decisions. *Decision tables*, like flowcharts and *if-then-else* and *switch-case statements*, associate conditions with actions to perform, but in many cases, do so in a more elegant way.

In our example, we have three factors that would affect our decision: alarm status in electronic shipping indicator, coolant status, and VVM readings. In constructing the decision tree, we start with if-then statements. Electronic shipping indicator status is considered as the main stream, while coolant status and VVM status are considered as additional streams. In order to show how these *if-then* statements are converted into a decision tree, we will highlight corresponding sections of the decision tree after each statement.

MAIN STREAM	
If electronic shipping indicators are not included in the shipment, *and* vaccines are freeze-sensitive, then REJECT	
If electronic shipping indicators are not included in the shipment, *and* it is OPV or lyophilized vaccines, *and* there is still dry ice in the package *or* icepacks are still solid and not thawed, then ACCEPT	
If electronic shipping indicators are not included in the shipment, *and* it is OPV *or* lyophilized vaccines, *and* there is not any dry ice in the package *or* icepacks are thawed, then REJECT	
If electronic shipping indicators are included in the shipment, *and* they are correct type for the vaccines shipped, *and* there are no alarms, then ACCEPT	

And this *if-then* statements continue until we exhaust all possible options with the factors (alarm status in electronic shipping indicator, coolant status, and VVM readings) that would affect our decision. Here is the full decision tree.

ACCEPT or REJECT

This decision tree assumes that the vaccine type/expiry, quantities received match with what has been ordered and indicated on the shipping documents, as well as all relevant lot release certificates/test protocols from the regulatory authority of the manufacturing country and any other requirements mentioned in the contractual agreement have been met. The decision tree below focuses on the verification of the cold chain conditions maintained throughout the period of transportation.

MAIN STREAM

Acceptance or rejection is mainly done based on the readings of the electronic shipping indicators. Additional streams are used to support this decision.

Electronic shipping indicators

- Inclusion
- Type of the device
- Alarm status

Are electronic shipping indicators included in the shipment?

YES → Are they correct type for the vaccine shipped?

NO → OPV or Lyophilized → Freeze sensitive → **REJECT**

YES → Are there any alarms?

NO → Are there any alarms?

Are there any alarms? (left):
- YES → See footnote 1
- NO → **ACCEPT**

Are there any alarms? (right):
- NO
- YES → For freeze-sensitive aluminum adjuvanted vaccines, conduct **shake test**

Alarm	Duration	How many?	
>=45°C	1 hr single		**REJECT ALL**
>=30°C	10 hrs cum.	>=2	**REJECT OPV**
>=10°C	20 hrs cum	>=2	**CONTACT UNICEF for OPV**
<=-0.5°C	1 hr single		**ACCEPT if passes the Shake test, REJECT if fails.**

See footnote 2

ADDITIONAL STREAMS

Status of VVM and coolants should be recorded for each shipment, however, they are not used as main stream to accept or reject international shipments.

Coolants

- Dry ice or frozen ice packs
- Status

VVM

- Availability
- Status

Are there dry ice or ice in icepacks?

YES → **ACCEPT**

NO → **REJECT**

Are vaccines with VVMs?

NO

YES → **RECORD STATUS**

Are there any alarms in electronic shipping indicators?

YES → **RECORD STATUS** → **Check chart**

NO → **ACCEPT**

KARTOĞLU, FEB 2014

In the case of VVMs being darker than this point, contact UNICEF

NOTE 1 > In the case of some devices having alarm and not all, conditions apply to boxes with alarm status.
NOTE 2 > If there is an alarm of >= 10°C , 30°C and/or 45°C in the presence of dry ice and/or frozen icepacks, electronic shipping indicator might be faulty. Contact UNICEF.

ePELA

Simulation

Simulation is an activity that involves practice in a realistic context that can be conducted either in person or on a computer. It imitates an operation of a real-world process over time. It is mainly used for application of new knowledge and skills and assessing participants learning of critical skills. Simulation enhances learning transfer and promotes practice application in areas where judgment is required before operation. It also helps users develop competence and conviction.

A learning simulation combines elements of modelling, entertainment and instruction. These elements can range from being purely media-based like computerized simulators to such experiences that use communities, team members, and even coaches. In general, learning simulations can be divided into two categories: educational simulators (flight simulator), and interactive simulations (sometimes called serious games) (SimCity).

We use an entertainment simulation in the "Facilitation skills" course focusing on the challenges of teaching a skill to adults with different expectations and cultures. We call it *Dadu village*.

Dadu village is a reconstruction of all structures, human relations, social dynamics, and even emotional outcomes in a symbolic environment. In this simulation, the facilitator is responsible for setting up the symbolic environment as comprehensively as possible. The facilitator should support the transfer of experience into learning at the end of the simulation. In summary, the role of the facilitator is *facilitation* during the actual implementation phase and *moderation* during which he enables participants to share and identify their feelings and experiences.

Phases of the Dadu simulation:

Informing the group: Explain to the group that the following exercise is a simulation game and that the purpose is learning. Make it clear that it is okay to have fun but the purpose is learning by experience.

Dividing into groups: Tell participants that the game will be with two groups called the *Dadu Villagers* and the *City People/Engineers*. Do not explain in detail what their roles will be. Approximately one third of the group should be the *City People/Engineers* and the rest should be the *villagers*. In a group of 15 participants it would be enough to have four engineers. The Dadu Villagers must include at least two female participants. The best way to form groups is by asking volunteers to become engineers. Once the engineers are identified, explain to the whole group that you will be explaining the roles of the groups separately. Then you invite engineers to leave the room and wait for you to explain their roles.

Explaining the role to the Dadu villagers: First explain their role to villagers. Have the group read out loud the handout, and summarize to make sure they understand to adopt their role. Up to this point, assume the role of an instructor, answering questions, making all necessary clarifications. Emphasize all important points clearly.

Distribution of roles to the villagers: After making sure that all the details are understood, participants should start with their roleplay. Tell them that as soon as you hand the ribbons to the group, they should start acting like the Dadu villagers. Their first activity should be to hold a meeting to decide on the following items:

- Who shall be Dadu?
- How shall we call for a meeting?
- How shall we meditate?
- How shall we celebrate every instance of success during the construction of the bridge?
- Where should we have the bridge? (you may need to help in this matter)

This will start the simulation. After the group creates its own inner dynamics and starts to get into the role, you should step back unless there is a burning necessity for your intervention. After the two groups meet, never intervene with the group dynamics unless there is an immediate danger to the safety of participants.

If one of the participants has difficulty in assuming the role, that person may be given a passive role such as the village ribbon holder. If this participant insists that he/she does not want to take a role, naturally, he/she should not be forced.

Distribution of roles among the City People/Engineers: When the villagers start planning for their roles, go and explain their roles to the engineers. Give them the construction materials. Answer any questions, and ask them to make a work plan. Do not answer questions related to the village. Tell them to choose a representative who will make a one minute site visit to the village. At this point, you do not tell the engineers that the villagers have a different culture from theirs.

Site visit: The first site visit of the representative to the village is also a rehearsal. After the rehearsal, the facilitator should provide feedback to the villagers and give a few reminders, if necessary, about the rules and purpose of the simulation (for example, because you really want this bridge, you should not use your customs as an unnecessary barrier just because it is fun).

Simulation phase: Do not intervene during the 20-minute actual exercise phase. Take notes during this phase and keep the time. Remind the group of the time in the last few minutes.

Discussion: Seat the villagers and engineers in separate groups at the end of the simulation phase. Inform them to keep in their roles as engineers and villagers for the moment. Start the discussion with the engineers. Two rounds are usually sufficient for reflection and experience sharing. At this phase, ask questions such as:

- *What was this experience like?*
- *How did the other group interact with you?*
- *How did they treat you?*
- *What do you think about the things they said about you?*

Do not probe much about the feelings but focus on behavior.

The participants may wish to hear about the facilitator's thoughts. It is better not to answer this question directly but to expand the discussion into how this experience relates to real life. At this point in the discussion (usually in round three), invite the participants to step out of their roles and comment on their experience as an outside observer. The purpose is not to comment on the morality of the situation but to convert experience into knowledge. Sometimes you may need to remind participants to leave their roles more than once. It is very important that participants step out of their roles before the discussion phase is over.

At this point the participants may comment that the knowledge retained from this simulation may apply to teacher-student, urban-slum, race A-race B pairs. People may also comment on the differences between the intended message and the received message. Remember, your role is that of a moderator.

Some participants may feel misinformed, mistreated, or stupefied by the simulation. You should stress that these roles were designed by facilitators and you should take responsibility of all negative experiences in the simulation. It is probable that engineers feel foolish or unsuccessful (even if the bridge is constructed at the end). You should stress that their role was more difficult and the purpose of the simulation, in fact, was to examine the difficulties encountered by them.

Duration of the simulation:

Pre-preparation phase (until the site visit): 25 - 30 min
Preparation phase: site visit and the following preparation: 5 - 10 min
Actual simulation phase – building the bridge: 20 min
Discussion: 30 min (may last 20 - 40 min depending on the group size and available time)
Total: 90 min (± 15 min)

Equipment:

This is what you need to prepare for the simulation:

- Guidelines for villagers and engineers (printed for each participant as a set)
- 10-20 sheets of A4 paper
- Two scissors
- One scotch tape with dispenser
- Pens/pencils
- 30 cm plastic ruler (two)
- One plastic ruler 1 m
- Ribbon, 1-2 m

The following information should be printed for each participant. However, in the beginning, you will distribute *The Dadu Village* paper only to the villagers, and *The Engineers* paper only to the engineers. The remaining ones will be distributed to other groups at the end of the simulation for everyone to have full set of documents.

The Dadu village

You are living in a village in a beautiful country. A wide river right beside your village separates you from the neighboring city. You have been dreaming of a bridge to go across this river for years. An international NGO has volunteered to help you build this bridge. They have offered the technical expertise and know-how, and proposed to come to your village with a group of experts to help you

build the bridge. You joyfully accepted the offer, for the new bridge would decrease the travel time to the neighboring city from the current 20 hours to two hours. You have also agreed to help build the bridge. You, as villagers, want to participate actively in building the bridge so that in the future you can build other bridges yourselves.

You speak the same language as the technical experts. You are familiar with the equipment (scissors, paper, etc.) that they are using, but you do not know how they can be used to build a bridge.

Your socio-cultural background and traditions

You are a warm, friendly group of people. You speak calmly and slowly. You are very prone to cooperation and teamwork. You like to touch each other. When someone talks to you, you immediately touch him/her. In your culture, not touching means "I don't like you!" For greeting a person, you gently pull his/her earlobe. Greeting by shaking hands is a great disrespect. Greeting and making your guests feel welcome is very important to you. You spend a lot of time and effort on this.

Who is Dadu?

"Dadu" is the wise person of the village elected by the villagers. Dadu is the spokesperson for all external affairs of your village. All the villagers can speak to foreigners but they cannot speak in place of the community and cannot accept offers or suggestions for the whole village. Dadu knows all the traditions well and works to keep them alive. Dadu helps settle all the disputes in the village. Howev-

er, Dadu cannot decide by himself/herself in a situation that would affect the whole village. All the important decisions are made in meetings that all villagers attend. Any villager can ask for a meeting any time he/she feels a need for one. Your group must decide how meetings will be called, in particular, what sign will be used to initiate a meeting. Dadu heads these meetings. All villagers except those meditating at that moment attend those meetings.

Working with tools

Only women can touch scissors, scotch tape, and ribbons. Only men can touch a pen, pencil and ruler. Everyone can use paper.

Working habits

You do not work for longer than five-minute intervals. After a maximum of five minutes, you stop working and start meditating to regain your inner balance. Each individual decides for himself/herself how long s/he should work and then how long s/he should meditate. You do not intend to make the work slowdown, but if it is slowed due to meditation, this is okay with you. The work-nature balance is more important for you than the work itself. Nobody disturbs the meditating person. You should decide on a form of meditation at the beginning of the game.

Rejoicing

As each part of the bridge is connected to another piece, you stop the work and decorate the finished portions with ribbons and start celebrating. You do not continue working without celebrating.

Attitude in case of breaking the taboos and traditions

You say nothing but clack your tongue until this is stopped.

Attitude towards strangers

You are friendly to strangers but you do not feel a need to explain your culture, traditions, rules and taboos to them, as these are your natural behaviors. Moreover, it is a taboo to talk about these to strangers.

Here is the summary of the rules:
- All important decisions are made in meetings that all villagers attend.
- Dadu is the spokesperson.
- Shaking hands is a great disrespect. Greeting and making your guests feel welcome is very important to you.
- You are familiar with the equipment like scissors, paper, etc. that they are using, but you do not know how they can be used to build the bridge.
- Only women can touch scissors, scotch tape, and ribbons.
- Only men can touch a pen, pencil and ruler.
- All can use paper.

- It is taboo to talk about your culture, traditions and rules to strangers.

You must decide on the following first:
1. Who is Dadu?
2. How can any villager call a meeting?
3. How will you meditate?
Enjoy!

The Engineers

You are a group of engineers, experts in building bridges, working for an international NGO, who volunteered to help a group of villagers build a bridge across a river that separates them from the neighboring city. The bridge would decrease the travel time to the city from the current 20 hours to two hours. The villagers joyfully accepted the offer. They also agreed to physically help build the bridge. They want to participate actively in building the bridge so that, in the future, they can build other bridges themselves. You also want to assist them to become self-sustainable in terms of building and maintaining bridges.

The villagers speak the same language as you. They are also familiar with the equipment that you will use to make the bridge, such as scissors, paper, etc.

Your duty is to build the bridge across the river and teach the villagers how to build and maintain the bridge in the designated time period which is one year.

Building the bridge

The materials you need for making the bridge are paper, scotch tape, scissors, ruler, and pen. Even though the villagers are familiar with this equipment, only you know how to use them properly.

The bridge is constructed by taping together paper strips which are 5 cm wide and 30 cm long. How long should the bridge be? This makes a difference as it determines how many pieces need to be cut. There are some technical details here. Paper strips must first be measured by a ruler, marked by a pen and then cut with a pair of scissors. Tearing pieces of paper, or not marking with a pen is not an acceptable behavior.

Strips of paper must be attached to each other using scotch tape. The tape must not be torn off by teeth or fingers.

When a long enough band of paper is formed, the two sides are attached to the "sides of the river." If the bridge is durable enough to carry a ruler, it is acceptable, and the task is completed.

Work plan

One year on the project is equivalent to 20 minutes in this simulation. Therefore, you have a task of finishing the construction in 20 minutes. Do not forget that aside from building the bridge itself, it is also your duty to teach the villagers how to build the bridge.

Before your time begins, a chosen representative will make a site visit to the village lasting one minute. Upon her/his return, you will make a work plan according to his/her observations. Your 20 minutes will start as soon as you arrive at the village as a team.

Enjoy!

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
Pre-preparation phase (until the site visit): 25 - 30 min Preparation phase: site visit and the following preparation: 5 - 10 min Actual simulation phase – building the bridge: 20 min Discussion: 30 min (may last 20 - 40 min depending on the group size and available time) Total: 90 min (± 15 min)	Simulation: Dadu	Explain to the group that the following exercise is a simulation game and that the purpose is learning. Make clear that it is okay to have fun but the purpose is learning by experience.	▪ Guidelines for villagers and engineers (printed for each participant as a set) ▪ 10-20 sheets of A4 paper ▪ Two scissors ▪ One scotch tape with dispenser ▪ Pens/pencils ▪ 30 cm plastic ruler (two) ▪ One plastic ruler 1 m ▪ Ribbon, 1-2 m
		Tell the group that the game will be with two groups called the *Dadu Villagers* and the *City People/Engineers*. Do not explain in detail what the roles will be. Approximately one third of the group should be the *City People/Engineers* and the rest should be the *villagers*. In a group of 15 participants four engineers would be enough. The Dadu Villagers must include at least two female participants. Best way to form the groups is by asking volunteers to become engineers. Once the engineers are identified, explain to the whole group that you will be explaining the roles of the groups separately. Then you invite engineers to leave to room and wait for you to explain their roles.	
		First, explain the role of the villagers. Have the group read out loud the handout, and summarize to make sure they understand and then adopt their roles. Up to this point, assume the role of an instructor, answering questions, making all necessary clarifications. Emphasize on all important points clearly. After this explanation, villagers should start working on division of roles as well as deciding on how to call for a meeting, etc.	
		Then go to the engineers and explain their roles to them, and hand over the tools to be used for building the bridge.	
		Give time to engineers to make a plan for a site visit that would last for one minute only.	
		Once both groups are ready, let one representative of engineers do the site visit.	
		Following the site visit, engineers should have a preparation on how to approach the villagers. When ready, the real game starts.	
		After 20 minutes of simulation, invite participants to reflect on their experience first as villagers and engineers, then by stepping outside these roles discuss how this applies to real-life.	

There could be some cases where the bridge could not built. Although this frustrates the engineers, the facilitator should focus on the feelings first with regard to the assumed roles, and then how these could apply to real-life.

Scavenger hunt

Scavenger hunt is a game in which the organizers prepare a list, defining specific items. Then, participants seek to gather all items on the list or take photographs of the items, as specified.

We play scavenger hunt in our "PCCM on Wheels" course, as well as in our eLearning courses. The activity is spread throughout the course. Participants upload their photographs (of the situations) and the story behind in blogs we create for the activity.

Scavenger hunt helps to improve learners' observation skills, creative thinking, and build robust mental models.

Here is a typical scavenger hunt announcement from one of our courses:

SCAVENGER HUNT LIST

Increase your power of observation on items related to cold chain and good storage and distribution practices

"Scavenger hunt" is a game, in which organizers prepare a list defining specific items. Then, participants seek to gather all items on the list and take photographs of the items, as specified.

For fun and learning purposes throughout the course, we shall be hunting a list of items as described below. You need to find these items in your own settings. Searching and finding others' photographs on the web is not acceptable.

We want each of you to find as many items as possible and post your hunt outcomes (the photograph and the story behind it) to this blog. You do not need to wait until you compile all of them, post your hunt as you find one and then another. Increase your power of observation on items related to cold chain and good storage and distribution practices.

1. A non-pharma example of measuring temperature
2. An example of good warehouse-keeping
3. An example of heat transfer (challenge - can you make a photograph with all different forms of heat transfer in one frame?)

4. An example of a good temperature monitoring device in action
5. A refrigerated truck used outside the pharmaceutical cold chain
6. A temperature sensitive product being administered to a child/person
7. Primary or intermediate vaccine storage facility showing vaccines in storage
8. Dispatch of temperature sensitive products from a storage facility
9. Refrigerator with vaccines organized
10. A health worker in immunization outreach
11. A local temperature recording form
12. Temperature monitoring devices in a refrigerator (need to see at least two different types of temperature monitoring device, including VVM)
13. Time and temperature sensitive pharmaceutical product handled in a retail pharmacy
14. Risks associated with transport and/or control measures introduced to detect/prevent and/or mitigate a risk
15. A temperature violation
16. Acquire a readily available consumer product that can also be used as a temperature detection device to determine if the contents of a package were exposed to temperatures above 30°C.

And, here are some examples of photographs and stories from the participants:

Arnulfo Lavares (Philippines) – A local temperature recording form (#11)

"As shown in these photographs, a temperature monitoring chart for the month of August 2016 posted in the cold room (1989 Toshiba model) wherein we record the temperature twice a day (morning and afternoon) using Fridge-tag 2 temperature monitoring tool.

And, this is a scanned image of the temperature monitoring chart (August 2016) of 10 cubic meter Cold Room No. 1, an intermediate vaccine store of the Department of Health-Regional Office VII, Cebu City, Philippines. The temperature limits of 2 degrees to 8 degrees Centigrade shaded in yellow is where the dots are marked corresponding to the reading of Fridge Tag 2. Twice a day recording of temperature and each dot is con-

nected to plot a line graph, am - blue color / pm - red color. Exceeding this upper and lower boundary, corrective measures are done right away to prevent any negative effect to the vaccine stored.
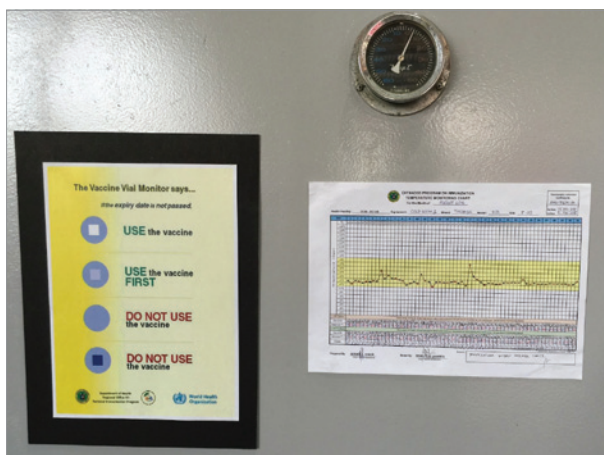
The temperature monitoring tool calibration certificate date / due is indicated in the upper right-hand corner. No break in temperature monitoring even during Saturday, Sunday, and holidays.

The plotted line graph is the average temperature while the minimum / maximum temperature is numerical. Alarm indication is also reflected and duly signed. Important notes are written in the remarks portion for additional information."
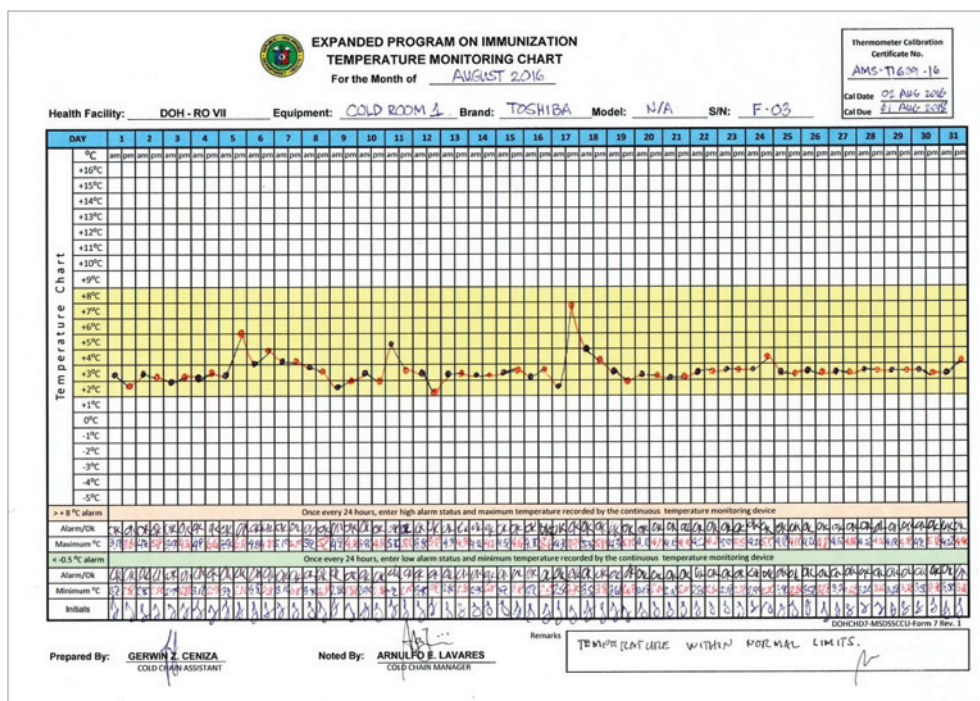
Kwame Chiwaya (Malawi) - A health worker in immunization outreach (#10)

"This picture below was taken in September 2016 during measles second dose post-introduction evaluation. It shows a Health Surveillance Assistant (HSA) at an outreach clinic in rural central Malawi giving a health talk to mothers before vaccination started. During immunization clinics, other activities conducted include health talks, nutritional assessment, growth monitoring. In Malawi HSAs are the vaccinators and run the immunization clinics. Some outreach clinics take place in simple mud huts that are built by the communities especially in places where school classrooms or churches are not available as alternative venues."

Here is a creative example of heat transfer from Jacqui Rodgers from Ghana FDA.

Jacqui Rodgers (Ghana) – An example of heat transfer (#3)

"When I take a shower, and let my hair dry naturally, the conduction applies. It is the most common type of heating, conduction warms via direct contact with the air. When I use my hair dryer, then the convection gets into the picture. The heating mechanism inside my hair dryer warms the air which then transfer heat to my hair, drying it. Results are pretty different."

Since the scavenger hunt activity continues throughout the course, we do not develop a special session plan for it as we do for other sessions. However, it is worth indicating how scavenger hunt correlates to 5Cs:
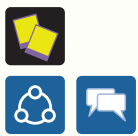
Match game

Match game is a perfect choice when it comes to explaining, reviewing, and summarizing certain concepts, terms, or processes. In this game, you need to have two sets of cards. For example, one set of terms and one set of matching definitions, or one set of events and one set of mental processes corresponding to those events.

Match game is modified from typical *memory match game*, where you have images with their identical matches all placed faced down. You need to turn a maximum of two cards to reveal the images. If they are not matching, cards need to be placed face down again to hide the images. In online versions, you click on the image to reveal it. You need to match all of the images to complete the game. Generally, the one who finishes it first wins the game. Here is an example from Kiki Pairs game (http://www.kikidevenus.com/games/). Of course, in this matching game everything depends on how well you memorize the place of nonmatching images.

We quite often play match games in our courses. In reviewing Gagné's nine events of instruction, we play a match game for participants to match these nine events with corresponding internal mental processes. As for matching purposes, the total number of cards would be 18, if you do not have enough participants, you may give cards to facilitators, but they play a low profile during the game to allow participants to find them rather than them going directly to the matching card.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
20	Match game: Gagné's nine events of instruction	Explain that you will be distributing a total of 18 cards. Nine of them define the events (steps) as per Gagné's nine events of instruction. The other nine describe the internal mental process that corresponds to these events. The task is walking around to find your matching card. Once you find your match, stay together. When all matches are completed, we shall review the result. Once the game is completed, transfer matching cards onto the wall.	▪ Pre-printed Gagné's nine events of instruction and matching internal mental processes on cards (half size A4) ▪ Reusable adhesive tack

The following events and internal mental processes should be transferred onto half sized A4 cards.

You may also bring an additional dimension to this game, by asking participants to get in line with the order sequence of events as well.

Gagne's nine events of instruction and corresponding mental processes matching cards

Instructional Event	Internal Mental Process
Gain attention	Stimuli activates receptors
Inform learners of objectives	Creates a level of expectation for learning
Stimulate recall of prior learning	Retrieval and activation of short-term memory
Present the content	Selective perception of content
Provide step-by-step learning guidance	Semantic encoding for storage long-term memory
Elicit performance (practice)	Responds to questions to enhance encoding and verification
Provide feedback	Reinforcement and assessment of correct performance
Assess performance	Retrieval and reinforcement of content as final evaluation
Enhance retention and transfer to the job	Retrieval and generalization of a learned skill to new situation

In another version of the above game, we transfer the instructional events and internal matching processes onto different shape cards (instructional events in rectangular shape and mental processes in oval). In this version, the facilitator distributes a total of 18 cards to participants (if you have 15 participants in total, three par-

The facilitator discusses the outcome of a match game (comparison of psychomotor, cognitive, affective, and conative learning domains)

ticipants receive two cards naturally). The facilitator explains that the rectangular ones describe the *events of instruction* while oval ones describe the *internal mental processes*. Participants' task is first to make a correct flow of events of instruction on the wall from left to right, then identify *corresponding* internal mental processes for each step. Once this is done, the facilitator asks the group to step back, and discusses the outcome with the group (and makes corrections if there are mistakes).

Match game brings a lot of energy to the group. In another example, we play match game to review the key terms used in risk assessment and risk management. In this example, we place the key terms onto the wall and distribute definition cards to participants (with a reusable adhesive tack behind), and ask them to find the key term that matches with the definition they have in hand, and place it under the key term.

Key terms and definitions used in risk assessment and risk management

Key term	Definition
Hazard	The potential source of harm
Harm	Damage to health, including the damage that can occur from loss of product quality or availability
Preventive control measure	Control methods that reduce the chances of an event occurring or lessen the severity of an event that occurs
Protective control measure	Control measures that keep events from getting worse
Residual risk	Risk remaining after all control measures have been taken
Risk	The combination of the probability of occurrence of harm and the severity of that harm
Risk control	Actions implementing risk management decisions
Risk communication	The sharing of information about risk and risk management between the decision maker and other stakeholders
Risk evaluation	The comparison of the estimated risk to given risk criteria using a quantitative or qualitative scale to determine the significance of the risk
Risk identification	The systematic use of information to identify potential sources of harm
Root cause	A factor considered if removal thereof from the problem-fault-sequence prevents the final unwanted event from recurring
Risk reduction	Actions taken to lessen the probability of occurrence of harm and the severity of that harm
Severity	A measure of possible consequences of a hazard
Failure cause	Defects in design, process, quality, or part application, which are the underlying cause of a failure or which initiate a process which leads to failure
Likelihood	A measure of occurrence of a hazard

Once completed, we invite participants to make a semi-circle in front of the wall and underline the importance of these definitions and make corrections if needed.

Another example of match game (we played this one in a "Good Clinical Practices (GCP) Inspection Course" in Indonesia) brings more challenge to the activity by making participants screen everything several times before making the right move. In this matching game, all titles and matching activities are randomly placed onto the wall. The challenge is for the participants to put them in a correct order and matching. To bring some order to the game, facilitators ask participants to visit one of the titles first and decide, as a group, which ones are wrongly placed under this title, and remove those under the correct titles elsewhere. Then the group moves to the second title to review. This continues until the group visits all titles. Then the facilitator invites participants to form a semi-circle before the titles and discusses the outcomes while making corrections, if needed.

Building a storyline

Building a storyline is like putting pieces of a puzzle in order to complete a process. This game helps participants to review and retain knowledge, as well as build mental models. It works well when all steps in a process can be defined clearly and in sequence.

We use this in the "GMP Inspection" course, when following a session on how vaccines are produced, participants review the steps by evaluating the given photographs and putting them in order to build a storyline.

This game can be played with the whole group at once, or alternatively, you may split participants in groups, and handover the same set of photographs. If you play this game in small groups, it might happen that one group may not be able to put the storyline in correct order. Consequently, they may feel embarrassed. This may negatively affect the energy of the group. Therefore, the safest approach would be playing this game in big group.

The below photographs in A4 size are randomly placed on the floor (or on the wall) describing activities in 12 critical inspectional areas (materials receiving, incoming materials and components – inspection and sampling, bulk manufacturing, formulation, filling operations, vial inspection, lyophylization, labelling and packaging operations, quality control testing laboratories, product release, distribution, and surveillance).

Once participants complete the storyline, we invite them to form a semi-circle and discuss the results. We underline the critical points in the storyline and make

corrections if there are mistakes in the sequence.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
30	Story line: Vaccine production stages	Explain that you have randomly placed 12 photographs onto the wall corresponding to 12 critical inspectional areas in a manufacturing facility producing lyophilized vaccine. As a group, participants need to put the photographs in order starting from the product receiving area. Once this is done, ask participants to make a semi-circle before the wall, and discuss each step in detail with the group (and make corrections if needed).	▪ 12 A4 size printed color photographs ▪ Reusable adhesive tack

Envelope game

Envelope game is to inspire participants' creativity in problem solving, as well as to review application of certain methods or approaches in different situations. This is one of our favorite games in "Designing Courses for Learning," and "Facilitation skills" courses when it comes to deciding which learning activity or game could be used to achieve the given session objectives. The envelope game can be adapted to many other situations.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
40	Envelope Game	Facilitator will divide participants into five teams. Each team will receive an envelope with one learning objective in it written on a small card. The team will have seven minutes to read the objective, choose the most effective learning activity from a deck of learning activity cards they have, and write a brief rationale on the back side of the card explaining why they would use that activity. Then, the envelope with the objective and first activity chosen by the groups will be passed to the next group, and they will have to choose a different learning activity than the one already chosen by the first group. This continues for five rounds so that each group responds to each objective. The solutions are then taped to a poster sheet with the objective. Everyone is invited to inspect the posters and vote for the best solution. The facilitator then leads a debriefing discussion about the application of different learning activities.	▪ Small cards with objectives written on them ▪ Envelopes ▪ Deck of learning activity cards ▪ Poster sheets ▪ Reusable adhesive tack

Here are the details of the game with objectives and activities cards distributed to each group:

Objective 1 – From a session titled "sterile gowning"

Given an increase in contamination in the manufacturing facility, you would like to train all employees who work in the sterile area. You plan that at the end of your session, all staff will be able to put on sterile clothing appropriately.

Objective 2 – From a session titled "first aid and safety at work"

Given an emergency situation in which a fellow worker is found to be unconscious on the floor, you will be able to call for help, apply first aid such as checking the airway, and follow basic precautions to reduce the risk of disease transmission during and after providing care.

Objective 3 – From a session titled "risk-based approach in inspection planning"

You want your pharmacovigilance inspectors to use a risk-based approach when planning inspections for all marketing authorization holders in your country.

Objective 4 – From a session titled "questioning techniques"

You want to train your inspectors on questioning techniques that they can use during inspections when interviewing staff.

Objective 5 – From a session titled "how to write objectives"

You want your participants to be able to write clear and measurable objectives that include all three components (condition, performance and criteria).

The blank card is used only if the group cannot come up with an alternative (when all good ones are selected by other groups already), and none of the remaining activities really fit to the purpose. In this case, the group may insert a blank card in the envelope as its selection.

Verification game

Verification game is ideal for situations that need to be verified through various methods. Mainly it applies to inspection related courses, e.g., GMP, GDP, GCP and pharmacovigilance. However, similar principles could be adapted to other subjects.

The game helps participants to review the available methods and their application as well as decide the best method to use. It also helps participants build mental models. For this game, you need to come up with 3-4 situations that require verification from the regulation point of view. Here is how our game goes on the "Pharmacovigilance Inspection" course:

We indicate the following four situations written legibly on different flipcharts:

- All new employees are trained on ADR (advance drug reaction) reporting.
- There are regular monthly teleconferences between EUQPPV (qualified person for pharmacovigilance in the European Union) and local contact person which are documented.
- Regulatory Affairs Officer is responsible for communication of approval of safety variations in two working days after the receipt of approval to all relevant personnel with a request for confirmation of receipt.
- Consumer reports are followed up to obtain consent to contact their nominated health care professional in order to obtain more information. This is documented in the database.

Co-facilitators distribute half A4 pages (color) to all participants along with board markers. The task is to find verification methods for these four situations. Participants may come up with more than one method. With methods written down, the facilitator invites participants to come forward and stick their verification methods to a corresponding flipchart. The facilitator asks participants to stay before the flipcharts and starts discussing the suggestions, corrects them as necessary, and adds from the pre-prepared VIP cards.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
30	Verification game	The facilitator explains the example situations that need to be verified during an inspection (written on four different flipcharts as title). He/she distributes half A4 size color paper to participants and asks them to write down verification methods for each title. Participants are invited to stick their answers on relevant flipcharts. Once completed, facilitator invites all participants to make semi-circle before the flipcharts and discusses the results, make corrections as needed or adds the missing ones.	▪ Four pre-prepared flipchart with situations written on them as title ▪ Half A4 size color paper ▪ Board markers ▪ Reusable adhesive tack

Card games

A card game is any game using playing cards as the primary device with which the game is played, be they traditional or game-specific. Card games are countless, including the family of related games that are played with traditional decks that have standardized rules.

A card game is played with a *deck* or *pack* of playing cards which are identical in size and shape. Each card has two sides, the *face* and the *back*. Normally from the back, cards cannot be distinguished. The face of the cards may all be all unique, or there can be duplicates. The composition of a deck is known to each player. In some cases, several decks are shuffled together to form a single *pack* or *shoe*. Most card games are played either by two players or more, though there are certain games that are played by one player (e.g., Solitaire). *Cut-throat* games can be played by two or more players (as long as there are enough cards for all), and they are *round games* in principle. All players fight on their own to win.

The VVM card game that we play in "Vaccine Management" courses is a modified version of *bastra*, popular in Turkey, Egypt, Lebanon and Middle East countries. We play the VVM card game to help participants improve their comparison skills of VVM coloring by a combination of heat and time. It is worth explaining what VVM is and how it works before we move onto game rules.

VVM is a label containing a heat-sensitive material which is placed on a vaccine vial to register cumulative heat exposure over time. The combined effects of time and temperature cause the inner square of the vaccine vial monitor to darken gradually and irreversibly. A direct relationship exists between the rate of color change and temperature: the lower the temperature, the slower the color change; the higher the temperature, the faster the color change. VVM is the only tool among all time temperature indicators that is available at any time in the process of distribution and at the time a vaccine is administered indicating whether the vaccine has been exposed to a combination of excessive temperature over time and whether it is likely to have been damaged. The principle purpose of the VVM is to warn health workers when the cumulative heat exposure of a vial of a vaccine has exceeded a set limit, beyond which the vaccine should not be used. This is defined as the end point. So, health workers should be able to read and cor-

rectly interpret the color of the square compared to outer reference circle. This evaluation becomes more important when it comes to deciding which vial to use first depending on different conditions (fixed immunization session, short or long outreach) by comparing the same type and batch vaccines.

The VVM card game is designed to improve skills in comparing VVMs, in order to decide which vial to use first. It comes in a box of 52 card deck randomly numbered from 01 to 52. Card #53 is the reference card, listing all the cards in order, starting with the number belonging to the card with the lightest VVM square, and ending with the card with the darkest VVM square. The game requires a minimum three people, two players and a referee and has six rounds.

Here are the rules:
1. The dealer shuffles all the cards (except the #53 reference card – this card remains with the referee).
2. The dealer deals four cards at a time, face down, to each player. For the very first hand, after dealing cards to players, the dealer places three cards face down and one card face up to the middle.
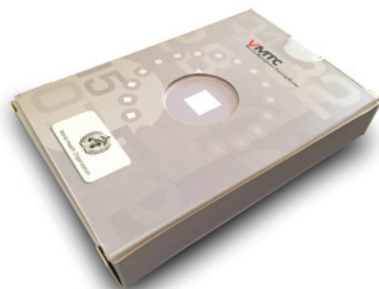
3. The player to the right of the dealer begins by placing one card face up in the centre of the table (where the three face down and one face up card is).

4. Going around the table in the counter clock-wise direction, each remaining player places one card of their choice, face up, in the centre.

5. After each player has put down one card, the player who played the lightest VVM square wins the hand and collects all the cards from the middle (the idea is to beat others with the lightest VVM card).

6. If players cannot decide on the winner (if they cannot tell which card has the lightest VVM square), the referee will choose the winner by using the reference card. The referee does not show this card to players.

7. The dealer then deals four more cards to all players, all face down.

8. Since the cards from the middle are already picked up, naturally there are no cards in the middle. The first player must now drop one card face up to the middle.

9. The round continues until the entire deck has been used up.

10. At the end of the round, players count the number of cards that they have collected, getting one point for each card they have.

11. This is then repeated six times.

Card games in general help participants to sharpen their analysis and evaluation skills.

Six toothpick riddle

There are many ways you can stimulate creative thinking in learners. A fun riddle is one of them for sure. A riddle is a question or statement intentionally phrased so as to require ingenuity in ascertaining its answer or meaning. Here is what we do in our "Designing Courses for Learning" course when it comes to writing the learning objectives. Although this riddle is used in the body of session, it could perfectly work as an introduction to grab learners' attention on the issue of creative thinking.
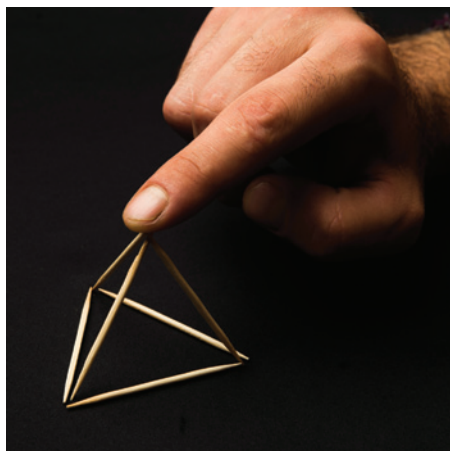
The facilitator distributes six toothpicks to each participant and challenges them to make four congruent equilateral triangles using the six toothpicks. They may not bend or break any toothpicks and the side length of each triangle must be one toothpick exactly. Most participants will push the toothpicks around on the table top for a short while, and then say it cannot be done. The solution is to make one triangle on the table top, and then hold the other three toothpicks above to create a tetrahedron. The realization then dawns that without even being told to, one has constrained one's thinking to the two-dimensional surface of the table top, when the solution lies in the third dimension which requires creative thinking.

Next the facilitator asks participants to come up with a learning objective for such an activity. One possible answer is: "Given a complex unstructured problem, learners will display creative thinking to devise a solution to the problem with five minutes or less". Then facilitator may explain the elements in a learning objective by dissecting the objective into condition, performance, and criteria. Then we move to work on writing session level learning objectives for a course for all four domains of learning.

This particular riddle stimulates critical thinking as well as forcing participants to develop creative solutions.

The body of a session is the most essential part in building and solidifying relations between the learners and within the scope of the learning subject. Ideally, the body of a session goes much further into transformed professional relationships that are carried away by learners to their work environments.

Summary
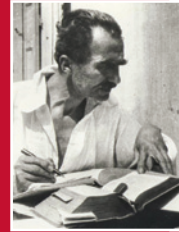
"True teachers are those who use themselves as bridges over which they invite their students to cross; then, having facilitated their crossing, joyfully collapse, encouraging them to create their own."

Nikos Kazantzakis

Introduction can be looked upon as a *transactional* stage where we prepare the learners to embark upon the learning journey. Body is *transformational* as you gradually guide learners on the way of their evolvement encompassing the growing knowledge and skills around the 5Cs. Summary is used for *reinforcement* of the session's content, and provide a review of its main points. Naturally, it is used at the end of the session. When the session contents are complex, periodic summaries may be used to ensure that all participants are on the same page before moving onto new perspectives.

In principle, a summary should be brief, draw together the main points from a session, and always involve participants. In this regard, a facilitator verbally summarizing the session him/herself is not a recommended technique. Various activities may be used as summary techniques. Asking questions to participants may seem like a good idea; it gives participants an opportunity to clarify their understanding of the content. However, you should keep in mind that this may result in a lengthy discussion, focusing on those areas that seem to be the most troublesome. You may think that nothing is wrong with this. When summarizing you cannot open a new discussion, otherwise you will lose control and will not be able to underline the most critical aspects of the session. Such clarification should have taken place during the body of the session. If you feel like additional discus-

sion is required, summarize the session and let participants know that you will revisit certain parts another time (you must explain when). Remember, in all sessions we say what we are going to say first (introduction), then we say it (body) and at the end we say that we said it (summary).

Unless it is indicated specifically, all the summary activities described below take a maximum of 10 minutes.

Make the sentence

Make the sentence is a summary game highlighting 4-5 most important statements from a session. It is played in groups. Here is one example from our "Facilitation Skills" course:

Facilitator splits participants into groups of three and distributes the following cut off statements to the groups.

A learning objective	should describe	the conditions under which	the behavior	is to be performed

A learning objective	should include	an action word	that connotes	an observable behavior

A learning objective	should establish	a criterion that specifies	how well the learner	must perform the behavior

Well-written learning objectives	provide	the foundation for	developing	the rest of a course

Learning objectives	should be	closely aligned with	methods for	assessment in a course

Although this is not a competition, you may award the team who completes the sentence first. The majority of the time, teams work on the floor. Once all sentences are complete, you invite all participants to each of the statements, ask the team to read the sentence, and make critical remarks about the importance of writing down the learning objectives as related to the statements. Then transfer all sentences onto the wall.

We use this game as a summary at least in one session in every course.

Puzzle sentence

This game is similar to the previous *make the sentence* game but in another format. Instead of cutting the sentence into pieces, the sentences are transferred onto A3 cards and cut into equal number of pieces as shown below. Facilitator splits participants into four groups and distributes different puzzle sets to each group. The task is to put the puzzle together as fast as possible. The below example is from "Pharmacovigilance Inspection" course to summarize the session *(Introduction to pharmacovigilance inspections: quality management principles)* through quality objectives of pharmacovigilance programme.

Complying with the legal requirements for pharmacovigilance tasks and responsibilities

Preventing harm from adverse reactions in humans

Contributing to the protection of patients and public health

Promoting the safe and effective use of medicinal products

Once the puzzles are all done, the facilitator asks participants to read them all, and underlines the importance of overall quality objectives of pharmacovigilance.

The major difference of "puzzle sentence" from the "make the sentence" game is that participants naturally try to solve the puzzle by putting the shapes together rather than trying to make sense of the cut words. But at the end, facilitator still discusses each of the statements and underlines the importance of them.

Take away messages

In this activity, the facilitator asks participants to take a piece of paper and write down one important take away message from the session.

This activity may proceed in two different ways. After a couple of minutes, the facilitator collects all papers, shuffles them and distributes back to participants. He/she also explains that it does not matter if by chance one may get his/her own paper. Then the facilitator asks participants to read the paper they have. The facilitator makes comments on the take away messages, and corrects, if necessary. If it is not mentioned by any of the participants, there might be a need to highlight the most critical take away message by the facilitator. There is always a risk of very critical messages not being written by participants.

Alternatively, the facilitator reads the papers, instead of distributing them back. Before reading, the facilitator can quickly browse the messages on the papers, and if the critical ones that he/she would like to underline are missing, he/she can say those ones as if he/she is reading them from one of the papers. Since participants do not know who wrote what, it will always be thought that it is written by someone else in the room. By doing this, the facilitator covers all critical points from the session.

Quiz

Quiz is a method of assessing participants' knowledge. However, as a summary tool, a quiz is used as a means of reviewing critical information from the session, and not necessarily for assessing participants' knowledge. We believe assessment of learning should be embedded within the tasks and not as a separate test that is based on mainly *remembering* things.

Below is an example of a quiz used as summary tool following *Corrective action and preventive action (CAPA)* session in "Pharmacovigilance Inspection" course.

Timing (minutes)	Activity/ Task	Methodology	Equipment/ Resources
10	Quiz	Facilitator distributes a quiz of five questions on CAPA and follow-up actions, and asks participants to tick the correct answers. All papers are collected, shuffled and redistributed to participants. Facilitator asks one participant to read the first question and asks for the correct answer to the group, makes corrections as necessary and underlines the important aspects of the correct answer. This continues with another participant reading the second question and so on. Participants keep the quizzes.	Quiz printed on papers for all participants

Fill in the blanks

Fill in the blanks is a type of a quiz presented in a fun way to the group. Facilitator prepares critical statements from the session with a missing word or phrase in it, and displays it with a PowerPoint to the whole group. He/she asks participants to guess the missing word or phrase. Anyone and everyone can make a guess. The moment the right answer is said, the facilitator progresses the slide to show the full sentence and stresses on importance.

Here is an example of questions from "GMP Inspection" course to summarize the *Reducing risk through layers of control* session (the words/phrases that are shown as *blanks* are shown as bold and underlined below:

- Control is aimed at reducing the **likelihood** an event will happen.
- Mitigation assumes the event will happen and is aimed at reducing the **impact**.
- The control measures (barriers) that are put in place to minimize the risk do not provide complete prevention, this is why **redundant** controls are necessary to minimize the risk.
- Only **elimination** of hazard presents full prevention.

Question and answer game

Question and answer game is a fun activity to summarize a session, through responding to a matching number of questions equal to number of participants. In a course with 15 participants you will be going through 15 questions to summarize the session. This game takes more than 10 minutes, approximately 20-30 minutes depending on the number of participants.

To start with, you need to prepare short questions and answers in equal number to participants. These questions and answers should be transferred onto half sized A4 cards preferably in different colors (to make sure that you do not mix question and answer cards).

Here is a list of questions and answers we use in "Facilitation Skills" course to summarize the *Activities that support learning* session:

1Q. Give two techniques used in the introduction of a session.
1A. Share experience and game.

2Q. What is one advantage of an illustrated lecture?
2A. Delivering large amounts of information in a short period of time.

3Q.   What can you use a small group activity for?

3A.   For solving a problem.

4Q.   Which method improves problem solving skills?

4A.   Case study.

5Q.   Which method best stimulates thought and creativity?

5A.   Brainstorming.

6Q.   In which method can participants can experience a real-life situation without having to take real life risks?

6A.   Role play.

7Q.   For which training technique are most of the ideas, questions and answers developed by the participants?

7A.   Group discussion.

8Q.   Demonstration is best used to:

8A.   Increase confidence that a complex task can be completed.
       Prepare participants for hands-on practice.

9Q.   How do you define an authentic task?

9A.   A well-crafted real-world task and the activities learners engage in to complete it.

10Q. Which learning activity does best engage both hemispheres of the brain at one time?

10A. Concept mapping.

11Q. Why do you use authentic tasks in a learning programme?

11A. To foster application in areas where knowledge and skills must be analyzed, synthesized, and evaluated.

12Q. Give two characteristics of demonstration.

12A. To help participants see how something is done correctly.
       To clarify the nature of a new skill.

13Q. Give two reasons for using DRILL AND PRACTICE activity in a session

13A. To develop automaticity
       To aid retention

14Q. Give two reasons for using REFLECTION as a learning activity in a session.

14A. To refine mental models related to complex content.
To enhance learning transfer.

15Q. Which is the best learning activity to expose areas in need of remediation?

15A. Quiz.

And here are the instructions for the facilitators:

1. Prepare one question-answer set for each participant. Transfer these questions and answers onto pieces of paper of approximately ¼ - ½ of an A4 size sheet. Make sure the writing is clearly legible when these pieces of paper are mounted on the wall, from a distance of approximately 1-2 meters. (Questions and answers should be written on different colored paper for easy identification.)

2. Mount the *answer papers* onto the wall **before the session** (preferably somewhere outside of the training room)

3. At the end of the session, hand out each participant one *question paper* and ask everyone to read it silently, go to the wall where the answer sheets are mounted, find its answer among the answers mounted on the wall, and wait. DO NOT REMOVE THE ANSWER PAPER AT THIS POINT.

4. When each participant is finished reading the answers on the wall and has found the correct one, ask participants to look at some of the questions that others are holding in their hands and try to find corresponding answers on the wall.

5. When all participants have had a chance to see some of the questions and their answers, ask everybody to step back from the wall approximately two metes and take their answer paper from the wall with the *go* sign you will give. Explain that if someone has already taken what a participant believes to be the correct answer to their question, they should pick whatever answer is left on the wall even if they know it is wrong.

6. Ask participants to make a circle, holding the *answers* in their left hands.
7. Ask participants to give their answer paper to the person on their left, and take the answer from the person on their right. (If everybody had matching questions and answers, after this exchange no one will hold both the question and correct answer in their hands.)
8. Pick a participant (participant A) and ask him/her to read the question out loud. Let participant B, who has the correct answer to the question asked by participant A, read the answer paper in his/her hand
9. Ask if participant A accepts it as a correct answer. If the answer is incorrect, ask the group who has the right answer. When you have the correct answer, continue.

10. Now let participant B read the question in his/her hand. After reading his/her question let participant B sit down. (Anyone who reads both papers in his/her hand gets to sit down.)

11. Continue until all questions are asked and answered. If the chain gets stuck on one participant, just pick another participant and continue.

12. Important:
    a. Do not go into details and only discuss the answers. If a person insists that a particular question or answer is not correct, propose to discuss further with him/her after the game is over.
    b. Thank the participants and finish the session when the game is finished.

Match game

Although *match game* is a good game for the body of a session, it may also be used effectively to summarize a session.

Here is an example of a match game played following *learning models* session in "Designing Courses for Learning" course.

The facilitator distributes the following statements (on cards) to all participants (each participant must get one card). If there are fewer or more participants than 15, the characteristics table below should be adjusted accordingly for each participant to receive a card. He/she explains that there are five cards with the studied learning models and two characteristics for each of them. The task is to find the matching ones and build a group of three people.

Learning model	Characteristics	
Behaviorist	Positive reinforcement if the desired response is observed.	Primarily centred on the presentation of information by an instructor.
Cognitivist	Promotes heavily scripted approaches to teaching.	Information becomes part of the learner's long-term memory.
Humanist	Curiosity and creativity are emphasized.	Construction of personal meaning as it relates to knowledge.
Social learning theory	Requires interacting with others.	Most human behavior is learned observationally through modelling.
Constructivist	Learning is built upon previous experiences.	Comprehend a variety of alternative interpretations.

Once done, the facilitator asks one participant to read a learning model and its characteristics. This is done for all five models. Facilitator highlights the importance of the shift from training to learning and ends the session.

In another example, we play the following match game as summary for *risk management approach to GMP inspections* session.

Transfer the below list of control measures to cards. Tell participants that these relate to control measures. Divide participants into two groups facing each other. Distribute the control measure cards to one side, and explanation/example cards to the other side. If you have odd number of participants, one of the facilitators should join to make the number even. Ask participants to find their pairs by checking the cards. Once completed, ask participants to read the match out loud, make correct if necessary, and underline the importance of control measures.

Below you will find the control measures, use as many as needed (each participant gets one card):

CARD (control measure)	CARD (explanation/example)
Substitution	Using a safe solvent instead of a potentially toxic one
Uncoupling or loosely coupling a process	Breaking apart a process so there are inherent "stops" to prevent a process from "running away" and getting out of control
Process simplification	Reducing the number of steps or "risk exposures" that could occur
Isolation	Moving or enclosing an activity so it presents fewer potential risks
Elimination	Removing a potential risk
Changing conditions	Modifying the temperature, pressure, or time
Providing more information	Giving those involved more useful information regarding prevention of or response to a problem
Decreasing the frequency of an event happening	Reducing the number of times a potential hazardous material is used
Decreasing the consequences should an event occur	Providing protective equipment to workers or instituting an assay to detect the presence of a known potential contaminant
Changing the source	Using a vendor or material source that is potentially more reliable or consistent
Implementing procedures	Instituting procedures that prevent an accident or a failure
Engineering controls	Designing and implementing electronic, mechanical, or other controls to prevent a problem
Training	Providing personnel with knowledge and skills to ensure they have a better understanding of the process and of how to mitigate the risk effectively
Preparedness	Establishing a plan and system for responding in the event an incident occurs

Chase game

In chase (catching) games, someone has to be "it" and try to catch or tag the others. There are many ways to play chase games. All you need is a lot of space. Chase games can be played with as few as two people, or up to 20, ideal for a face-to-face course.

We modified a typical chase (tag) game for bringing fun to our courses as a summary activity. In our course version, participants try to catch "it" rather than "it" trying to catch the others.

Here how it goes. In the "Facilitation Skills" course, we play the chase game (we call it *good coach – bad coach*) to summarize *demonstration and coaching* session by using the characteristics of a good coach (comparing them to those of a bad coach).

Prior to the summary, you need to prepare the following phrases on half sized A4 paper or cartons with a piece of double sided tape attached to the back (characteristics with normal face font are the characteristics of a *good coach* while statements in *italic* face font are characteristics of a *bad coach).*

1. Focuses on the practical
2. Encourages teamwork
3. Works to reduce stress
4. Fosters two-way communication
5. Practices active listening
6. Is patient
7. Provides immediate feedback
8. Is proficient
9. *Focuses on the theoretical*
10. *Maintains a distance*
11. *Often creates stress*
12. *Uses one-way communication*
13. *Sees self as the sole authority*
14. *Is not an active listener*
15. *Demonstrates a wrong practice*

Preferably, two of your co-facilitators are announced to play as *good coach* and *bad coach*. To distinguish them, we gave them Samurai hats decorated and marked as *good coach* and *bad coach*.

Distribute one piece of paper to each participant (prepare more if there are more than 15 participants). Participants are asked to read their statement and tape it on the relevant coach. The "good coach" and the "bad coach" are allowed to run away to prevent participants taping the statements onto them. And give your start signal for the chase.

When all the statements are taped onto facilitators, everybody returns to their seats. Also ask good and the bad coaches to come before the participants. Read each of the cards taped on coaches, underline the importance of such characteristic or correct if it is taped to a wrong coach.

We also play this game as summary for *Shifting from training to learning* session in the "Designing Courses for Learning" course. In this game, the target is to summarize the session by highlighting differences between training and learning paradigms.

Here are the phrases on cards that participants chase training and learning paradigms (normal face ones belong to training while *italic* ones belong to learning paradigm).

1. Provide/deliver instruction
2. Deliver training courses
3. Quality of faculty, instruction
4. Dominated by lectures
5. End-of-course assessment
6. Knowledge exists "out there"
7. Learning is cumulative and linear
8. "Live" teacher co-located with "live" students required
9. Trainers are primarily lecturers
10. *Produce learning*
11. *Create powerful learning environments*

12. *Quality of students, learning*
13. *Dominated by hands-on activities*
14. *Pre/during/post assessments*
15. *Knowledge exists in each person's mind and is shaped by individual experience*
16. *Learning is a nesting and interacting of frameworks*
17. *"Active" students required, but teacher and students may be located at a distance*
18. *Facilitators are primarily designers of learning methods and environments*

Get in line

This summary game is a perfect pick if you want to highlight the importance of a flow, a process, or something similar. For example, the game *building a storyline* that is given as an example as a game for the body, can also perfectly fit as a summary activity. In this case, each participant receives a photo (you must have one photo for each participant) and they get in line to illustrate the process with the correct order.

Although it is not a sequential flow, we also use this game to summarize *Activities that support learning* session in the "Facilitation Skills" course. We ask participants to get in line starting with the introduction and activities that could take place as introduction, then the body and the summary. A similar game was also played in the same course for summarizing activities that could take place before, during and after the course to create a positive learning climate.

Stem and leaves

Stem and leaves is a summary game with some visual twist on *get in line, chase* and *match games.* It can be used for the same purpose of highlighting certain elements of different disciplines, paradigms or processes.

We used this game to summarize the session on *Shifting from training to learning* in the "Facilitation Skills" course. Two trees (only stems) were placed on the wall with clear markings of *learning* and *training* paradigms. Characteristics of these two paradigms on sticky note papers (leaves) were distributed to participants and they were invited to stick them to the appropriate tree.

Once both trees have all the leaves on, the facilitator invites participants to stand before the wall, and reviews the results, make corrections if necessary, and emphasizes the important aspects of the learning paradigm.

Tile and boardgames

A tile-based game is a game that uses tiles as one of the fundamental elements of play. The earliest definite references to Chinese dominoes are found in the literature of the Song Dynasty (960-1279).

A board game is a tabletop game that involves pawns or pieces moved or placed on a board, according to a set of rules. Although some board games are based on pure strategy, many contain an element of chance; and some are purely chance requiring no skills at all. For example, *chess* is a board game that is purely

based on strategy, no luck is involved, but *snake and ladders* requires no decision by the players and is played fully based on luck. Luck is usually introduced by throwing a dice. In some games luck is introduced by randomly picked letters (*Scrabble*), by a spinner (*Twister*), or randomly picked cards (*Sorry!*). Whatever type board game it is, players have the goal to defeat opponents and win.

The oldest board game comes from Egypt, Senet dating back to 3100 BC, meaning *game of passing.* Today, with the power of Internet, many board games are also transformed onto computer media like video games, and can be played either against the computer or other opponents online.

We regularly visit toy shops and check for interesting games, go through rules and see whether these can be adapted for learning purposes of certain topics in our courses. *Risk management dominoes* and *Vaccine management board game* are two examples of tile-based and board games we have developed.

Risk management dominoes

Dominoes is a game played with rectangular *domino* tiles. Each domino is a rectangular tile with a line dividing its face into two square *ends*. Each end is marked with a number of spots (also called *pips, nips,* or *dobs*) or is blank. The backs of the dominoes in a set are indistinguishable, either blank or having some common design.

The most basic domino variant is for two players and requires a double-six set. The 28 tiles are shuffled face down and form the *stock* or *boneyard.* Each player draws seven tiles; the remainder are not used. Once the players begin drawing tiles, they are typically placed on-edge in front of the players, so each player can see their own tiles, but none can see the value of other players' tiles. Every player can thus see how many tiles remain in the opponent's hands at all times during gameplay.

Row 1

| RISK CONTROL / RISK CONTROL |

Row 2

| ACTIONS IMPLEMENTING RISK MANAGEMENT DECISONS / HAZARD | HAZARD / HAZARD |

Row 3

| RISK CONTROL / HARM | POTENTIAL SOURCE OF HARM / HARM | DAMAGE TO HEALTH, INCLUDING THE DAMAGE THAT CAN OCCUR FROM LOSS OF PRODUCT QUALITY OR AVAILABILITY / HARM |

Row 4

| RISK CONTROL / PREVENTIVE CONTROL MEASURE | POTENTIAL SOURCE OF HARM / PREVENTIVE CONTROL MEASURE | HARM / PREVENTIVE CONTROL MEASURE | CONTROL METHODS THAT REDUCE THE CHANCES OF AN EVENT OCCURRING / PREVENTIVE CONTROL MEASURE |

Row 5

| ACTIONS IMPLEMENTING RISK MANAGEMENT DECISONS / PROTECTIVE CONTROL MEASURE | POTENTIAL SOURCE OF HARM / PROTECTIVE CONTROL MEASURE | DAMAGE TO HEALTH, INCLUDING THE DAMAGE THAT CAN OCCUR FROM LOSS OF PRODUCT QUALITY OR AVAILABILITY / CONTROL MEASURES THAT KEEP EVENTS FROM GETTING WORSE | CONTROL METHODS THAT REDUCE THE CHANCES OF AN EVENT OCCURRING / PROTECTIVE CONTROL MEASURE | CONTROL MEASURES THAT KEEP EVENTS FROM GETTING WORSE / PROTECTIVE CONTROL MEASURE |

Row 6

| ACTIONS IMPLEMENTING RISK MANAGEMENT DECISONS / RISK | POTENTIAL SOURCE OF HARM / RISK | DAMAGE TO HEALTH, INCLUDING THE DAMAGE THAT CAN OCCUR FROM LOSS OF PRODUCT QUALITY OR AVAILABILITY / RISK | CONTROL METHODS THAT REDUCE THE CHANCES OF AN EVENT OCCURRING / THE COMBINATION OF THE PROBABILITY OF OCCURRENCE OF HARM AND THE SEVERITY OF THAT HARM | CONTROL MEASURES THAT KEEP EVENTS FROM GETTING WORSE / RISK | THE COMBINATION OF OCCURRENCE OF HARM AND THE SEVERITY OF THAT HARM / THE COMBINATION OF THE PROBABILITY OF OCCURRENCE OF HARM AND THE SEVERITY OF THAT HARM |

Row 7

| ACTIONS IMPLEMENTING RISK MANAGEMENT DECISONS / RESIDUAL RISK | HAZARD / RISK REMAINING AFTER ALL CONTROL MEASURES HAVE BEEN TAKEN | DAMAGE TO HEALTH, INCLUDING THE DAMAGE THAT CAN OCCUR FROM LOSS OF PRODUCT QUALITY OR AVAILABILITY / RISK REMAINING AFTER ALL CONTROL MEASURES HAVE BEEN TAKEN | CONTROL METHODS THAT REDUCE THE CHANCES OF AN EVENT OCCURRING / RESIDUAL RISK | CONTROL MEASURES THAT KEEP EVENTS FROM GETTING WORSE / RISK REMAINING AFTER ALL CONTROL MEASURES HAVE BEEN TAKEN | THE COMBINATION OF OCCURRENCE OF HARM AND THE SEVERITY OF THAT HARM / RESIDUAL RISK | RISK REMAINING AFTER ALL CONTROL MEASURES HAVE BEEN TAKEN / RESIDUAL RISK |
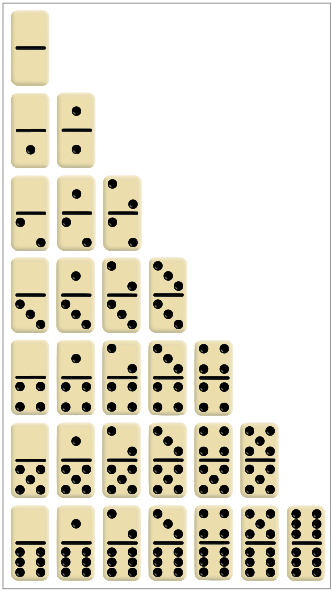
The original double six-set dominoes

One player begins by downing (playing the first tile) one of their tiles. This tile starts the line of play, in which values of adjacent pairs of tile ends must match. The players alternately extend the line of play with one tile at one of its two ends; if a player is unable to place a valid tile, they must keep on pulling tiles from the stock until they can. The game ends when one player wins by playing their last tile, or when the game is blocked because neither player can play. If that occurs, whoever caused the block gets all of the remaining player points not counting their own.

We have replaced the double-six set dominoes with six risk management terms. In order to add a different level of difficulty, we also replaced half the risk management terms with their definitions. In summary, still there are eight half of dominoes with a risk management term, half of them being the term and the other half the matching definition. Here is our set:

We used the following terms and definitions (in our version, we do not have blank ones, instead we have included one more term/definition):

Hazard - the potential source of harm
Harm - damage to health, including the damage that can occur from loss of product quality or availability
Preventive control measure - control methods that reduce the chances of an event occurring
Protective control measure - control measures that keep events from getting worse
Residual risk - risk remaining after all control measures have been taken
Risk - the combination of the probability of occurrence of harm and the severity of that harm
Risk control - actions implementing risk management decisions

The game follows the same rules of a typical domino. Here the challenge is participants to find adjacent pairs of tiles either in term or its definition.

The game can be played both during the body of a session or as a summary game at the end. Since dominoes can only be played by two people, you need to have enough sets for the groups. In the case of odd number of participants, one of facilitators may join as a player. The game brings good variation to the learning pro-

cess through reviewing the terms and definitions often used in risk management while having fun.

In order to have legibility of the text, we recommend using bigger dominoes in size. The terms and definitions may be printed on full page (sticky) label paper and then stuck on wooden tiles.

You may also give one set as a gift to each participant at the end of the game.

Vaccine management board game

Vaccine management board game is developed as a modified combination of *Monopoly* and *trivia quizzes*, incorporating review of knowledge, challenged by the luck factor. Though it may seem like a competition, the original idea behind the game is to answer as many questions as possible to help participants to review the whole course content. This is why we have introduced pretty mean rules when the answer given is not correct (*go back to start* type punishment). Even the luck factor becomes extremely critical when a player reaches to the swamp area in the game.

The game is played by at least two participants, preferably four. In a course of 15 participants, you may have groups like 4+4+4+3 playing the game. Though

this game is mentioned under summary, it is too long an activity to summarize a session. We play this game as the course summary at the end of the course which gives participants a chance to review everything they have gone through in the course. We also give a set as a gift to each participant. The game comes in three languages, English, French and Russian.

The game box contains the following:
- One game board (folded)
- 50 cards with questions numbered from 01 to 50
- 50 cards with answers numbered from 01 to 50
- Two dice
- Six pawns in different colors
- Information sheet (how the play the game)

Here are the rules:
- Players should shuffle the questions cards and keep them faced down.
- Players throw one dice to decide who goes first, second, third and fourth.
- To start playing, the first player throws a dice and moves his/her pawn to

the corresponding number of square on the board, and draws the top question card, and answers the question.

- The next move is indicated in the rules paper. For example, if the first player comes to square 5 and answers the question correctly, he throws again. In the case of wrong answer, he/she waits for one round. Then the next player throws the dice.
- If players cannot decide whether the answer is correct, they consult the corresponding answer card (remember that for easy finding, answer cards should always be kept in numerical order).
- When players come close to the end, to finish and win the game they have to land directly on the FINISH point. For example, the player on point 50 should throw six to finish. Is he/she throws less than six and lands on two or four in the water, he/she returns back to the start. But if he/she lands on 1, 3 or 5 rocks, he/she waits for his/her next turn. If he/she is on rock #3, to finish he/she must throw three to land on FINISH. Throwing one which lands the players in swamp, makes the player to start again. Throwing two lands the player on rock #5, which is OK. If the player is on rock #3 and throws four, five, or six, that's OK, he/she just cannot finish the game, and has to wait for more rounds.

Warm ups

Warm-ups are a vital part of workshops, learning events and even meetings. They help as a key factor in breaking down barriers between diverse people and loosening up.

When it comes to warm-ups and energizers, we all play together. These games are for participants, facilitators and observers – whoever is in the course room. Some warm-ups are simply fun and a way to wake up, and have no other purpose. Some can be linked to the course contents. Whatever warm-up you play, you must be sensitive to culture, gender and disability. In some cultures, touching between women and men is not acceptable. Do not forget, there are plenty of warm-ups which do not involve touching. The disabled are marginalized by some warm-ups: with some they can be given roles as judges or referees.

The judge, lion and hunter

We play this warm-up on the first day, simply because it is very energetic. It is easy to do and the groups enjoy it. The game is an adapted version of renowned rock-paper-scissors game.

Two teams stand opposite each other behind the tables. Each team decides whether to be the hunters, lions or judges. Lions eat judges; hunters kill lions and
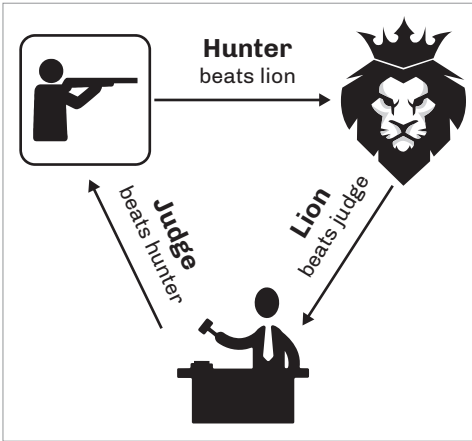
judges hang hunters. On a count of three, each team makes the appropriate action for its choice; hunter, judge or lion. The winning team receives one point (for example, if one team chose hunter and the other judge, the second team would get one point, since judges hang hunters). Each team then chooses again, and the winning team is recorded. The game is played five times to get a winner.

Rock-paper-scissors

A very old Chinese game, dating back to the time of the Han dynasty. Rock-paper-scissors is a hand game usually played between two people, in which each player simultaneously forms one of three shapes with an outstretched hand. These shapes are "rock" (a simple fist), "paper" (a flat hand), and "scissors" (a fist with the index and middle fingers together forming a V). The game has only three possible outcomes other than a tie: a player who decides to play rock will beat another

player who has chosen scissors (rock crushes scissors) but will lose to one who has played paper (paper covers rock); a play of paper will lose to a play of scissors (scissors cut paper). If both players choose the same shape, the game is tied and is usually immediately replayed to break the tie.

All participants are called to start playing the game in pairs, with the participant next to them. Whoever wins, need to find a new challenger in the room, while the one who lost gets behind the winner to cheer. The game continues until you have only one winner.
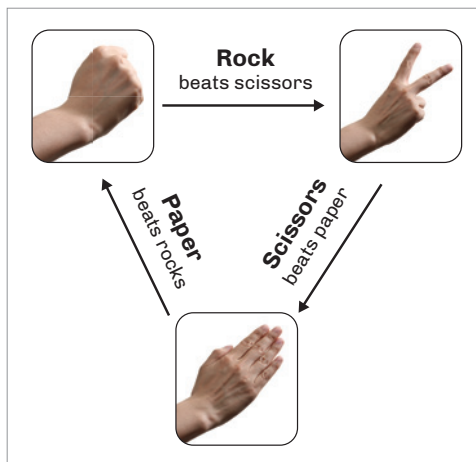
Scrabble

Warm ups could be used as energizers, totally for fun... but also can be linked to course subjects. Scrabble is a game that can be used as a warm up, but can also be embedded in the body of a session. To play this game, you need to divide participants into two groups (so you need even number of participants – if you are missing one, then you may ask one of the facilitators to join). For example, if you have 15 participants, with one facilitator joining the group you will have two groups of eight people. This also means that you will have eight letters to scrabble.

Selecting letters could be tricky. Here, you may follow different strategies to decide on the letters. We usually list several words we would like to see as a result, and pick those letters. For example, in a Facilitation Skills course, we would like to see words like learn, teach, react, alter, and create. The letters from these words are L, E, A, R, N, T, C, H. Then we enter these letters to a letter sorting programme (many available in the web, we use https://www.word-grabber.com/letter-sorting) and get the full list of possible words from these letters and select the ones we like. In a game like this, maximum of 10 words would be good enough for a warm up activity. Once you decide on the words, then you have to get the definition and/or hints for each word.

Alternatively, you may just list some random letters (make sure that you have at least two vowels) in a letter sorting programme and get the full list of possible words and pick the ones you like.

Here is an example:

Letters: A E N T C R H L

LEARN	Gain or acquire knowledge of or skill in (something) by study, experience, or being taught.
TEACH	Impart knowledge to or instruct (someone) as to how to do something.
REACT	Act in response to something; respond in a particular way.
CENTRAL	At the point or in the area that is in the middle of something
NECTAR	A sugary fluid secreted within flowers to encourage pollination by insects and other animals, collected by bees to make into honey.
ALERT	The state of being watchful for possible danger.
ALTER	To change something slightly
CLEAN	Not dirty
CREATE	To make something new, or invent something
TALE	A story, especially one that might be invented or difficult to believe

Once you divide participants into two groups, distribute the letters that are printed on A4 pages. Give a minute for participants to familiarize themselves with the letters. Explain that you will give a definition or give an explanation that the group should make a word and get in right order with the letters. If the word is shorter than the number of letters, the others should turn their papers to its blank side. It is always good to have a test run so everybody is clear. With the above given example, we can ask "a pet that catches mice" and we expect participants to write CAT with five blank papers following the word (The two photographs dis-

played in this section are from GMP Inspection course conducted in Russian, naturally the game was played in Russian language).

Then start giving the explanations and note down which group scores most. When you introduce this game as a competition, you have to explain that this is for fun and in no way measures who knows how much. Although we use competition in some games, we never take it as there is a loser at the end. For us, we all have fun playing the game.

Number sequence

This warm-up helps participants to appreciate why stories help us to learn. Give participants two minutes to learn the following 17-digit sequence.

73200239410124566

Then, give participants 30 seconds to write down all 17 digits in the correct order with no errors. Most participants will not be able to do so. Now tell them the following story about the numbers.

The 7 Samurai met the 3 Musketeers in 2002, 39 steps from a 4-way crossroad. Suddenly, 101 Dalmatians appeared. 24 minutes later, 5 of the Samurai had caught 66 of the dogs.

Now, ask the participants to write down the sequence of numbers again in 30 seconds. Most will do much better. Discuss why stories help us learn.

Touch quickly

Call out a color (such as red) and have participants scurry to touch any object of that color in the training space. Identify other things besides color, such as "something round" or mention specific objects such as a book. Call the next item as soon as everyone has touched the current one. Whenever a warm-up or other type of activity requires participants to move quickly, be sure that you caution them to do so carefully so as not to fall or knock another person over.

Paper plane

This warm up helps participants to improve their psychomotor coordination skills. Participants work in pairs. The challenge is building a paper plane by holding hands of each other (either right-left, right-right, or left-left). Participants work together while using their free hand in coordination with the free hand of their pair. Once all participants construct their planes, you may line everybody up and have a competition to see whose plane would fly farthest.

Line up

Energize participants by having them lined up in different ways without talking (in some cases talking may be allowed). You may put participants into two groups to have this as competition.

Here are some examples you can ask groups to line up accordingly:
- Line up according to shoe size – from smallest shoe size to largest shoe size.
- Line up according to number of siblings in their family – lowest to highest number.
- Line up by favorite color – from warm colors to cool colors.
- Line up according to number of children in their family – from lowest number to highest number.
- Line up by the height.
- Line up by the age.

I have a letter for...

This game can be a little rough so it should be used with judgment, but it is fun.

Participants sit in chairs in a circle. The postman stands in the center and announces that s/he has brought a letter for all people with a certain characteristic, such as wearing rings, having black shoes, wearing glasses, etc. These people must then leave their seats and find another (at this moment, the postman sits to one of the empty seats). You cannot sit back on the same seat. The person unable to get a seat becomes the postman, and the game continues.

Who changed the action?

Participants stand in a circle. One leaves the circle. The rest decide who will initiate and change an action, such as scratching the head or clapping hands. The outsider is called back, stands in the center of the circle and tries to guess who is initiating the changes.

If he/she guesses correctly, the initiator must leave the circle, and the game continues.

Blindfold ranking

Divide the participants into two approximately equal groups. Have them put on blindfolds, and then tell them to arrange themselves in order of height.

Math teaser

Participants stand in a circle. You start counting from one, with number three and its multiples being replaced by hand clapping (1-2-clap-4-5-clap-6-7-clap and so on). If a person miscounts or claps when he/she was not supposed to clap, he/she sits down and counting begins from one again. If this is too easy, the leader may reverse the direction of the counting, or change the number to be replaced.

Tap tap

Participants stand closely together around the table, and each one's left hand is placed over the right hand of the person to their left.

You now have a series of hands, right and left, but one of each pair of right and left hands belongs to a different participant. One person starts the action, and the hands are tapped in order onto the table (this means a participant would tap his or her left hand, then the neighbor to the left would tap his or her right hand, then the neighbor to the right would tap his or her left hand, then the next participant would tap his or her right hand, and so on. This takes some coordination). A participant may decide to reverse the action by tapping his or her hand twice. Those missing the sequence are eliminated.

Knots of people

Divide the group into teams of eight to 12 members. Have each person join right hands with another person in the group, but it has to be someone who is NOT standing immediately to the left or right. Then have each person join left hands with another person in the group, but it has to be someone who is NOT standing immediately to the left or right and someone other than before.

Now the groups have to untangle themselves without letting go of hands. They may have to loosen their grips a little to allow for twisting and turning. They may have to step over or under other people. The first group to untangle their knot is the winner.

Note: There are four possible solutions to the knot.
1. One large circle with people facing either direction.
2. Two interlocking circles.
3. A figure of eight.
4. A circle within a circle.

Get in line with your birth date

This can be played either as a whole group or two groups competing. If it is one group, make a circle with empty chairs and ask participants to stand on the chairs. Then mark a chair that would represent the beginning (1 JAN). Ask participants to get in line according to their birthdays (use only day and the month – not the year) to the right. They have to change places on the chairs to get in line (be careful, do not play this game if chairs are not solid wood or metal – avoid injuries).

If you divide participants into two groups for competition, you may line up the chairs (not circle).

Pass the ball (bottle)

Divide participants into two groups and line them up (the first one faces to you, and the rest of the group is lined up behind the first person). Give an object (a ball, a plastic water bottle) to the leaders. The task is to pass the object to the next person only over the head. When the object reaches the last person, this one runs to the front and sends the object again over his/her head. The game continues until the leader runs back to the front.

Broken telephone

Divide participants into two groups and ask them to line up. You show a statement (not too long) to the first person, and this person whispers this message to next in line who passes the message to next. The last person in line announces the message to the entire group.

Errors typically accumulate in the retellings or as many studies have shown, people have an intentional or unintentional knack for embellishing messages (stories) when they repeat it, so the statement announced by the last player differs significantly, and often amusingly, from the one uttered by the first. It is always advised to use phrases from the course content. This could also help to emphasize some important facts from the course.

Tic-tac-toe

Tic-tac-toe is a paper and pencil game for two players, traced back to ancient Egypt. The player who succeeds in placing three of their marks in a horizontal, vertical, or diagonal row wins the game.
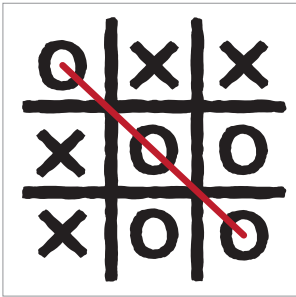
We have modified it to play with two teams and in an open space. Draw the grid on a flipchart and place it in the middle. Divide participants into two groups. Prepare marks for the groups (X and O, or two distinct colors, or two different objects). Distribute these marks to each player (make sure that the team members have the same mark in hand). Teams face each other in line taking the grid in the middle. With the start signal from the referee, the first team members run to the grid and place their mark in the grid. As soon

as the first players are back in the line, the second players start running to place their marks. And the game continues until a team manages to win. You may play this for several rounds.

Earthquake or sold

Ask two participants to hold hands facing each other and one participant to stand inside the circle. Ask the rest of the group to get in similar arrangement (you should note that you need "multiplication of 3" number of participants to be able to play this game). Explain that these two participants holding hands represent a house, and the one inside is the owner of the house. When I say "earthquake" the owner must get out of the house and find him/herself another house. When you get out, I will get into one of the houses, and someone will be out. When I say "sold" the house should move (not the owners) and the house should find itself another owner. If you are out, then it is your turn to decide whether the house will be sold or there will be an earthquake.

Dragons

Divide all into two groups. Ask groups to get in line and holding each other's shoulders to form a dragon. Each dragon has a head (the first person in the line)

and a tail (the last person in the line). With the start signal, the head should try to catch the tail of the other dragon without breaking the line. This warm-up may get extremely rough. It should be used with caution.

Musical chairs

Arrange a circle of chairs numbering one less than the number of players participating in the game. Players line up outside the ring of chairs while one non-player is in charge of playing music. When the music begins, the players move, shake, and shimmy in a circle around the chairs. As soon as the music stops, the players must immediately find a chair to sit. Naturally, one player will not find a seat and is thus be eliminated. One chair is also removed from the circle for the next round. The game continues until one player remains.

The game might be quite rough, therefore must be played with judgment. It is also important that the chairs you choose better be without hand rests.

I've been everywhere

Originally played with Johnny Cash and Lynn Anderson's *I've been everywhere* song, which Anderson lists all the places she has been in a pretty fast tune (https://www.youtube.com/watch?v=sYKeDJSbq9g). Selection of around 30 locations (out of 90 he counts in the song) are transferred onto sticky notes and then randomly onto a wall or a flipchart. Ask participants to go through the locations displayed on sticky notes for a minute or so. Then explain that with the music, they have to rush to pick the sticky note with the location he mentions in the song. Participants stand in a semi-circle before the flipchart/wall. The one who picks the most, wins the game (be prepared to award the person).

Although this is fun warm-up, that energizes participants with the vibrant music, it might be quite challenging for non-English native speakers, as it is quite challenging to catch the phrases in the song. Should be used with caution.

Kartoshka

This warm-up is similar to musical chairs, but played with a ball instead. You can use a small bean bag or a tennis ball or simply make a ball yourself by crumpling flipchart paper into a round shape and supporting it by scotch tape – so it is pretty light in weight. When the music begins, the players start passing the ball to each other. The person who has the hot potato at the moment the music stops is eliminated. The game continues until one player remains.

Grab the spoon

This warm-up could be arranged in relation to course contents.

You need to come up with different categories and list items that fall into that particular category. Then add 2-3 items to that list that do not fall into the category. For example, if your category is fruit, your list might include melon that is a fruit and spinach that is not a fruit. You need to mix up the order so the items that do not fit are randomly included in the list. You may need to prepare at least 4-5 categories.

In converting the categories to course related content, you may use the following for a "Vaccine Management" course (it is important that you use this warm up once all the categories you are referring to are already presented and discussed). *Italic* ones are not related to the categories they are listed under:

Factors affecting vaccine wastage
- Vial size
- Dead space in syringes
- *Price*
- Expiry
- Freezing
- *Secondary container*
- Breakage
- Session size

Lyophilized vaccines
- BCG
- *HPV*
- Measles
- *HepB*
- MR

- Yellow fever
- Meningococcal A conjugate

Criteria to be considered for application of multi-dose vial policy (MDVP)
- *Submerging in water*
- Expiry date
- WHO prequalification
- *Type of vaccine*
- Storage at manufacturer recommended temperature
- Approval status to be used for 28 days

Split participants into two teams and put a spoon in between two teams (the spoon must be around four meters away from the teams. Teams will be playing head to head. Explain to the teams that you will be giving them a category and a list of items related to vaccine management related issues. Tell them that some of the items will fit into that category and others won't. As soon as they hear an item that does NOT fit in the category, they should run to the middle and grab the spoon. If the person who grabs the spoon is wrong, he/she is out and have to go sit in a designated area for players who are out. If he/she is correct, then he/she chooses someone from the opposite team to be out.

Once you have explained the rules, start reading your list one at a time. If someone guesses wrong, continue on with the same list you were using until someone gets one right. If you get to the end of your list and no one has guessed the incorrect answer, just move on to the next category.

Continue playing until all team members from one team are out or you exhaust your list. The winning team is the team with more players left standing.

If there are items missed by the teams, review those ones to remind everybody.

Group dividers

All examples below are for splitting 15 participants into four or five groups. You may need to adjust if you need less or more groups. It is always advised that you prepare a table, showing which dividers you will use for grouping throughout the course, so that duplications are avoided:

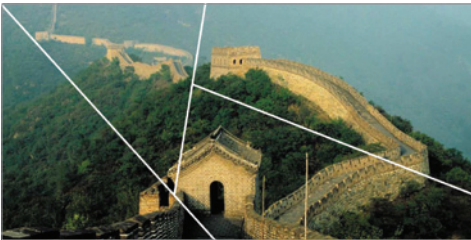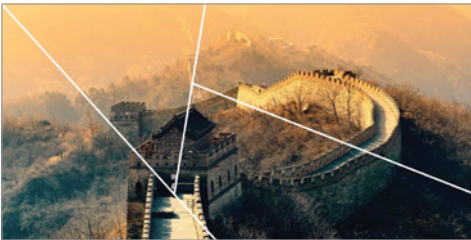| Total number of participants			15	
Session	Responsible facilitator	Number of groups	Number of participants in each group	Divider
Competency based training	Tamara	4	4+4+4+3	Count 1-2-3-4
Audio-visual aids	Paul	5	3+3+3+3+3	Candy bars
Activities that support learning	Nellie	5	3+3+3+3+3	Matching game

Simple count

Ask participants to count in sequence as follows:
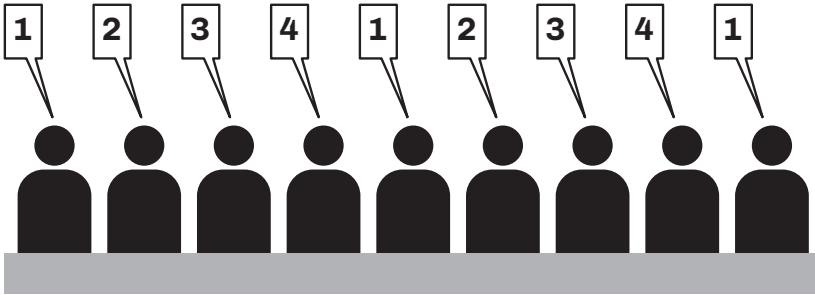
Then ask participants to get together in groups #1, #2, #3 and #4.

Postcard puzzle

Purchase four local postcards and cut them into pieces for each group. Here you must pay attention to the number of participants that would fall under each group. In some cases, this may not be even. If there are 15 participants, for four groups, you must cut the postcards into four, four, four and three pieces.

Distribute the pieces to participants (one piece one participant), and ask participants to solve the puzzle by bringing the pieces together.

Popsicle sticks

Get popsicle sticks equal to number of participants you have (this example is for 15 participants). Color them in five different patterns according to the number of participants you would have in each group (in this example it is 3+3+3+3+3).
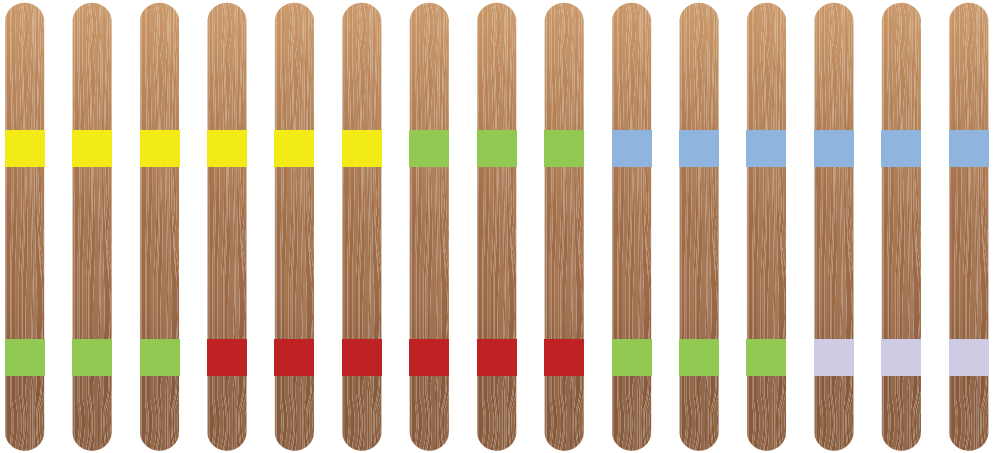
Ask participants to find the matching ones to form the groups.

Candy bars

Get different candy bars equal to the number of participants you have (this example is for 15 participants) taking into account the number of participants that would fall into each group. In this example of 15 participants to be split into five groups, you need to purchase five different candy bars in combinations of 3+3+3+3+3.

Ask participants to find the matching ones to form the groups.

Matching game

In this matching game, you will ask participants to find the matching cards to form groups. The pieces of the puzzle are prepared for a match of a country + its capital + its flag + a river + a symbol from that country + and other characteristics. It is highly recommended that you do not pick random countries, rather select countries from which participants are coming. Below is an example of splitting 15 participants into four groups:

Prepare a table as below in order to prepare pieces of the puzzle for matching:

Group 1	Group 2	Group 3	Group 4
Philippines	India	Malaysia	China
Manila	New Delhi	Kuala Lumpur	
Pasig River	Ganges	Gombak River	Yellow River

Transfer the information and the images onto paper (preferably same size, 1/4th of an A4 would do), and distribute them to participants (one card, one participant). Ask participants to form groups by matching the information they have in their hands.

Small gifts and souvenirs

Get different pencil toppers equal to number of participants you have (this example is for 15 participants) taking into account the number of participants that would fall into each group. In this example of 15 participants to be split into four groups, you need to purchase 4 different pencil toppers in combinations of 4+4+4+3.
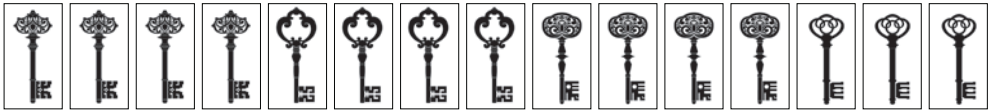
Ask participants to find the matching ones to form the groups.

You may also do the same with some local souvenirs such as key chains, handicrafts, small statues, model cars, plates, etc.:
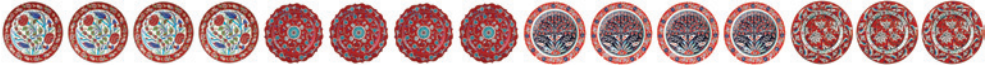
Cards

Solutions with low cost are also available; you may print the following images on cards for participants to find the matching ones to form groups:

Alternatively, you may come up with creative ways to put your participants into groups using different concepts from the course content to print on cards. Here are several examples:

You may use prints of different types of temperature monitoring devices to divide participants into groups for an upcoming temperature monitoring session:

When we are working with vaccine vial monitors (VVM), we use the following dividers showing different levels of temperature exposed VVMs:
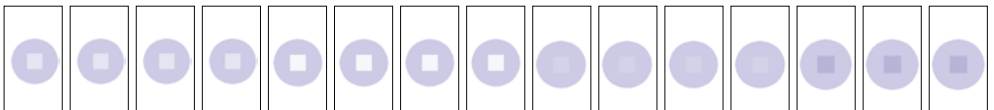
Shapes

Cut simple geometric shapes based on the number of participants that would form a group. In this example of 15 participants to be split into five groups, you need to cut five different shapes in combinations of 3+3+3+3+3.

Ask participants to find the matching ones to form the groups.

You may also do something similar with stationary materials you have:
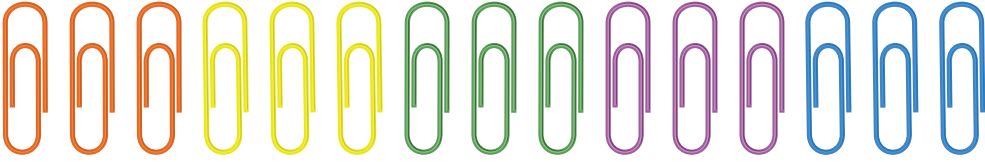
Bring variety
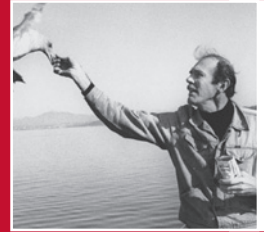
It is important that throughout the course you use a variety of learning activities and games, all carefully planned. No matter how many times you have delivered the same course with the same facilitators, it is always safe to gather at least two days before the course to work on every single detail for the activities ahead.

During this preparation period, facilitators should discuss each session, and the responsible facilitator should take others through the flow by explaining how he/she will be managing the session. These should be open to discussion and suggestions.

Such sessions also help facilitators not to repeat each other. Since one session builds on another, it is highly possible that two facilitators might think of a similar activity, joke, or a story. You should make sure that nobody repeats each other. In our course preparations, we even take it to a level that every single pre-prepared flipchart and/or PowerPoint presentation is seen by fellow facilitators. So, nothing comes as a surprise in the course.

When it comes to activities that support learning, all facilitators should go for variety. If one uses a case study, the others should think of alternative activities that would help improving problem-solving skills. These preparation meetings should focus on finding the best fit for the learning activities and games for each session, so that the session objectives are achieved. For this purpose, we also expand the table given under *Group dividers* section to include activities and games for all sessions. In doing so, we make sure that we use a variety of learning activities, rather than repeating ourselves with examples, types of group work, group dividers, and summary techniques. This becomes more critical in running the "Facilitation Skills" and "Designing Courses for Learning" courses, because the facilitators are role models for participants.

Here is the table from one of our "Facilitation Skills" courses:

| Total number of participants 15 | | Activities/games | | | Grouping | | |
Session	Responsible facilitator	Introduction	Body	Summary	Number of groups	Number of participants in each group	Divider
Introduction	Umit	Icebreaker: Tombola			n/a		
From training to learning	Nellie	Video (Dead Poets Society vs Ferris Bueller's Day Off)	Sharing personal experiences One way-two ways communication (yarns)	Stem and leaves (Training and learning paradigms)	n/a		
Creating a positive learning climate	Meral	Sharing personal experiences	Small group work (before-during-after course activities)	Make the sentence (same groups apply)	4	4+4+3	Postcard puzzle
Teaching a skill	Umit	Recall prior learning	Simulation (Dadu village)	Reflection	2	11 (villagers)+4 (engineers)	Volunteers
Using audio-visual learning aids	Nellie	The hook: Challenging learners (flipchart drawing)	Match phrase Group discussion (advantages and disadvantages of AV aids) Drill and practice (PP presentation, flipchart, video, white board in small groups)	Fill in the blanks quiz	4	4+4+3	Matching game
Interactive learning session	Umit	Storytelling (Memoirs of a participant)	Role play (Active listening in pairs with participant sitting next) Envelope game (activities that support learning – see grouping)	Question and answer game	4	4+4+3	Souvenirs (yo-yos)

Total number of participants 15		Activities/games			Grouping		
Session	Responsible facilitator	Introduction	Body	Summary	Number of groups	Number of participants in each group	Divider
Demonstration and coaching	Nellie	Skit (how did I learn to drive)	Video (Facilitators meeting from the previous evening) Group work (with roles of demonstrator, learner, and observer)	Chase game (good coach vs bad coach)	5	3+3+3+3+3	Souvenirs (key chains)
Competency based assessment instruments	Meral	Guided imagery (successful surgical operation)	Group work (Creating learning guides and evaluation checklists)	Match phrase	4	4+4+4+3	Candy bars
Planning for an effective learning session	Umit	Relating to topic to future work experiences	Case study (analyzing session objectives of a given course) Drill and practice (roleplay, brainstorming, group discussion,	Get in line (activities for introduction, body and summary)	4	4+4+4+3	Color sticks

Using a variety of techniques also applies to *evaluation of the day*. Although evaluation of the day on day one is done by one of the facilitators and by participants afterwards, it is best to check with the participants about how they would conduct the session.

In principle, evaluation of the day is for participants to reflect on the day's activities, things they liked and enjoyed and things they would like to see improved. In this regard, facilitators should not contribute to such discussion. Their role is to accept what is said, and discuss how things can be improved for the coming days when they gather for the facilitators meeting after the day's sessions.

You should remember that what you do on the first day will be copied by participants and you cannot afford making mistakes. In one of the courses, on day one, the facilitator who was doing the evaluation of the day started to refer to the programme of the day. Though this was not discussed during the preparation period that he would do it this way, we thought that it is not a bad idea to refer to the day's programme to help participants recapture what has happened during the day. But he did not stop there, item by item he started to write down the name of the session on the flipchart he prepared, and asked participants to vote whether they liked it or not. Literally speaking, the evaluation session was hijacked to a wrong direction. Naturally, none of the other facilitators intervened. And the evaluation session ended up in exhaustion, none of the participants opened their mouth, they simply raised hands. We talked to each and every participant in person who were to conduct the evaluation session in the coming days, explaining that voting was not a good idea that he/she should think of doing it in another

way, asking the peers to speak up freely and reflect on day's activities. However, voting for the evaluation of the day for the rest of the course was repeated, mirroring the set example on day one.

You should also think about conducting an evaluation of the day outside the meeting room depending on the possibilities and the programme, which brings another level of relaxation and helps participants to reflect better. You do not always need to have a wall to put your flipchart to write on. A facilitator's back, a tree trunk, a table laid down on its two legs, or even the ground would work perfectly.

Participants also bring a lot of creativity to the *evaluation of the day* sessions. In one of the "Designing Courses for Learning" course, one participant made a ball from flipchart papers, and was throwing the ball to participants to reflect on the day's activities. This continued with the participant having the ball passing it to another participant. Such creativity should always be encouraged.

Afterword

Constantinos P. Cavafis

Ithaka

As you set out for Ithaka
hope the voyage is a long one,
full of adventure, full of discovery.
Laistrygonians and Cyclops,
angry Poseidon—don't be afraid of them:
you'll never find things like that on your way
as long as you keep your thoughts raised high,
as long as a rare excitement
stirs your spirit and your body.

Laistrygonians and Cyclops,
wild Poseidon—you won't encounter them
unless you bring them along inside your soul,
unless your soul sets them up in front of you.

Hope the voyage is a long one.
May there be many a summer morning when,
with what pleasure, what joy,
you come into harbors seen for the first time;
may you stop at Phoenician trading stations
to buy fine things,
mother of pearl and coral, amber and ebony,
sensual perfume of every kind—
as many sensual perfumes as you can;
and may you visit many Egyptian cities
to gather stores of knowledge from their scholars.

Keep Ithaka always in your mind.
Arriving there is what you are destined for.
But do not hurry the journey at all.
Better if it lasts for years,
so you are old by the time you reach the island,
wealthy with all you have gained on the way,
not expecting Ithaka to make you rich.

Ithaka gave you the marvelous journey.
Without her you would not have set out.
She has nothing left to give you now.

And if you find her poor, Ithaka won't have fooled you.
Wise as you will have become, so full of experience,
you will have understood by then what these Ithakas mean.

Translated by Edmund Keeley/Philip Sherrard
(C.P. Cavafy, Collected Poems. Translated by Edmund Keeley and Philip Sherrard.
Edited by George Savidis. Revised Edition. Princeton University Press, 1992)

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"Creativity is as important in education as literacy and we should treat it with the same status."
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Recommended videos

"The delicate balance of mentoring someone is not creating them in your own image, but giving them the opportunity to create themselves."

Steven Spielberg
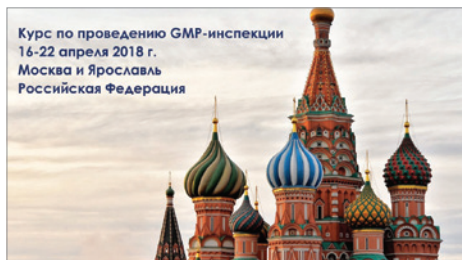
GMP Inspection course evaluation
by WHO, GLO, SID@GP
(in Russian)
https://youtu.be/R54dm07eK5c
running time: 14:36 (2018)

Fifteen participants from Armenia, Kazakhstan, Kyrgyzstan and Russia were gathered in Moscow, Russia, 16-22 April 2018 for an experiential GMP inspection course to sharpen their inspection skills. With a special focus on critical thinking, communication, collaboration, creativity and conation, the course helped participants to demonstrate ability to work effectively in diverse environments, utilizing the strengths and skills of everyone involved. This is what they have said on the last day of their learning journey...

Reflections
by Mohamed Refaat
https://youtu.be/OpCvKndbVTg
running time: 03:20 min (2017)

Mohamed Refaat reflects on his experience in participating in the "Facilitation Skills" course, 25-29 September 2017, Antalya, Turkey

**Reflections:
GCP inspection course**
by WHO, GLO and Badan POM
https://youtu.be/BtUnZ-ENQGE
running time: 09:33 min (2017)

A WHO GLO course, run by Badan POM of Indonesia, targeting national regulatory authorities GCP inspectors. The course is conducted consecutively in a working week, di-

vided into seven modules, using a variety of learning methods including demonstrations, group discussion, case studies, skit, simulations and a mock-up inspection. Fourteen participants reflect on their experience.
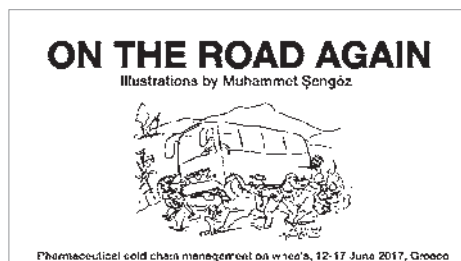

On the road again

Illustrations by Muhammet Şengöz
https://youtu.be/lPSIowejM4o
running time: 04:37 min (2017)

Cartoonist Muhammet Şengöz illustrates the "Pharmaceutical Cold Chain Management on Wheels" course, 12-17 June 2017, Greece.

Reflections: Pharmaceutical cold chain management on wheels, Greece, 2017

by Global Learning Opportunities
https://youtu.be/FytBRcAR5pk
running time: 09:42 min (2017)

Reflections from 14 participants on the last day of the learning journey (Pharmaceutical Cold Chain Management on Wheels, Greece, 12-17 June 2017).

The magnificent four

by Global Learning Opportunities
https://youtu.be/gP4Ulhqfn8o
running time: 02:53 min (2017)

Reflections by mentors from the "Pharmaceutical Cold Chain Management on Wheels," 12-17 June, Greece.

Reflections

by Brian Atuhaire

https://youtu.be/orGyQIoZwPw

running time: 03:52 min (2016)

The 2016 Greece May course followed the route of Athens, Kamena Vourla, Volos, Litochoro and Thessaloniki, a total of 648 km of a learning journey. "Pharmaceutical Cold Chain Management on Wheels" is a learning event for learners to develop their knowledge and skills enabling them to critically evaluate a pharmaceutical cold chain system and improve their associated supervisory skills. The course encourages participants to make direct observations at the storage, warehousing, distribution and health care facilities that they visit as they physically travel with mentors by bus down the length of the cold chain. Brian Atuhaire reflects on his experiences.

Reflections: EPELA eLearning

by Global Learning Opportunities

https://youtu.be/V1oio2lNRfw

running time: 02:09 min (2016)

Participants from EPELA authentic eLearning courses reflect on their experience with "Pharmaceutical Cold Chain Management" and "VVM Based Vaccine Management" courses.

Course evaluation: Pharmaceutical cold chain management on wheels, Turkey, 2016

by World Health Organization
https://youtu.be/L3KWxIAoPk4
running time: 07:13 min (2016)

On the 6th of June 2016, 11 participants from the private and public sectors gathered in Izmir, Turkey for a 631 km of a learning journey. Together with three mentors and course management staff, they travelled along the supply chain to study the management of time and temperature sensitive pharmaceuticals. This is what they said on the last day of the journey...

Évaluation du cours, CTD, Dakar, Sénégal, 25-29 avril 2016

by World Health Organization
https://youtu.be/9bSXMiYvYKc
running time: 09:41 min (2016)

Nineteen participants from National Regulatory Agencies from francophone African countries evaluate the course on the last day (in French).

Course evaluation: Pharmaceutical cold chain management on wheels, Turkey, 2015

by World Health Organization
https://youtu.be/sCYpHLBKZLA
running time: 08:56 min (2015)

THE END IS NOTHING
THE ROAD IS ALL
Pharmaceutical Cold Chain Management on Wheels

On 8th June 2015, 16 participants from the private and public sectors gathered in Izmir, Turkey for a 631 km learning journey. Together with three mentors and course manage-

ment staff, they travelled along the supply chain to study the management of time and temperature sensitive pharmaceuticals. This is what they said on the last day of the journey..
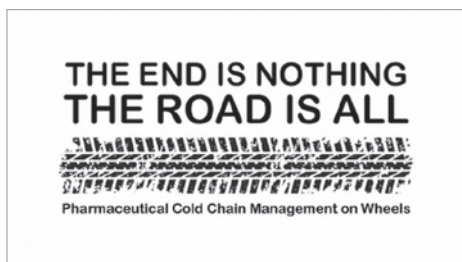

The end is nothing, the road is all

by World Health Organization
https://youtu.be/qgintf6bA5U
running time: 05:40 min (2014)

On 8th June 2014, 14 participants from private and public sectors gathered in Izmir, Turkey for a 631 km learning journey. Together with three mentors and a tour guide, they travelled along the supply chain to study the management of time and temperature sensitive pharmaceuticals. This is what they have said on the last day of the journey...

VVM based vaccine management: Authentic eLearning course
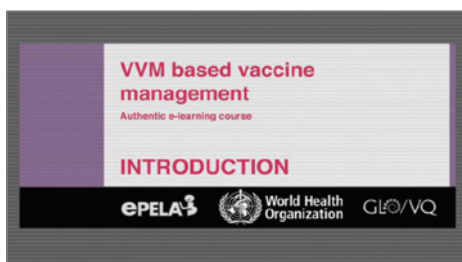
by EPELA
https://youtu.be/V1N7H499L7E
running time: 03:15 min (2013)

A new authentic eLearning course from EPELA on VVM based vaccine management. The nine-week course takes participants through a sophisticated vaccine chain to make the best use of VVM through ensuring that the vaccines have not been damaged by heat, reducing vaccine wastage, pinpointing cold chain problems, managing stocks, facilitating immunization outreach and increasing access and improving vaccination coverage, preventing inadvertent freezing, and providing hints whether an opened multi-dose vaccine vial may be used in a subsequent immunization session. Tools are offered to work in groups, evaluation is done through self, peer and expert reviews. Nobody lectures any participants in this course, but we make expert videos and critical documents available to participants through video and document libraries.

Risk assessment as part of an early formative evaluation

by James Vesper (EPELA)

https://youtu.be/2cfevMOvzT8

running time: 03:31 min (2012)

James Vesper explains the risk assessment that is conducted as part of an early formative evaluation of the "Pharmaceutical Cold Chain Management" eLearning course.

Pharmaceutical cold chain management: Authentic eLearning course

by EPELA

https://youtu.be/mzz1U8GH8Js

running time: 04:08 min (2011)

EPELA's signature authentic eLearning course on "Pharmaceutical Cold Chain Management." This 12-week course takes participants along the supply chain to study the management of time and temperature sensitive pharmaceuticals. Received 2015 Hermes Creative Awards Gold recognition in eLearning category.

Using authentic learning for developing 21st Century pedagogical skills

by Hanna Teräs

goo.gl/KfCzMM

running time: 37:55 min (2011)

"Using Authentic Learning and Social Media for Developing 21st Century Pedagogical Skills in Teacher Education" is a demo session of the VIII International Seminar of the UOC UNESCO Chair in eLearning: "Teacher Training: Reconsidering Teachers' Roles" October 6, 2011 Barcelona.

Nothing stands still

by World Health Organization
https://youtu.be/lI4VCG6MeFM
running time: 17:50 min (2008)

The video of the WHO-PDA "Pharmaceutical Cold Chain Management on Wheels" course conducted during 2-7 June 2008 in Istanbul, Ankara, Konya, Eskisehir and Bursa (1,400 km route) in Turkey.


Longing for the wide open sea

by World Health Organization
https://youtu.be/dToojIPSCFc
running time: 19:39 min (2006)

An effective presentation is one of the most exciting and rewarding aspects of a facilitator's performance. Using variety of learning methods to keep participants' interest alert throughout the entire session and support stimulating, dynamic delivery increases the chances of success in reaching the learning objectives. An effective session justifies the time and effort invested in pre-course planning while generating productive interaction between the facilitator and participants. A "Facilitation Skills" course overview conducted in 2006 in Antalya, Turkey.

Annexes
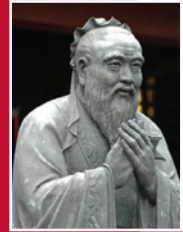
"By three methods we may learn wisdom: First, by reflection, which is noblest; second, by imitation, which is easiest; and third by experience, which is the bitterest."
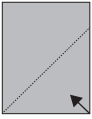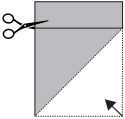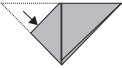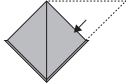
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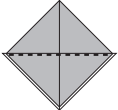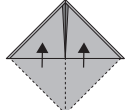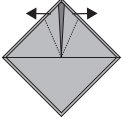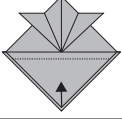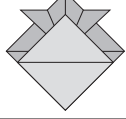
Annex 1. Samurai hat learning guide

Place a ✓ in case box if step/task is performed **satisfactorily**, an **X** if it is **not** performed **satisfactorily**, or **n/o** if not observed

Satisfactory: Performs the step or task according to standard procedure or guidelines.

Unsatisfactory: Does not perform the step or task according to standard procedure or guidelines.

Not observed: Step or task not performed by participant during evaluation by facilitator.

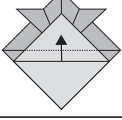|			Observation		
	1. Start by making a square piece of paper. To start making the square, fold one corner of a piece of paper over to the adjacent side.				
	2. To finish making the square, cut off the small rectangle, forming a square (which is already folded into a triangle).				
	3. Position the triangle so that the fold (the long side) is on top. 4. Fold one top corner of the triangle over so that it touches the bottom corner. 5. Do the same with the other corner.				
	6. Fold both of the tips up (fold at the dotted line pictured on the left), so that they go to the top.				
	7. Fold each of the upward-pointing tips outwards. Fold along the dotted line pictured on the left.				
	8. There are now two large triangles on the bottom. Fold the uppermost triangle most of the way up over the top half of the hat.				
	9. Fold the remaining strip of the triangle up and over the top part of the hat.				
	10. Fold the other large triangle up and into the hat.				

Annex 2. Demonstration skills learning guide and assessment checklist

(To be completed by facilitator and participant)
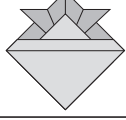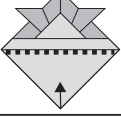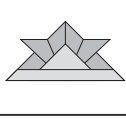
Place a ✓ in case box if step/task is performed **satisfactorily**, an **X** if it is **not** performed **satisfactorily**, or **n/o** if not observed

Satisfactory: Performs the step or task according to standard procedure or guidelines.

Unsatisfactory: Does not perform the step or task according to standard procedure or guidelines.

Not observed: Step or task not performed by participant during evaluation by facilitator.

Name of the participant:..

Step / task	Number of observations				
	1	2	3	4	5
Uses facilitator's notes or a personalized reference manual.					
States the objective(s) as part of the introduction.					
Presents an effective introduction.					
Arranges demonstration area so that participants are able to see each step in the procedure clearly.					
Never demonstrates an incorrect procedure or shortcut.					
Communicates with the model or client during demonstration of the skill/activity.					
Asks questions and encourages participants to ask questions.					
Maintains eye contact with participants as much as possible.					
Projects voice so that all participants can hear.					
Provides participants opportunities to practice the skill/activity under direct supervision.					

The participant is ready to demonstrate: Yes......... No.......
Name of the facilitator: .... Date observed: ....
Signature:...

Annex 3. Coaching skills learning guide and assessment checklist

(To be completed by facilitator and participant)

Place a ✓ in case box if step/task is performed **satisfactorily**, an **X** if it is **not** performed **satisfactorily**, or **n/o** if not observed.

Satisfactory: Performs the step or task according to standard procedure or guidelines.

Unsatisfactory: Does not perform the step or task according to standard procedure or guidelines.

Not observed: Step or task not performed by participant during evaluation by facilitator.

Name of the participant:...

Step / task	Observations				
Before practice session	**1**	**2**	**3**	**4**	**5**
1. Greets participant.					
2. Asks the participant to review her/his performance in previous practice sessions.					
3. Asks the participant which steps s/he would like to work on during the practice session.					
4. Reviews any difficult steps in the learning guide to practice during the session.					
5. Works with the participant to set specific goals for the practice session.					
During practice session					
6. Observes the participant as s/he practices the procedure.					
7. Provides positive reinforcement and suggestions for improvement as the participant practices the procedure.					
8. Refers to the learning guide during observation.					
9. Records notes about participant performance on the learning guide during the observation.					
After practice feedback session					
10. Greets the participant.					
11. Asks the participant to share feelings about the practice session.					
12. Asks the participant to identify those steps performed well.					
13. Asks the participant to identify those steps where performance could be improved.					
14. Refers to notes recorded on the learning guide.					
15. Provides positive reinforcement for steps the participant performed well.					
16. Offers specific suggestions for improvement.					
17. Works with the participant to establish goals for the next practice session.					

The participant is ready to coach: Yes......... No.......
Name of the facilitator: .... Date observed: ....
Signature:..

Annex 4. Typical list of equipment and stationery materials required for a course with 15 participants and three facilitators

Description	Unit	Quantity	Image
PVC name badge holder horizontal (both sides transparent)	piece	20	
Flip chart paper	page	100	
Permanent board markers with cut tip (not round), four different colors	each	7 of each color (less green and red)	
Glue stick (big size)	each	5	
Ball-point pens	each	25	
Erasers	each	25	
Pencils	each	25	
Pencil sharpener	piece	1	
A4 paper (white)	ream of 500	1	
A4 paper (5 different colors)	page	30 of each color	
Cardboard (heavy weight poster paper) - five different colors (50x70cm each)	sheet	2 of each color	

Description	Unit	Quantity	Image
Envelopes (five different colors)	unit	5 of each color	
Sticky note paper (10x15cm) various colors	pack	2	
Sticky note paper (10x10cm) various colors	pack	2	
Index cards (10x15cm)	pack of 100	2	
Transparent Scotch tape with dispenser	unit	2	
Extra Scotch tapes	unit	2	
Reusable adhesive tack (white or colored dough-like stickers for fixing paper onto the wall)	pack	5	
Double-sided adhesive tape	pack or roll	1	
Metal or plastic ruler, 1 m long	each	2	
Plastic ruler, 30 cm long	each	5	
Scissors	each	3	

Description	Unit	Quantity	Image
Paper clips	box	1	
Staplers	each	2	
Staple remover	each	2	
Staples	box	1	
Heavy duty two-hole punch	each	1	
Plastic transparent pockets with holes	each	25	
File ring binder 2-hole (4 cm thick)	each	18	
Binder dividers (10 pages each)	set	25	

Description	Unit	Quantity	Image
Material to divide into groups (cheap color beads, 15-20 postcards, small size candy bars, small gifts, etc.)	various	various	
Color printer (inkjet or laser)	unit	1	
Inkjet printer spare cartridges (black and color)	set	2	
Data projector HD (min 4,000 ANSI lumen)	unit	1	
Connection cables (HDMI and VGA) for data projector	set	1	
PC speakers (small)	unit	1	
Package tapes (for securing extension cables to the floor to prevent tripping over)	piece	1	
Multi-plug extension cables (min 3 m long)	piece	3	

Credits

(page iv) Hakan Gönendik; (page v) https://www.pinterest.com; (page viii) James Vesper; (page 1) https://www.pinterest.com; (page 2) http://www.p21.org; (page 3) Louis Bachrach (https://en.wikipedia.org); (page 9) Kemal Gökhan; (page 13) Hakan Gönendik; (page 14) Andrew Garnett; (page 17) https://www.biography.com; (page 20) Gençer Yurttaş; (page 21) NASA, goo.gl/Ahn1zG; (page 24 top) Gençer Yurttaş; (page 24 below) Ümit Kartoğlu; (page 32) Deniz Nala Kartoğlu; (page 33) https://www.literaturecambridge.co.uk; (page 34) https://www.toysrus.com; (page 36) http://howtotakecareofgoldfish.com; (page 37) Andy Gotts; (page 38 and 39) https://www.ted.com/; (page 43) https://pediatric-partners.com; (page 44 top and bottom left and right) Gençer Yurttaş; (page 46) Gençer Yurttaş; (page 48) http://unisci24.com/; (page 53) http://www.oexplorador.com.br; (page 53 bottom five, 57 and 58 top and bottom) Ümit Kartoğlu; (page 59) Gençer Yurttaş; (page 60) Hakan Gönendik; (page 61 and 64 top) Gençer Yurttaş; (page 64 bottom) Ümit Kartoğlu; (page 69) Gençer Yurttaş; (page 70) Ümit Kartoğlu; (page 71) http://www.dailymail.co.uk; (page 72 left) https://pixabay.com; (page 72 right) http://atlas.eshre.eu; (page 74 top, middle and bottom) Gençer Yurttaş; (page 76 top) Ümit Kartoğlu; (page 76 bottom and 79) Gençer Yurttaş; (page 92) http://motionforsimulators.com/; (page 96 and 97) Gençer Yurttaş; (page 98) Ümit

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About the author

Ümit Kartoğlu is a medical doctor and a scientist with the World Health Organization Headquarters in Geneva. Ümit began his career in Turkey, where he served at all levels of the national health system for over 10 years. He joined UNICEF in 1994 and has been with the WHO since 2001.

Ümit brought to life the WHO-UNICEF Effective Vaccine Store Management initiative; the Global Training Network for Vaccine Management; and the Performance, Quality and Safety (PQS) project. Currently Umit is coordinating the Global Learning Opportunities (GLO) network.

Ümit has developed a variety of courses, tools, and games for learning. He received seven international awards in the field of research and communication, including the 2010 IQPC Cool Chain Excellence Award and the 2011 and 2013 Ludwig Rajchman Public Health Award. Ümit was named as one of the "Temperature Controlled Logistics Leaders for 2012" by the IQPC's Temperature Control Logistics & Quality Network, an international industry peer group recognizing 15 of the most influential and inspiring thought leaders in the global pharmaceutical supply chain. He also received the 2015 Golden Award in the eLearning category of the Hermes Creative Awards for e-Pharmaceutical Cold Chain Management course and 2016 Platinum Award in the e-Book category of Marcom Awards for his book *Pharmaceutical and Vaccine Quality Illustrated*, published in 2016. In 2017, Umit published his most recent work on *Quality Risk Management Mental Modelling: Examples of exposure in everyday life*, and received 2018 Hermes Creative Golden Award in the e-Book category.
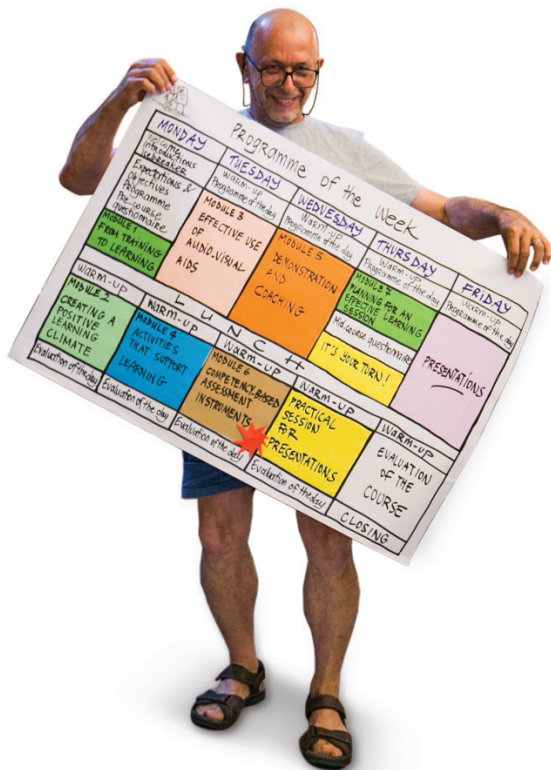
GO
AUTHENTIC
Activities that support learning

"*Go Authentic: Activities that Support Learning* is, as Camus put it, a "gift to the future." A future when learning will be active rather than passive, collaborative learning will be commonplace, tasks will be as authentic as possible, and assessment will be cherished rather than dreaded. In that hopefully near future, learning events will be as well-aligned as a precision racecar, and learning outcomes will be personally and professionally empowering. (…)

The need for transformational learning opportunities is evident in many fields beyond public health and pharmaceuticals. Enhancing human performance is absolutely essential if we are to meet the challenges facing humankind with respect to climate change, poverty, war, corruption, and the like. Arguably, we live in a time when education and training opportunities across all disciplines must become as transformative as the courses described in this book. To do this, the design and implementation of learning environments must be acts of "authentic creation" more than ever before. Please join us."

Thomas C. Reeves
Professor Emeritus of Learning, Design, and Technology
The University of Georgia

Extensio et Progressio