



Intellectual Outputs 4.0

IO4A1: TRAINING FOR TRAINERS: CONTENT EDITORS

PROMOTED BY:



Co-funded by the
Erasmus+ Programme
of the European Union



IN PARTNERSHIP WITH:

INCAMP

SUMMERIZE INFO

PROJECT TITLE:

CARBON NEUTRAL MANAGEMENT OF SPORT MARINAS
INTERNATIONAL MASTER MODULES PROGRAMME (**INCAMP**)

IO REFERENCE:

IO 4 (Training for Trainers: Content Editors)

TASK REFERENCE:

IO 04/A1

INCAMP CONTACTS:

florin.ioras@bucks.ac.uk

AUTHORS AND AFFILIATION:

Buckinghamshire New University (BNU)

DATE:

2021 Jan

DOCUMENT VERSION 1 STATUS:

V.1

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

TABLE OF CONTENTS

1.1	Forming basic competences for delivering digital content	3
1.1.1	The competence to facilitate individual and group learning processes.....	3
1.1.2	The competence to design educational programmes.	4
1.1.3	The competence to direct learning	6
1.1.4	The competence to co-operate successfully in teams.....	8
1.1.5	The competence to communicate meaningfully with others.....	13
1.2	How to develop digital educational assessment content	17

1. TRAINING OF TRAINERS

This activity enables both teachers and content developers to improve their teaching skills, standardize methodologies, share teaching methods, pedagogical approaches and tools among both teachers and content developers. The intention was to improve students' perception of the unified team using a rigorous work methodology.

1.1 Forming basic competences for delivering digital content

This activity was aimed at developing a tool to enable trainers form essential competences and the motivation to contribute to the improvement of skills as trainers. In line with the European Training Strategy in the frame of Erasmus+ Youth in Action programme the ToT-course considers the following 6 competences to be essential when working as a non-formal education trainer:

- The competence to understand and facilitate individual and group learning processes.
- The competence to design educational programmes.
- The competence to direct one's own learning (Learning to Learn)
- The competence to co-operate successfully in teams.
- The competence to communicate meaningfully with others.
- Intercultural competence.

The educational approach implemented in this ToT content intends to allow for these different learning needs to be identified and pursued.

The ideas presented below could be read by all those engaged in Master's as a standalone text that could guide the thinking and the practice of preparing young people for any profession at vocational level. The intention is to offer readers an opportunity to reflect on their own practice and to enrich it by exploring what others do successfully.

1.1.1 The competence to facilitate individual and group learning processes.

Teaching relationships

- It is widely admitted that teachers' commitments to their learners – the relationships they develop with their learners and the range of roles that teachers take – are crucial components in HE as well as in any other educational environment at all levels.
- Teaching relationships refer to the relationships teachers develop with their learners as well as how learners relate to each other. The tutor-learner relationships are identified as 'the most important link in the learning process', (TLRP, 2006). A meta-analysis of learner-centred teacher-learner relationships confirmed its importance. It seems that positive teacher-learner relationships are associated with optimal, holistic learning with above average mean correlations when compared with other educational innovations for cognitive and behavioural outcomes (Cornelius-White, 2007).

- The way in which a teacher interacts with learners sets the scene for the subsequent learning to take place. Teachers felt that their relationships with learners were of prime importance for the teaching and learning to be effective. The features of effective teacher relationships included:

Getting to know learners, knowing which learners need more attention

Good rapport – listening, high expectations

Building trust

Humour – used appropriately and never descending to sarcasm

Relaxed atmosphere – relaxed learning with elements of fun

Mutual respect – respect of other people's opinions

Behaviour management – so that all of the group have the chance to learn.

Active learning, while carrying out assignments or projects, for instance, gives many opportunities for teachers to build relationships with learners. The teacher's role during this activity can take various forms: demonstrator, organiser, coach, mentor, facilitator, reflector and even co-learner. A relationship of trust between the teacher and learners is likely to develop while working together and discussing issues at various stages of the assignment, so that the teacher becomes an 'accomplice' in the learning process rather than the knowledge base.

1.1.2 The competence to design educational programmes.

Those involved in designing new educational programmes need to have a good understanding of the models commonly used in developing learning programmes. The way in which teaching takes place is strongly influenced by a series of circumstantial and educational factors. Models are prescribed structured sequences, which are designed to elicit a particular type of thinking or responses, to achieve specific learning outcomes. However, it is very useful for teachers to understand the concept of a teaching model and to comprehend the main features of the many existing models.

Teaching models are derived from theories about teaching and learning. Each model can be described as a structured sequence, which is designed to elicit a particular type of thinking or response, to achieve specific learning outcomes. The choice or use of the appropriate model, or combination of models, is influenced by the type of learning objective and nature of the learner as well as other factors such as teaching strategies and teaching skills. A strong body of research and practice suggests that the consistent use of specific models can make learning more effective (DfES, 2004, Hattie, 2009 and Marzano, 1998).

The term 'teaching model' has been used to describe many other approaches. In different documents a number of terms appear to be used interchangeably – models, strategies, approaches, techniques, and methods name just a few. Teaching models are not the 'real world' but merely a way of helping us understand and think about teaching. There are a vast number of teaching models – some are variations of others – and they come in many shapes, sizes, and

styles. Some terms, such as 'demonstration', can be used for both a teaching model and also a strategy or method. To draw the distinction between a teaching strategy and a teaching model, the definition of a used teaching model has two distinctive features. The first distinctive feature is the nature of the learning objective and outcome required and whether the learning is related to:

- Acquiring and learning skills, procedures, knowledge, and the like, or
- Processing information, building concepts and rules, generating and testing hypotheses and thinking creatively, or
- Collaboration and learning together to construct new knowledge and understand concepts.

The second distinctive feature is the structured sequence of steps or phases (the syntax) used to achieve that particular type of learning objective. In teaching models, it is the tight linkage between these two aspects that defines a teaching model. Strategies do not have the same linkage and may be deployed more widely, as an essential part of a teachers' repertoire to achieve a range of learning outcomes.

- The term teaching model is also used in vocational teaching and learning to describe other different concepts. If these concepts lack the distinctive linkage between the two particular features above, then they are not what is meant here by a teaching model.
- In developing teaching models in the vocational context, it is useful to compare teaching models to find the similarities and differences between the models. This could then serve as a guideline to teachers when selecting or adapting a teaching model or combination of models. The work of Ji-Ping and Collis (1995) offers suggestions for comparing models using a set of appropriate questions to answer against each teaching model. With adaptation, this could provide a useful basis for further work in vocational learning. There are four aspects suggested: teacher aspects, learner aspects, the degree of flexibility or adaptability of the models and aspects related to effective theoretical and technological supports. The following are some specific questions for each aspect that can be used in a comparison of teaching models.

1. Teacher Aspects

- a) How easily can the average vocational teacher manage the model?
- b) To what extent does the model save teaching time (including preparation time for the lesson)?
- c) How likely is it that the model will be accepted and used by the average teacher?
- d) To what extent does the model give full play to the teacher's professional knowledge or skill?

2. Learner Aspects

- a) How much initiative is given to learners within the model?
- b) How adaptable is the model to individual differences in the learners?
- c) How well can the model be adapted for learners of different ages?

d) How well can the model be adapted for different sorts of learning goals?

3. Flexibility and adaptability

a) How easily can the model be adapted to the present organisational system in the vocational area and to the current standards for learner assessment?

b) Can the model be well adapted to a variety of vocational areas?

c) How easily can the model be combined with other models?

d) To what extent is the model adaptable to cultural expectations for learner and teacher behaviour?

4. Theoretical and Technological Supports

a) Was the model developed using an appropriate theory?

b) How much research and evidence are available to show the model is internally valid?

c) In what ways might the model be well supported by technologies and media?

d) Are the technologies and media most suitable to the model readily available?

This structure for analysis of models could offer a good starting point to begin to identify which teaching models are most appropriate for the education and to identify the relevant aspect of each of the teaching models.

1.1.3 The competence to direct learning

Direct teaching, one of the 'classical' ways of teaching is particularly effective in enabling learners to acquire skills. It is a very structured approach involving a high level of interactivity which is teacher-directed and involves direct communication usually with a whole class, although it might be undertaken with an individual or a small group of learners. Direct teaching has the highest level of effect among the range of teaching strategies, though this may be in part because 'Direct Instruction' is a 'Russian Doll' that includes many other strategies such as active learning, reviews, and homework, so there is an additive effect (Petty, 2009). This model usually involves direct input from the teacher together with a strategy of modelling or demonstration and clear instructions to the learners. The teacher then checks the learners' skills or understanding, provides guided practice and ultimately the learners undertake independent practice.

Programmed learning is a self-paced, self-administered programme (computer based for example) presented in a logical sequence and with much repetition of concepts or skills.

- Sequence of Activities (syntax)
- The lesson starts with the learners all at the same stage and the teacher employs direct teaching.
- Phase 1 – In the first session, the teacher logs on to the computer with the screen visible to the learners on the wall and the learners log on to their computers. The teacher draws the square first, as it's the easiest. The teacher clicks on the line tool and tells the learners to find and click on the line tool. The teacher draws a line of a given length, 45mm. As she demonstrates, she describes what she is doing.
- Phase 2 – The learners select the tool and draw the line of 45mm and then draw a square.

- Phase 3 – The teacher questions the learners and checks their progress, guiding them as required.
- Phase 4 – Once they are confident, learners practise by drawing squares of different sizes on their own.
- The teacher demonstrates the tools necessary to draw a circle and the cycle of phases repeats. The session proceeds step-by-step until all the tools and skills have been covered. When an individual learner is stuck, the teacher sits next to the learner, takes the mouse, demonstrates and describes what to do, then asks the learner to do exactly the same. If the learner makes a mistake, the teacher explains what is wrong and makes the learner repeat the task correctly. The learner practices until the skill is established and the teacher does not take the mouse again but might point to the main screen or question and prompt the learner if required.

Direct teaching using physical guidance

In a design session, the teacher provides direct teaching with physical guidance to help learners acquire the learning objective of mastering the skill of modelling. In terms of context, the session takes place in a workshop. The teacher is also concerned with his relationship with the learner. He is very aware of the issues of personal contact and invading personal space so ensures that he has the learner's consent for physical contact. The teacher guides the learner and progressively removes his support, a process described as 'scaffold' learning.

- Sequence of activities (syntax)
- The teacher had previously demonstrated modelling.
- Phase 1 – The teacher asks the learner if he minds if he guides his hands; the learner agrees. (The teacher points out that if the learner had objected, he would not have done so.)
- Phase 2 – The teacher holds both of the learner's hands as he starts to model because the learner does not yet have the fine motor skills.
- Phase 3 – The teacher tells the learner that she is slowly going to take her hands away and she wants the learner to carry on. (She explains that if she had just removed her hands without warning, the learner's hands would have gone up).
- Phase 4 – The teacher removes her hands and the learner continues to model unaided.

The teacher comments that it is a contentious technique but it is an effective way of teaching someone to model. She points out that often they hold the mould too far away from the work. Teaching them the right distance is important, as the learner needs to operate safely. 'If you tell them to go closer they might go too close and then the model could dip into the pool and splash.'

Direct teaching using demonstration

There are a number of ways of implementing the direct teaching model. The model presented here is known as the 'PAR' model: 'Present, Apply and Review', which is a structured-skills version that could be suitable for many vocational areas.

- There are three stages:
 1. Present new material
 2. Apply this new learning (learner activity)
 3. Review the skills learned in this lesson.

The teacher in this session uses the teaching model of direct teaching and the strategy of demonstration as the tool, in this case, to present new material and achieve the learning objective of acquiring the skill of technical drawing.

- Sequence of activities (syntax)
 - Phase 1 – The teacher sketches a drawing on the white board. This is done in stages, to teach the learners how to do a technical drawing.
 - Phase 2 – The learners copy the drawings stage by stage, as the teacher does them.
 - Phase 3 – Once the learners have completed their drawings, the teacher talks about what they have copied, goes round to each learner and provides feedback, praising good drawings and indicating where they need to improve.

The teacher points out the importance of being able to draw so the customer can see exactly what the technical specialist is intending to do... 'and this is why tradespeople should be able to express themselves not only in the written word but in sketches.'

1.1.4 The competence to co-operate successfully in teams.

Strategies for group and individual learning

Teachers use their skills in deciding how to manage the learning process. This section includes activity-based learning using the strategies of working in pairs or with a peer, small-group work, whole-group work, and individual work. Many of the strategies described could be used within teaching models that focus on group and cooperative learning and belong to the 'social' group of teaching models. Group work and cooperative learning can shift the responsibility for learning from teacher to learner.

Pairs

Working in pairs is a valuable way of promoting good learning experiences operating along with a set of other ways of learning. Pairings can be learner-chosen, friend-orientated, random or chosen by the teacher related to abilities – both similar and diverse. For a role-playing session, the teacher picks the pairings having a good knowledge of the learners and enables effective pairings.

Pairing can be used to promote the development of communication and social skills as well as

group cohesion as in this example of a plumbing session. Sometimes pairing a more able learner with a less able learner can benefit both, as can two learners that have complementary skills being paired.

Pairing can also be used to enable the development of other aspects of learning, such as attention to appropriate detail in planning. Peer explanation reinforces understanding of learning both for the recipient and the person explaining. It can really help some learners as a supplement to the teacher's information.

Peer help can also act as a role model in showing that something can be done – it provides motivation for others.

Small-group work

Splitting the whole group into smaller clusters can happen in many ways and is prevalent in vocational education. Apart from the curriculum learning aspects of group work there is also the valuable social interaction and motivation associated with working together. Small-group activities include:

- Production of a presentation with each person playing a part
- Putting together a piece of work, such as a questionnaire, or building something through group discussion to formulate ideas, decisions or content for pieces of work
- Groups competing against each other via quizzes, for instance, to promote learning during assessment
- Carousel activity where learners move from table to table
- Individuals coming together to complete a piece of work as a group
- Group work on a project followed by individuals then taking their version forward
- At the end of a session, reinforced learning via questions and answers.

This example illustrates the use of small-group work to make sure that everyone has all the information they need and interest and concentration is maintained.

- Role-play in small groups can be a useful learning tool to reinforce learning as explained in the example below. Role-play can also be used in a larger group with some observing and some playing their parts.

Whole-group work

Whole group activity can take many forms and includes:

- Discussion on a particular topic facilitated by the teacher, perhaps following a presentation or demonstration
- Debate carried out in formal debate mode or more informally
- Games (such as the domino illustration below)
- Whole group activity following individual, paired or small group activity to bring a topic/activity together: this might be individual research, for instance, followed by a whole-group debate activity where groups move around a space, for instance, moving to different corners of the room to answer questions or vote on a particular topic.

Carrying out a whole group activity can have advantages and disadvantages, as illustrated in the

following example. Since all learners are working at more or less the same pace, it is easier to keep track of them and easier to control the group, but then some of the group may be relying on others and it is harder to ensure that all have understood. The following example involves a game of dominos with each learner having one card carrying a word and a description of a different word. The idea is to link the dominos so that words and their descriptions are next to each other.

Individual work

Individuals carrying out learning on their own are often a part of many other ways of learning. For group learning, part of it will be a learner writing, carrying out research or reading. There might be individual work that is then swapped with another for paired work. Learners might complete an audit sheet as they carry out an individual task, such as installing software onto a computer.

Individual work can also replicate working in industry by carrying out a task alone. Learning carried out outside the classroom/workshop at home or in the library is often an individual task.

An example would be a computer-aided design (CAD) session where the learners work on their own to become familiar and expert at using CAD for drawing diagrams for construction. Although there would be some collaboration, it is essentially a solo task. Although links with employers can be a group activity, it is also something that learners can complete on their own. This enriches the learning and provides experience of working outside the classroom as well as offering an insight into how the industry works. In this example, an employer wants a web site designed and the teacher encourages the learner(s) to take the 'job' from start to finish, including the initial contact.

Constructivism, group investigation

Group investigation attempts to recreate a democratic atmosphere in the classroom where the learners work together to solve a problem. The contribution of each member of the group makes the outcome better than if individuals do it. Group investigation puts the learners in charge of the learning and allows them to investigate what interests them most. (Sharan and Sharan, 1989).

- Group investigation goes beyond cooperative learning and follows the following six steps:
- Learners are given a problem
- They discuss ways to solve it
- They plan how to carry out the investigation in a group and assign roles
- They work together and independently
- They analyse progress and report findings, and the process is evaluated (Abordo and Gaikwad, 2005).

The example below shows some of the elements of constructivist learning and group enquiry while not following the entire model. The learning objective is for learners to be able to identify the country and age where a certain carbon neutral management object is located. The teacher in a history of design session helps learners to construct knowledge about the carbon neutral management and where in the world objects are located. The teacher initially draws on learners' current knowledge and experiences. She then introduces concepts of known and unfamiliar

carbon neutral management and then arranges a series of tasks to enable learners to construct their knowledge of both location and period of time when these were produced.

- By asking the learners to produce displays, the teacher could assess the learners' new knowledge by seeing what they had found and by asking them questions.
- Sequence of activities (syntax)
- Phase 1 – To introduce the topic, the teacher provides the learners with a sheet giving an overview of pieces of carbon neutral management and their location in time and space. She then leads a discussion by picking out one of the destinations and asking who has seen similar pieces. The discussion is split between European and worldwide attractions and includes carbon neutral management such as the thrones of different monarchs – objects with which learners are familiar, even if they have not seen one.
- Phase 2 – The teacher shows a short video of a carbon neutral management – the rocking chair of Churchill – and indicates where it is located.
- Phase 3 – The teacher gives the learners an A4 copy of the map of the world and lots of carbon neutral management brochures and magazines. The task is to find pictures in the brochures of as many famous carbon neutral management environmental artefacts as possible, to indicate on the world map where these objects are located, and to make a display on a large sheet of paper. The learners look at the Atlas to identify the locations and the year.
- Phase 4 – The learners have to research two interesting facts about each carbon neutral management piece to add to their displays. They also have a carbon neutral management design guide that they can use.

Using debate in groups

In this case, the teacher used a learning activity in the form of a debate to enable learners to develop their concepts and understanding of the differences between two different types of tools. There was a subsidiary learning objective to this activity, developing the skills necessary for a debate. The functional skills of communication and listening were thus embedded in the activity.

- Sequence of activities (syntax)
- Phase 1 – The teacher gives each group of learners' specifications of different carving tools together with the advantages of each.
- Phase 2 – Each group has to decide how to present the advantages of the carving tool.
- Phase 3 – The teacher explains and writes up the rules for the debate: listening, not butting in, keeping eye contact etc.
- Phase 4 – Each group has 5 minutes to decide how to use their tool and the others then have to work out what the advantages and disadvantages of it might be.
- Phase 5 – The teacher chairs and opens the debate to the floor for questions. The teacher then employs teaching skills to ensure that every learner contributes.

Cooperative learning using scenarios

In cooperative learning, groups of learners work in small groups to maximise their own and each-

others' learning. Derived from the work of Slavin (1995), the elements in the cooperative learning teaching model are: clear and positive interdependence between learners, face-to-face interaction, individual accountability, an emphasis on interpersonal and small-group skills, and group review to improve effectiveness.

The teaching model in this example has elements of cooperative learning and the strategy employed is the use of a scenario. The learning objective of the session is, for example, to use the information provided in a scenario to produce a typical risk assessment. As part of the context for this session, the learners are employed and the activity requires them to draw on their experience to identify the hazards in a carbon neutral management workshop.

Sequence of activities (syntax)

Phase 1 – The teacher introduces the session and provides a scenario of a workshop hosting a series of tools and machines in which there are many hazards.

Phase 2 – In groups of three the learners complete the first two columns of a chart – identifying what the hazards are, who might be harmed, and how. They draw on their own knowledge and experience to do this.

Phase 3 – Each group presents their findings in turn and they are all merged into a single composite document. By the end of the session, they have all contributed – each group providing something different or a new slant on things and the whole class has a detailed document.

The teacher's role in this model is to set up the scenario and environment, then to guide the learners, who then take responsibility for working together and for each others' learning.

Role-play

Role-play is a model that focuses on social interaction, improving social skills and developing a personal understanding of values and behaviour. Located in Joyce's social family, the role-play model has its roots in both the social and personal dimensions of learning. The purpose of role-playing is to assist learners to understand an issue from different points of view by acting it out, either taking different roles or observing. It allows learners to look at a situation through someone else's eyes, to take a different perspective and empathise. Role-play offers an effective way of exploring feelings, attitudes, values and solving problems. It actively involves learners' and draws on their experiences.

There are nine stages in role play, as defined by Shaftel (1970): (a) warming up the group, (b) selecting participants, (c) setting the stage, (d) preparing observers, (e) enacting the role play, (f) discussing and evaluating, (g) re-enacting, (h) further discussion, and (i) sharing experiences/generalisation. Each of these stages has a specific purpose that contributes to the richness and focus of the learning activity. According to Joyce et al (2000), role-playing provides an opportunity for 'acting out' conflicts, collecting information about social issues, learning to take on the roles of others, and improving learners' social skills. The teaching model of role-play emphasises both intellectual and emotional aspects. The analysis and discussion following the role-play are as

important as the role-playing itself.

The teaching model of role-play could be found in all the occupational areas; however, the model tends to be less employed in traditional carbon neutral management workshops.

The learning objective in the session used as an example below is to find out about quality assurance and the teacher uses the teaching model of role-play.

- Sequence of activities (syntax)
- Phase 1 – The teacher uses PowerPoint slides to introduce the topic of quality assurance and the benefits of quality assurance followed by questions and answers.
- Phase 2 – The teacher pairs the learners and gives them a card with a scenario on carrying out quality assurance of a product. The scenario requires one of the learners to be the employee and the other to be the customer. The teacher explains why the process is important and also the importance of writing things down formally. She defines what the roles are for the two people taking part in the role-play and gives clear instructions about who should be asking the questions and that feedback they provide should be constructive. The teacher shows another PowerPoint slide with the rules for the quality assurance – that it should be motivational, positive and so on.
- Phase 3 – All the learners carry out the role-play in pairs.
- Phase 4 – The teacher gives a handout containing a quality assurance role-play checklist. There are two columns to it – one column involves questions for the employee and one for the customer. They include questions such as, 'Did the customer check the quality of the product?' 'Did you feel satisfied?' 'Why?'
- Phase 5 – The teacher asks the learners about the role-play, including how they felt about it.
- Phase 6 – The teacher recaps on the session.

1.1.5 The competence to communicate meaningfully with others.

Strategies for giving information

Presentation

Presentation encompasses giving information in a number of ways, including:

- Teacher explanation often at the start of a session – 'this is what we are going to do, these are the objectives for the session'
- Giving information/instruction and checking that learners understand by, for instance, use of questioning
- Clearly presenting information at the start of a session and then linking to other teaching strategies – presentation followed by immediate activity
- Guest speaker input – from the relevant vocational sector
- Providing information through different sensory modes: visual, audio, kinaesthetic
- Providing information through a variety of mediums – video, board, paper, work-book, actual demonstration, verbal explanation, questions and answers and practical activity
- Short PowerPoint or other computer-based presentations for information, recapping on a

previous session, setting exercises or structuring a session.

Some teachers use PowerPoint presentations as a convenient way of structuring their sessions and as an aide memoire to ensure that they cover everything.

Slides cover the learning objectives for the session and instructions for tasks or activities and can be printed to give to learners during or after the session.

Demonstration

Demonstration has the added dimension of an explanation by example, a display of some sort – often accompanied by verbal explanation, though not always. It is usually important to follow the demonstration with a related activity. A teacher can use a variety of technological aids.

- Demonstration examples include:
 - The physical demonstration of a skill such as holding and using a blow torch, or how to decommission and reassemble a computer
 - A means of showing how something is done and that the tools being used are adequate for the job.
 - Demonstration of an activity, showing how to develop a planning process – for instance, with a sample of what the end result could be like
 - Using technology such as Moodle and/or Storyboard to show what is required as well as giving information to set the scene, and use of Smart Board to demonstrate tasks such as putting a joint together in construction.
 - While showing the way to do something, ensuring that learners understand that there are different ways of doing things and that if the end result is successful then that is alright.

With demonstration, impact is an important factor: the following example as described by a senior manager shows how a simple demonstration can really help the learning process.

Strategies involving technology

Educational technology is the study and practice of facilitating learning and improving performance by creating; using and managing appropriate technological processes and resources.

Use of technology in the delivery of teaching and learning for any vocational area is increasing all the time. It is also one of the ten approaches described by LSIS as effective in promoting effective learning. Examples drawn from the literature include:

- Interactive whiteboards
- Computer(s) in each learning room for various uses
- Web pages for storing and accessing learner work
- Multimedia learning
- H5P: free and open-source content collaboration framework to make it easy for everyone to create, share and reuse interactive HTML5 content: Interactive videos, interactive presentations, quizzes, interactive timelines and more. To use HTML5 ensures that can be displayed by all LMS (Learning Management Systems) platforms independently of the operative system, device and the navigator.
- Moodle (Modular Object-Oriented Dynamic Learning Environment) providing an organised interface for e-Learning, or learning over the internet

- OPIGNO: Open Source e-learning platform based on Drupal (broad used Content Management System) that allows you to manage your online trainings, and efficiently ensure that student, employee and partner skills remain up to date.
- E-Learning through applied packages and on-line learning
- M-Learning – learning on the move including use of mobile phones
- IT-based packages for self-assessment
- Computer-generated quizzes and games
- Internet research
- Podcasts
- Mobile-phone technology
- Computerised tracking.

Learning organisations are changing at different rates. Some have utilised state-of-the-art technology, which has been useful in the engagement of learners, and some are lagging behind. Funding is one issue here, along with cultural change.

The learning materials developed within INCAMP contain English and Spanish all the training materials developed during this project:

The teacher can take this Platform as supporting tool for his/her teaching activity selecting the more according for his teaching activity.

The Platform supports mobile environments and it is prepared to contain future training materials about carbon neutral management.

Strategies for reinforcing learning

Opportunities to practice-repetition

Practice and repetition help to ensure that the learning undertaken is remembered. Opportunities for this can be provided in different ways and include the examples below taken from the observations and interviews:

- Repetition of practice with regard to usage every time learners use computers
- Practice combined with questioning to memorise information about, for instance, 49 countries for a carbon neutral management
- Facilitating discussion to ensure that everyone understands what they are doing and how they can go back to an example to assist them if they get stuck
- Learners writing about what they have achieved to show that they understand what they have learned and recognise the importance of being thorough when, for example, writing a plan and being able to follow instructions
- The teacher checking on each learner as they progress: each time there is a repetition task, the learner should need less intervention
- Referencing back to objectives to reinforce learning
- Recapping sessions at the end of lessons to see what knowledge has been retained
- Weekly recapping to make sure of correct understanding – through Moodle, for example by creating crossword questions, automatic marking, and an assessment grid to show individual progress.

Questioning

Effective questioning can be used to reinforce learning and includes a combination of low-level and high-order questions for deeper learning and can be used to keep learners at work and to check their understanding (Redfield and Rousseau, 1981). Examples of questioning drawn from the fieldwork visits include:

- Use at the beginning of a session and throughout to ascertain prior knowledge and links to advance organisers
- Use to check understanding and identify who is not fully engaged with the task
- Use to encourage evaluation by learners of their work and their learning, through the use of appropriate questions applied in a variety of forms; mainly open – and not just superficial but going beyond the initial response to probe deeper
- Use to check understanding by returning to a learner who may not have fully understood previously in response to questions asked: the teacher does not supply the answer, but challenges the learner to work it out – involving other learners to supply the answer if appropriate.

For questioning, it is helpful to involve all learners, not just the assertive and self-confident who want to answer the questions all the time. Sometimes learners will want not to offer an answer when they may be uncertain. One teacher solved this issue by using learners to nominate someone to answer the next question. Questioning can be used in an elimination strategy so that learners move towards the right answer.

Strategies to develop learning skills

Assisting learners to become more effective learners, to 'learn how to learn', enables them to learn knowledge and skills more efficiently – a valuable skill in itself for life. Active control over the thinking processes involved in learning is referred to as metacognition. Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are metacognitive in nature. Because metacognition plays a critical role in successful learning, it is important for both learners and teachers. Metacognition is often referred to as 'thinking about thinking' and can be used to help learners to 'learn how to learn'. In some interviews, teachers explicitly described their intention to develop higher-order thinking skills.

If the culture of the organisation in which learning takes place systematically cultivates habits and attitudes that help learners to be confident of their own learning ability and to be creative, then learners are likely to learn faster, concentrate more, be more resourceful, more imaginative and more collaborative, so learning can become more enjoyable. Activities that encourage effective learning and higher-order thinking include:

- Asking questions that encourages the development of imagination
- Evaluation activities
- Researching to prepare for an assignment, particularly with peers
- Tasks in which learners need to reason and apply learning in a way that requires higher-order thinking

- Considering new information and making sense of it
- Investigative and experimental tasks
- Taking part in role-play sessions – looking at it from another person’s point of view
- Simulations to give experience of work situations
- Adopting step-by-step approaches – building one-step at a time cumulatively.

In order for learners to become more effective and develop higher-order thinking they need to be exposed to activities such as research and analysis.

1.2 How to develop digital educational assessment content

Assessment ‘of’ learning can take a number of forms and may depend on the curriculum design and/or delivery methods. It includes self-assessment, peer assessment and teacher assessment by using questions, paper-based or computer-generated tests, demonstrations, or games. Assessment methods are not always under the control of the teacher as they might be specified by the awarding organisation.

Assessment ‘for’ learning is recognised as an effective way of assessing that also contributes to learning. Assessment is: ‘about assessing progress and analysing and feeding back the outcomes of that assessment positively and constructively to agree actions to help the learner improve and adapt teaching methods to meet the learner’s identified needs.’ (QIA 2008). Ten principles of assessment for learning have been identified as being: (a) part of effective planning, (b) focused on how learners learn, (c) central to classroom practice, (d) a key professional skill, (e) sensitive and constructive, (f) capable of fostering motivation, (g) a promoter of understanding the goals and criteria, (h) an assistant for learners to know how to improve, (i) a developer of capacities for self-assessment (and peer assessment), and (j) a recogniser of all educational achievement (DfES 2002). It is about the teacher and the learner working together to assess progress and contribute to effective learning.

In practice, teachers tend to use a variety of methods of assessment including:

- Assessment as a learning tool – assessment for learning
- Self-assessment and teacher evaluation/feedback with assignments written on Moodle or OPIGNO, avoiding too much paperwork and automatically generating an achievement grid for learner/teacher assessment of progress, and hence feedback
- Self-assessment of understanding through the traffic-lights method
- Checklists to self-assess
- Peer feedback to provide assessment
- Workbooks
- Mock tests
- Quizzes, crosswords and games as sources of fun
- Learners being empowered to choose their own assessment format.

Different modes of testing keep the learners interested, as does the use of incentives.

Teacher reflection

Teacher reflection is a three-fold process comprising direct experience, analysis of beliefs, values or knowledge about that experience, and consideration of the options that should lead to action as a result of the analysis.

As work progressed against the framework, it became clear that there was one additional, distinctive feature that in part defined vocational learning and that was the context within which it takes place. Effective teachers are reflective; they constantly review their practice, discuss it with their colleagues, consider their learners' responses and seek to develop new and better ways of teaching. The concept of reflective practice was introduced by Donald Schon (1983) and given currency by Kolb (1984) in his experiential learning theory. It involves thoughtfully considering one's own experiences as one makes the connection between knowledge and practice, under the guidance of an experienced professional within a discipline (Schon, 1996). Moon (1999) defined reflective practice as 'a set of abilities and skills, to indicate the taking of a critical stance, an orientation to problem solving or state of mind.' In essence, it is a readiness to constantly evaluate and review one's practice in the light of new learning (which may arise from within the context of professional practice). After its introduction, many VET organisations started to incorporate reflective practice into their educational and professional development programmes. It was evident from practitioners in this study that reflection was an important and well-established part of their professional practice.

Examples are provided of reflective practice in terms of responding to learner feedback, improving practice through personal reflection and sharing with colleagues to improve practice. Teachers used a number of different ways of developing their repertoire of skills. These included: learning from experience, observation of teaching, as well as learning from the support of colleagues.

Reflective practice

There was considerable evidence from observations and interviews that good teachers are always learning, building their own skills and teaching themselves. They undertake lots of research to inform their planning and delivery. They are self-critical, recognising when things do not go well, trying to understand why, and formulating ideas about how to improve.

Teachers evaluate their practice and reflect on how they might improve aspects of their sessions. They reflect on the way that they teach something so that they do not necessarily just teach it the way they were taught but think about how it might be improved.

Responding to learner feedback

The importance of learner feedback is evident from the literature with examples of teachers sharing practice with colleagues and collecting and using learner feedback:

It is experience really and assistance from my colleagues. You need to exchange practices so you do not stagnate to the same routine. I also give feedback sheets to students. I want to see through their eyes because sometimes as teachers we think of how we want to learn or what we would like but that doesn't mean that this is what the students like. Some approaches might suit me but that doesn't mean that they suit them.

Feedback from students

It is reaction from students that is important. You can walk out of a class and think to yourself:

“that was brilliant but the students didn’t think it was brilliant, so it’s not brilliant”. The students are your judges so if students are enjoying it and they’re taking part, they’re keen, they’re answering questions, then you can say it’s reasonably successful, you’ve achieved what you need to achieve. If they’re not, then there’s an issue and one has to think of other ways. This teacher also reflected on the session from a learner’s perspective, asking questions such as: “If I was a learner in that lesson, how would I have assessed it? Would I have enjoyed it? Would I have been interested throughout?”

Teaching context

Teaching context covers a mixture of elements and includes the nature of the vocational subject, the setting where teaching and learning takes place, the objectives and desired outcomes for a session, plus specifications of the qualification, the nature of the learners, their level, and how they learn best – including their learning styles. Context is such an important factor in vocational learning that it warrants separate consideration. Vocational context is largely responsible for defining the nature of the learning that will take place. Consequently this new (fifth) component emerged to add to the Framework.

The literature in this area refers to context and its importance in vocational learning. In a recent publication, the Institute for Learning stated that brilliant teaching and training comes from the combination of a deep understanding of learning and the use of ‘learning to learn’ strategies applied within the context of a vocational subject and workplace setting (IfL, 2010). Kerka also commented on the importance of context on the effectiveness of learning, ‘other key features of knowledge construction are: (a) functional context, (b) social context, and (c) usefulness. The process works most effectively when it is embedded in a context in which knowledge and skills will be used.’ (Kerka, 1997). Other research findings support the value of contextualised learning that provides opportunities for knowledge acquisition and construction, practice and reinforcement, in ‘natural settings’, such as the workplace (Billett, 1993).

The concept of situated learning, developed by Lave and Wenger (1991), that ‘knowledge is created and made meaningful by the context in which it is acquired’ (Farmer et al., 1992), is deeply embedded in work-based vocational learning and in teaching models derived from constructivism. Two basic principles underlie situated learning. First, knowledge needs to be presented in an authentic context: i.e., in the setting where knowledge would usually be applied. Second, learning requires social interaction and collaboration: context is a broader concept.

In addition to the setting or location where the learning takes place, we include within this context:

- Learning objectives and desired outcomes for a session or part of a session;
- Nature of the learning such as the vocational subject area, and whether is it theoretical or practical;
- Level of the learning;
- Specification and requirements of the qualification or course;
- Nature of the learners: how they learn best, including their learning styles or any particular difficulties they might have in learning;
- Composition and size of the group of learners and the learning environment, including the

resources and facilities available.

Analysis of trainers' needs

VET aims at preparing learners effectively for real workplaces, which means that the acquisition of competences should take into account the requirements of companies and industry. It is now widely accepted at a European level that VET should be competence-based. Competence-Based Education and Training should enable employees not only to increase their knowledge and skills at the workplace, but also to gain nationally accredited certificates for workplace-based learning. The self-paced and flexible structure of CBET programmes should encourage learners to become responsible for their individual learning process. The modular structure allows for individual combinations of competences limited only by certain 'packaging rules', which refer to accredited national vocational qualifications.

The purpose of nationally endorsed competence standards being at the core of CBET is on the one hand to transform the requirements of industry and enterprises into the world of learning. On the other hand, standards provide transparency of competences underlying vocational qualifications.

Competence-Based Education and Training (CBET) is an approach to VET, in which skills, knowledge and attitudes are specified in order to define, steer and help to achieve competence standards, mostly within a national qualifications framework. Deisingler, (2011,p.6) defines CBET as "a way of approaching (vocational) training that places primary emphasis on what a person can do as a result of training (the outcome), and as such represents a shift away from an emphasis on the process involved in training (the inputs). It is concerned with training to industry specific standards rather than an individual's achievement relative to others in the group". Six criteria are currently used to describe the typical structure of CBET programmes. These criteria specify both the micro-structure of CBET (i.e., its learning and assessment dimension), and the macro-structure (i.e., its institutional framework).

Outcome criterion

Persons demonstrating all prescribed competences in an accredited course or training programme should obtain a credential or statement of attainment that is recognised within the national framework. Reports of competences gained should be provided to learners. Reporting may be in terms of completed modules provided that the relationship between competences and modules is understood. The course is recognised to meet national competence standards that have been endorsed by a national authority. In the absence of national standards, course outcomes should be based on the authority's definition of competence and endorsed by industry training boards or by relevant industry parties where industry training board coverage is not appropriate.

Curricular criterion

The curriculum gives learners a clear indication of what is expected of them in terms of performance, conditions and standards. Also, if appropriate, subsequent workplace and off-the-job training and assessment responsibilities should be identified.

Delivery criterion

Delivery is flexible and learners can exercise initiative in the learning process. Learning materials

used by providers indicate the degree to which programme delivery is learner-centred.

Assessment criterion

Assessment should:

- Measure performance demonstrated against a specified competence standard;
- Be available for competences gained outside the course;
- Include workplace or off-the-job components if appropriate.

Reporting / recording criterion

Reports of competences gained should be provided to learners. Reporting may be in terms of completed modules provided that the relationship between competences and modules is understood.

Certification criterion

Persons demonstrating all prescribed competences in an accredited course or training programme should obtain a credential or statement of attainment that is recognised within the national framework.



Teaching and Learning in Schools. London: Institute of Education

FOR FURTHER INFORMATION
www.incamp-project.eu