smart VET

Interactive Whiteboards in Vocational Education and Training

Training Programme on Interactive Whiteboards for VET Teachers

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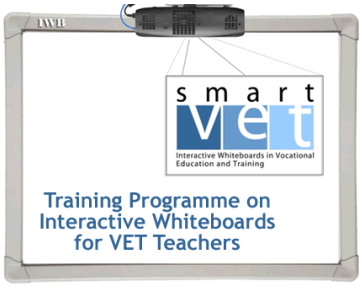

This publication is one of the results (Deliverable 9) of the EU project **'Supporting Continuous Professional Development of VET teachers in the use of Interactive Whiteboards'**. SmartVET is a Leonardo da Vinci - Transfer of Innovation project supported by the EU LLP funds. The aim of the project is to transfer good practice in the delivery of training on IWBs to the VET sector in Ireland, providing VET teachers in Kildare and Wicklow Education and Training Board (KWETB) with competencies needed to design educational resources suitable for use with IWBs and to integrate these in everyday teaching activities.
The Learning Manual comes from the experience in the EU Project Smarteach and relies on the contributions from the group of KWETB teachers (IWB Champions), who have been involved in SmartVET from the beginning.
This paper, as well as all the other documents and resources of the SmartVET Project, are available for download in digital format in the SmartVET online community at: *http://etuitionnetwork.ning.com and http://smartvetproject.eu.*

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VET
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Partners

> FIT - Fast Track into Information Technology Limited - Ireland

> KWETB - Kildare and Wicklow Education and Training Board - Ireland

> ETBI – Education and Training Boards Ireland - Ireland

> ENAIP FVG - EnAIP Friuli Venezia Giulia - Italy

> TELLConsult - Technology Enhanced Lifelong Learning Consult - Netherlands

> CCN - City College Norwich - United Kingdom

> NCTE - National Centre for Technology in Education - Ireland

Lifelong Learning Programme

LIFELONG LEARNING PROGRAMME 2011 - LEONARDO DA VINCI Transfer of Innovation
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INTRODUCTION

The knowledge society poses new questions to the current educational system which are different to the traditional questions. Problems emerging are no longer about the transfer of knowledge and the amount of information that students receive, but about the quality of content and the learners' ability to manage their learning and the information received intelligently.

The Multimedia Interactive Whiteboard (IWB) is a piece of advanced information technology: it can support innovation of learning content, the formation of intelligent attitudes and dispositions of the mind. When it is integrated with digital environments supported by the worldwide web, this technology offers opportunities for the development of new educational products and resources.

Since teacher expertise is the most significant school-based influence on student learning (Barber & Mourshed, 2007), the development of teachers' skills and knowledge using IWBs is critical to their effective use (Higgins, Beauchamp & Miller, 2007).

'Using ICT effectively in schools is about more than changing resources; it is about changing practices and culture' (BECTA, 2007).

For this reason, the SmartVET Training Programme is not simply focused on the technical features of the IWB and their use, but also on experimentation with the IWB as a teaching tool for everyday activities, in order to promote progression from technology to pedagogical and methodological innovation.

THE STARTING POINTS

The SmartVET Training Programme is based on:

- needs analysis of VET teachers in KWETB, carried out in Spring 2012;
- good practice gathered with EU Project Smarteach;
- feedback from KWETB Project team and Champions who participated in the SmartVET pilot training in Autumn 2012 and Spring 2013.

This programme assumes that teachers need experiential, hands-on Interactive Whiteboard training ('Bootcamp Model') with scaffolding by the Champions[1].

Because there is a risk of the IWB being used 'because it's there' – for example, in the same way as an overhead projector for presenting PowerPoint slideshows and DVDs, with little emphasis on meaningful learning, teachers should be encouraged to apply their learning in the classroom and report on the experience. In this phase too, the Champion can also run short 'clinics' to assist teachers.

[1] 'Champion' (n): 'to support, defend or fight for a person, belief, right or principle enthusiastically'. (http://dictionary.cambridge.org/dictionary/british/champion_3)

THE TRAINING PROGRAMME

In the literature on professional development, increasing attention is focused on embedding teacher learning opportunities in day-to-day work in schools and education centres, spending less time in formal, instructor-centred training and more time developing expertise in the context of collaborative learning that characterises professional learning communities (NEA, 2009).

Based on these considerations, the Training Programme

- uses the method of **action research**, which allows the combination of theoretical training with practical training on the job;
- starts from a **collaborative approach** based on reciprocal teaching and peer-to-peer training, thanks to the role of the Champions, whose support is expressed as a form of cognitive apprenticeship;
- is blended and provides face-to-face bootcamps and online activities (CPD resources and a professional community of practice);
- takes into account both **teachers' technological and pedagogical skills**.

This Programme aims to offer teachers the chance to experience at first-hand the IWBs, to verify the benefits, advantages and weaknesses and then try to apply it in the classroom with their students.

THE TARGET GROUPS

The beneficiaries of the Training are primarily teachers who will act as Champions and VET teachers who will learn to use the IWB for teaching in their own disciplines.

THE CHAMPIONS' ROLE

The Champions are teachers who are more experienced in the use of IWBs and ICT and who can support the others and create learning spaces where teachers can meet, exchange ideas and share experiences and information. Their task is to encourage the transfer of innovation, playing the role of coach and tutor to other teachers and collaborating in the design and implementation of learning materials for boot camp sessions.

Each champion will support a group of colleagues within their own school or centre, supporting their learning and encouraging the sharing of knowledge and experiences. In short, they will run bootcamps and clinics to support the use of IWBs as a tool for teaching and learning. Champions have access to online CPD materials such as ‘how to’ videos, help sheets and exemplary lesson activities on the project website: http://smartvetproject.eu.

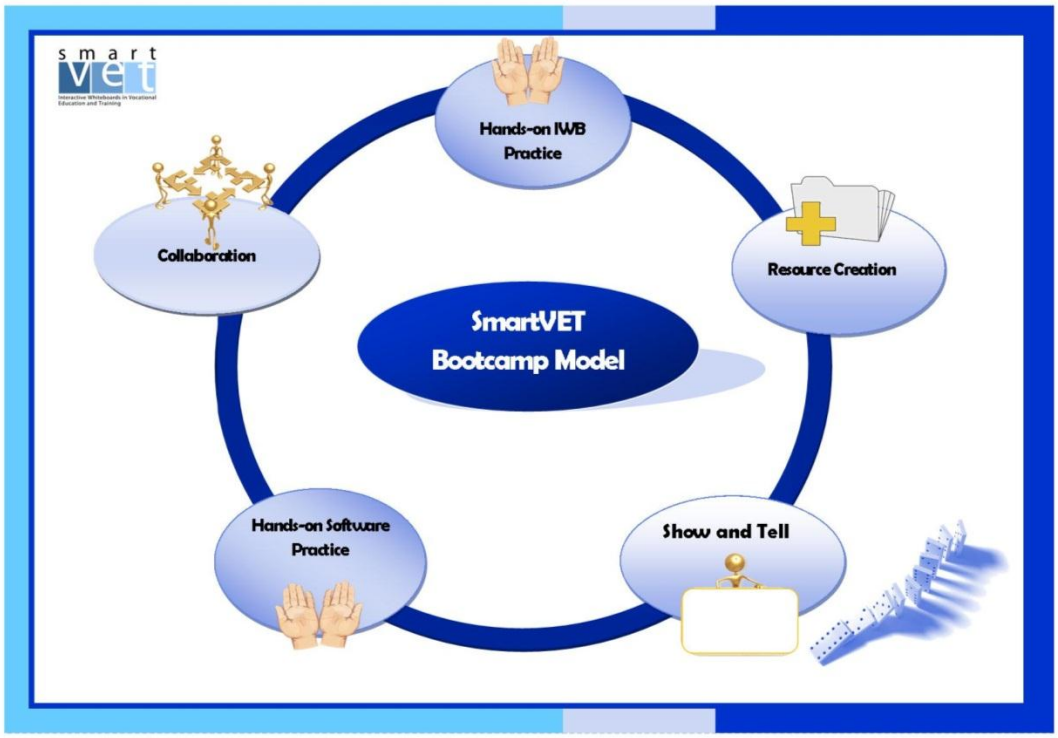
According to our methodological approach, they are *primi inter pares* (first among peers): they are confident enough in using IWBs and willing to share their expertise and so are trained to become the 'IWB Champions'. Ideally two or more Champions per centre are recruited to lead the bootcamps thus reducing the workload for one person while also promoting collaboration amongst peers.

THE BOOTCAMP MODEL

The Training Programme is based on the following assumptions:

- Experiential learning methodologies are applied to the training - it provides 'hands-on software practice' and 'hands-on Interactive Whiteboard practice' together with opportunities for feedback and reflection.
- This form of CPD training is highly interactive - the didactic element of the training should be minimised as much as possible and become more practical.
- Teachers develop confidence in using the IWBs by demonstrating and delivering their creations to their peers.
- Teachers have to work together and collaborate to build resources and develop a bank of resources.
- Teachers have fun during the training.

This CPD model could be adapted and applied to other types of technology training such as Office 365 and Windows 8 Applications and the introduction of new hardware into a school or centre.



The Training Programme includes:

- Identification and training of the Champions;
- Training of VET teachers through bootcamps delivered by Champions and by testing the IWB in the classroom. To encourage reflection on the experience, each teacher will monitor and briefly describe their teaching activities with the IWBs.

During the training, Champions and VET teachers can make use of teaching resources and bootcamp exemplar plans available on the SmartVET online community of practice (http://etuitionnetwork.ning.com):

- A Learning Manual
- CPD Materials (Video tutorials, booklets, etc.).

HANDS-ON IWB PRACTICE

This aspect of the model is useful for building confidence in presenting and delivering lessons. Teachers are involved in 'Show and Tell' activities in front of peers and are encouraged to provide verbal feedback. This may also include troubleshooting technical issues such as cabling, calibration, input modes and projector alignment. Participants get a 'feel for the board' and can spend time moving between programmes on the screen, annotating over the desktop and saving notes.

HANDS-ON SOFTWARE PRACTICE

It became clear during the pilot testing phase that teachers required more hands-on experience with the IWB software. The software can differ greatly depending on the brand of board installed in schools or centres. Teachers need time to experiment with the tools to create and save pages and browse through available resources. Availability of boards may also vary greatly; therefore much of the planning and lesson creation will take place on the desktop software rather than on an IWB.

During the bootcamp sessions, teachers are set simple yet fun tasks to test their knowledge of the software and build up their skill level quickly.

COLLABORATION

Champions are encouraged to set up a platform for collaboration among teachers involved in the CPD model. Many schools or centres will have a VLE in use already such as Moodle, SharePoint or Edmodo. If this is not the case, Champions can make use of the SmartVET NING used by Wicklow schools (http://etuitionnetwork.ning.com/).

A virtual learning environment (VLE) is an e-learning education system based on the web that models conventional in-person education by providing equivalent virtual access to classes, class content, and other external resources such as academic website links. It is also a social space where students and teachers can interact through threaded discussions or chat. It typically uses Web 2.0 tools for 2-way interaction and includes a content management system.

The SmartVET NING can be used by Champions to create events, store resources, access CPD materials and start discussions among teachers.

RESOURCE CREATION

Teachers are asked to identify an aspect of their work and focus on this for the duration of the project. Resources are created using brand specific software and shared on the Community of Practice. Resources can include lessons, activities and games, galleries, sounds and videos. Once created, resources can be easily edited for differentiation and shared among peers.

SHOW AND TELL

At the introductory and follow on bootcamps teachers will be asked to present their lessons to peers and give feedback on their progress.

THE TRAINING OF CHAMPIONS IS OPTIONAL

The Training Programme starts with identifying IWB early adopters among teachers and inviting them to act as Champions. This training is optional and depends greatly on the resources available, skill levels and the number of champions recruited in one centre. See www.smartvetproject.eu for more information on nationwide bootcamps. [3]

CHAMPION BOOTCAMPS

OBJECTIVES

- Introduce the Bootcamp methodology
- Introduce the IWB beginners' tools
- Explore the 4 teaching approaches to the use of IWB (see Learning Manual).
- Build IWB lessons
- Explore web-based resources
- Use a VLE/sharing platform for teachers
- Prepare and organise teachers bootcamps

CONTENT

- The IWB beginners tools
- Designing lessons with the IWB: teacher-centered, multimedia, interactive and collaborative lessons
- The recorder tool
- Smart Exchange and Promethean Planet (or equivalent)
- Exploring web based resources (YouTube, Triptico...)
- Blog or VLE creation (Google Drive, Wiki...)
- Troubleshooting
- Show and tell.

OUTPUTS

- Interactive IWB lessons
- Subject specific videos
- Blogs or VLE
- Bootcamps materials
- On-line survey

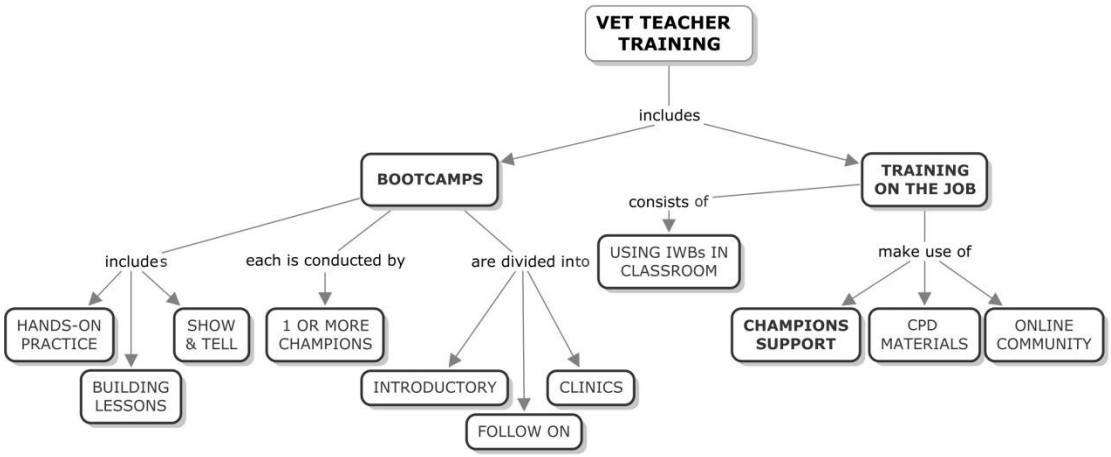
DURATION: 3 DAYS

[3] A detailed outline is available in Appendix A.

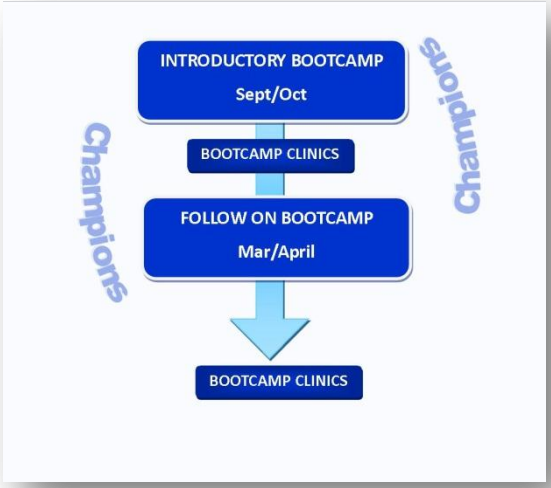
THE TRAINING OF THE TEACHERS

The training of teachers includes:

- **Bootcamps** - hands-on meetings designed to provide basic knowledge about the use of IWBs and to prepare and take stock of the training for on-the-job activities;
- **Training-on-the job** - it includes using the IWB in the classroom, for which teachers can use learning resources such as the SmartVET Learning Manual, CPD Materials and the online community of practice.



THE MODEL – HOW IT WORKS



STAGE ONE

Champions deliver an '**Introductory Bootcamp**' in September/October to a group of teachers. The function of this bootcamp is to introduce basic IWB skills, energise participants, engage teachers in the technology and foster collaboration and reflection on their experiences.

This session will motivate and prepare the teachers for their activities in the classroom.

See Appendix B for ideas.

STAGE TWO

A **'Follow up Bootcamp'** to reenergise teachers and maintain momentum could be organised for March/April or towards the end of the school year. The content of this bootcamp can be adapted based on the feedback given by the teachers after their first training days.

This shorter session gives participants the opportunity to reflect on their own teaching practice and share experiences, positive or otherwise, with their colleagues. Some advanced tools such as ordering and layering objects and using the recorder to capture lessons can be presented

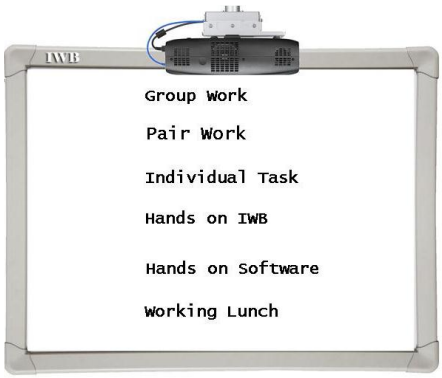
depending on the level of ICT skills of teachers.

STAGE THREE

'Bootcamp Clinics' are an informal way for Champions to meet up with and provide support to teachers. Champions may choose to organise one-to-one sessions or bring small groups of teachers together to resolve issues, technical or otherwise, without having to arrange lesson cover with principals or centre coordinators. All communication surrounding the bootcamps such as events, resources, discussions or comments could be carried out via a VLE or on the SmartVET Community of Practice.

BOOTCAMP CONTENT

The content of bootcamps can vary depending on ICT skills, number of teachers, resources available and time.



We highly recommend a two day Introductory Bootcamp to get teachers started but the model can be adapted to suit all levels and time constraints.

We also recommend a short 'Follow-on' Bootcamp, to define the teachers' commitment in the use of IWB.

See Appendix B and C for some useful guides to help get you started. There are many other examples on the SmartVET Community of Practice (http://etuitionnetwork.ning.com).

TRAINING ON THE JOB

The VET teachers choose the disciplines, topics and lessons that they aim to deliver with the Interactive Whiteboard, the methodology they intend to apply and then they use the IWB in their everyday classroom activities.

The period may vary depending on the availability and opportunities for teachers, schools and colleges, but we recommend incorporation of the IWB within standard courses and to use it for a period of at least 6 months.

We recommend also that teachers should document their experience with a specially designed matrix/form to fill out at least once every 3 months (see appendix F).

During the training on the job, one or more Bootcamp Clinics could be provided by the Champion to support and encourage teachers in their centres/schools. Teachers can also count on the support from learning materials and resources from the SmartVET online community.

INTRODUCTORY BOOTCAMP

OBJECTIVES

- Introduce the IWB tools
- Build IWB lessons
- Explore web based resources
- Use a VLE/sharing platform for teachers

CONTENTS

- The IWB Beginners Tools
- The Recorder Tool
- Smart Exchange and Promethean Planet (or equivalent)
- Web based resources and VLE/Community of Practice
- Show and tell

OUTPUTS

- Interactive IWB lessons
- Lessons with web based resources
- On-line survey

DURATION: 1 OR 2 DAYS

FOLLOW-ON BOOTCAMP

OBJECTIVES

- Taking stock of use of the IWB
- Promote peer-to-peer collaboration using a Community of Practice
- Sharing teachers' experiences with the IWB
- Introduce advanced tools
- Build and share lessons

CONTENTS

- Design lessons with the IWB software: teacher-centered, multimedia, interactive and collaborative lessons
- Troubleshooting
- Hands in practice with advanced IWB software tools
- Show and tell: teachers deliver interactive lessons to their peers and provide feedback

OUTPUTS

- Teaching activities
- Lesson plans and interactive resources
- On-line survey

DURATION: 1 Day (where possible)

10 STEPS TO BOOTCAMP SUCCESS

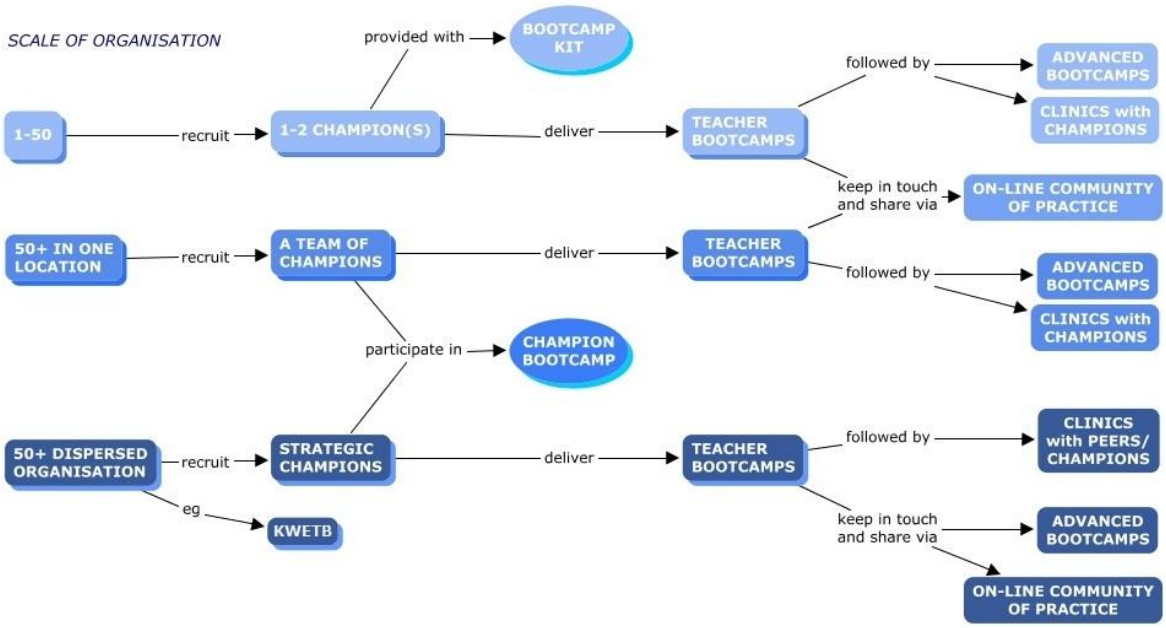
1. LEADERSHIP

Ensure that school and centre leaders are aware of the purpose of the project; have the resources to provide the relevant equipment and provide positive encouragement to teachers to participate.

2. CHOOSE THE MODEL

Decide what version of the model will work best for your institution. In a small school or education centre, find a Champion. The Bootcamp Model involves delivering fast-paced, energetic training sessions and will require a motivated teacher(s) to take on the role of champion. In a larger organisation take a strategic approach and create a team of Champions.

Structure for Implementation



3. FIND YOUR CHAMPION(S)

Invite teachers to participate in a selection process or identify your passionate early adopters and invite them to act as Champions. Their task is to encourage the transfer of innovation, playing the role of coach and tutor to other teachers and collaborating in the design and implementation of learning materials for bootcamp sessions.

Each champion will manage a group of colleagues within their own school or centre, supporting their learning and encouraging the sharing of knowledge and experiences. In short, they will run bootcamps and clinics to support the use of IWBs as a tool for teaching and learning.

We recommend:

- Two Champions per school or centre
- Full time members of staff with availability for troubleshooting
- Staff willing to share their expertise with others
- Confident in ICT
- Technical knowledge of IWBs is an advantage

Nationwide 'Champion Bootcamps' otherwise known as 'train the trainer' bootcamps will be taking place in education centres. Details can be found at www.smartvetproject.eu or on the NING Community of Practice. Previous project Champions in Wicklow can be contacted for advice via the community of practice and are available for IWB training in schools.

4. SCHEDULE THE BOOTCAMPS

The most positive version of the bootcamp was delivered over two days, allowing plenty of time for teachers to become familiar with software and to have hands-on time and collaborative time. Consider timetabling and the resources available in your school or centre. Do teachers have access to the boards and when is the best time to organise bootcamps? Advertise the bootcamp(s) in your school newsletter, at staff briefings, via email, and staff notice boards.

5. RECRUIT THE TEACHERS

Deliver the bootcamp to all of the teachers in the school or education centre, or invite teachers to apply to participate. Encourage teachers to collaborate and interact throughout the day on your VLE. If you don't have one, we recommend setting up a SharePoint Space, Moodle, Google Docs, Edmodo or Wiki at the start of the project. To do so join the SmartVET NING and use the resources created by Wicklow Champions and teachers.

6. DUST OFF THE EQUIPMENT

Make sure that all equipment is working properly, that all computers have been preloaded with board-specific software and that there are strong internet connections in the room(s) that are being used. Provide refreshments to sustain the energy levels generated during the bootcamps! There are equipment checklists in Appendix F.

7. DELIVER THE BOOTCAMPS

The bootcamps are delivered using experiential learning. Provide lots of opportunities to participate in hands-on games and activities. Bootcamp content is designed to be fast-paced. Teachers complete tasks and activities in short timeframes in order to keep the sessions moving.

Champions give support to teachers while they are carrying out tasks, and troubleshoot individual problems. Teachers are encouraged to help one another to solve problems in a collaborative fashion, either in dyads or small groups.

'Show and tell' gives teachers an opportunity to describe how they solved problems/what they learned. The basic premise of the bootcamp model is to prepare for peer-to-peer support after the bootcamp ends.

8. TRACK TEACHER PROGRESS

Teachers should be encouraged to apply their learning in the classroom and report on the experience. Champion(s) agree and identify with teacher(s) one aspect of the curriculum that they would like to focus on and develop resources and lessons for this area using the IWB

software. It is important to note that teachers do not need to create lessons from scratch but merely edit existing worksheets and activities to make them more interactive.

Create an online survey or questionnaire to gather feedback using http://surveymonkey.com. See Appendix E for an exemplar feedback form. During this phase, the Champion can also run short clinics to assist teachers. These can be one-on-one to offer moral support and encouragement to the teacher.

9. BUILD UP THE TEAM

Share and celebrate the work of the teachers when they create engaging lessons, and ask them to demonstrate examples of the lessons, either through the Community of Practice/VLE or at team meetings.

10. PASS THE BATON ON

Taking a collaborative approach promotes the sharing and discussion of how technology works in the classroom and of whether it improves pupil experience. As teachers become more confident, their use of the IWB and associated technologies will increase and the demand to use the IWBs will increase too.

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Appendix A Champions' 3 Day Bootcamp

Day One		Tools/Skills Developed
9.30 – 9.50	Welcome and brief overview of bootcamp and community of practice	**Join the Community of Practice**
9.50 – 11.20	Hands-on Activities - IWB: • Pictionary/Dream House/Stick Man • Giant Word Search (see CPD Materials)	• **Pens/erasers/lines/shapes /timers** • **Selecting, rotating, resizing objects** • **Adding backgrounds and images**
11.20 -12.00	• Introduction to Beginners Tools. • Creating an interactive cloze activity using pens, lines, camera and highlighters • Introduce text recognition. Capture images and text using the camera tool	• **Pens/lines/camera/ cropping** • **Highlighters/text recognition/cut and paste** • **editing properties**
12.00 – 12.30	• Show and Tell • Champions demonstrate activities on the IWB	**Delivering lessons**
12.30 - 13.00	Introduction to teaching approaches. (See the Learning Manual, chapter 2)	**Designing IWB lessons**
13.00 –13.40	**Working Lunch**	
13.40 – 15.30	Building a Lesson • Create a lesson containing two or more teaching approaches (see the Learning Manual); • Create a lesson containing three IWB slides (see CPD materials) Create slides with games and activities from the Gallery e.g. anagrams, dice, pairs, and spinners.	**Designing IWB lessons** **Locating and editing resources** **Layering resources** **Ordering objects** **Searching for resources and activities** **Saving lessons**
15.30 – 16.00	Show and Tell Champions demonstrate the lessons on the IWB	**Delivering lessons** **Peer assessment** **Presentation skills**

16.00 – 16.30	Hands-on Practice (group work) Hands-on IWB and software practice – Champions choose to focus on one particular area of interest.	
16.30	Finish	
Collaboration and interaction throughout the day on VLE/Community of Practice		

Day Two		**Tools/Skills Developed**
9.30 – 10.15	Bootcamp Quiz (see CPD materials)	**Quiz to test software and IWB skills**
10.15 – 12.00	• Recorder Tool • Champions create a subject specific video e.g. step by step guide to measuring an angle or • Champions create support videos for teacher bootcamps	**Recorder tool**
12.00 -12.45	• Show and Tell • Champions demonstrate videos on the IWB	**Delivering lessons**
12.45 – 13.45	• Champions join YouTube and create a training space for bootcamps • Upload videos • Edit privacy settings	**Web tools** **Creating and editing videos**
13.45 –14.30	Working Lunch	
14.30 - 16.30	Mini Workshops 'Exploring Resources' • Introduction to Smart Exchange and Promethean Planet (or equivalent) • Socratives • Mentimeter • Triptico	**Web based tools**
16.30	Finish Homework: Create a lesson activity that incorporates one or more of the web based tools demonstrated during day two.	
Collaboration and interaction throughout the day on VLE/Community of Practice		

Day Three		Tools/Skills Developed
9.30 – 10.15	Homework Show and Tell Champions demonstrate web based tools/activities	**Delivering lessons**
10.15 – 12.00	Blog or VLE Creation • Champions create a sharing space for their teachers i.e. • Google Drive/Edmodo/Weebly/Wiki or edit existing SharePoint or Moodle site • Upload resources and useful links	**Blogging and collaboration**
12.00 -13.00	IWB Troubleshooting • IWB technical checklist • Calibrating the board • Wiring • Use of projectors • Finding solutions	**Troubleshooting technical issues**
13.00 –13.45	Working Lunch	
13.45 – 14.45	Demonstrate Mouse Mischief Required: • USB Hub • Wireless mouse needed for each champion	**Mouse Mischief as an interactive tool**
14.45 - 16.00	Hands-on Practice (group work) Hands-on IWB and software practice – Champions prepare bootcamp materials	**Planning** **Lesson creation**
16.00 – 16.30	Feedback & Conclusions Champions complete an online survey (e.g. www.surveymonkey.com) Collate conclusions on the whiteboard	**Create online surveys**
16.30	Finish	
Collaboration and interaction throughout the day on VLE/Community of Practice		

Appendix B Introductory Two Day Bootcamp (Teachers)

Day One	
9.30 – 9.50	Welcome and brief overview of bootcamp and VLE/Community of Practice
9.50 – 10.30	IWB Hands-on Activities: • Pictionary • Dream House (see CPD Materials)
10.30 – 11.00	Software Hands-on Activities : • Stick Man (see CPD Materials)
11.00 – 11.15	Optional Coffee Break
11.15 -12.00	Introduction to Beginners Tools Creating an interactive cloze activity using: • pens • lines • camera • highlighters
12.00 – 12.30	Show and Tell Teachers demonstrate the resources they have created to their peers on the IWB
12.30 – 13.15	Working Lunch
13.15 – 13.45	Technical Troubleshooting & Calibrating the board • Switch everything off and demonstrate how to insert cables, open software and calibrate the board
13.45 – 15.30	Building a Lesson Creating pages with games and activities i.e. anagrams, multiple choice, pairs, dice, spinners Task: Create a lesson containing three IWB slides (see CPD materials)
15.30 – 16.00	Show and Tell Teachers demonstrate the lessons on the IWB
16.00 – 16.30	Feedback & Conclusions Collate conclusions on the whiteboard
Collaboration and interaction throughout the day on VLE/Community of Practice	

Introductory Two Day Bootcamp (Teachers) contd…

Day Two	
9.30 – 10.15	**Bootcamp Quiz (see CPD materials)**
10.15 – 11.15	**Interactive tools for pair and group work (spinners, dice, timers, random word and group chooser)**
11.15 – 11.30	**Optional Coffee Break**
11.30 -12.40	**Smart Recorder - teachers create a video based on a tool they have learned at Bootcamp** **Advanced Option – Sound recorder**
12.40 – 13.00	**Show and Tell** **Teachers demonstrate the recordings on the IWB**
13.00 – 13.45	**Working Lunch**
13.45 – 15.30	**Mini Workshops 'Exploring Resources'** • **Introduction to Smart Exchange and Promethean Planet (free resources)** • **Socratives (www.socrative.com)** • **Animoto (www.animoto.com)** or **Glogster (www.glogster.com)** **Leave time for Q & A** **Divide teachers into small groups if two or more champions are available**
15.30 – 16.00	**Lesson Creation** **Teachers explore new resources and build slides**
16.00 – 16.30	**Feedback & Conclusions** **Teachers complete an online survey (e.g. ww.surveymonkey.com)** **Collate conclusions on the whiteboard**
16.30	**Finish**
Collaboration and interaction throughout the day on VLE/Community of Practice	

Appendix C Introductory One Day Bootcamp (Teachers)

One Day Bootcamp	
9.30 – 10.00	**Welcome and brief overview of bootcamp and community of practice**
10.00 – 11.00	**Hands-on Activities:** **Pictionary/Dream House/ Stick Man (see CPD Materials)**
11.00 – 11.40	**Introduction to Beginners Tools.** **Creating an interactive cloze activity using pens, lines, camera and highlighters.)**
11.40 -12.40	**Building a Lesson** • **Creating pages with games and activities i.e. anagrams, multiple choice, pairs, dice, spinners ….** • **Task: Create a lesson containing three IWB slides (see CPD materials)**
12.40 – 13.00	**Show and Tell** **Teachers demonstrate the resources on the IWB**
13.00 – 13.40	**Working Lunch**
13.40 – 14.45	**Mini Workshops 'Exploring Resources'** • **Introduction to Smart Exchange and Promethean Planet (or equivalent)** • **Socratives** • **Recording a lesson**
14.45 – 15.40	**Hands-on Practice (group work)** **Hands-on IWB and software practice – teachers choose to focus on one particular area of interest.**
15.40 – 16.00	**Feedback & Conclusions** • **Teachers complete an online survey (e.g. www.surveymonkey.com)** • **Collate conclusions on the whiteboard**
16.00	**Finish**
Collaboration and interaction throughout the day on VLE/Community of Practice	

Appendix D Follow on Bootcamp

Follow On Bootcamp	
9.30 – 10.30	**Show and Tell** **Teachers come to bootcamp prepared to demonstrate a tool/activity they have used with their students this term**
10.30 – 11.30	**Troubleshooting Session** • **Question & answer session led by Champions** • **Teachers share learning experiences**
11.30 – 13.00	**Hands-on Activities - Advanced Tools (choose 3)** • **Widgets** • **Video Recorder** • **Sound recorder** • **Links** • **Math Tools** • **Layering Objects**
13.00 – 13.40	**Working Lunch**
13.40 – 14.45	**Building a Lesson** **Create a three part lesson using skills developed during morning session**
14.45 – 15.40	**Show and Tell** **Teachers demonstrate the lessons on the IWB.**
15.40 – 16.00	**Feedback & Conclusions** • **Teachers complete an online survey (e.g. www.surveymonkey.com)** • **Collate conclusions on the whiteboard**
16.00	**Finish**
Collaboration and interaction throughout the day on VLE/Community of Practice	

Print off a blank feedback form from the project website: http://www.smartvetproject.eu or create an online survey using http://www.surveymonkey.com. Fill in form as per example below.

Appendix E Feedback Form

TEACHER NAME:
COLLEGE/ORGANISATION NAME:
PERIOD RECORDED:

THE LEARNING EXPERIENCES	BENCHMARKS (within 3 months)	STRENGTHS/WEAKNESSES	RECOMMENDATIONS

Brief summary of teaching activities:
- Subjects
- Students
- Learning objectives
- Progression of activities
- Outcomes
- Methodology
	• Frequency of use of IWB by teacher:
	  • daily
	  • 2 or more times a week
	  • at least once a week
	• Frequency of use of IWB by teacher and students:
	  • daily
	  • 2 or more times a week
	  • at least once a week
	• Identify and utilise with students at least 3 interactive websites on the IWB
	• Creation and use of 3 interactive lessons on IWB
		Describe any problems and improvements measured in terms of
		- Learning
		- Social Climate
		- Levels of attention
		- Interest and motivation
		- Added value for teaching
		- Other
			Recommendations:
			- Logistics
			- Methodology
			- Content
			- Other

Appendix F Annual IWB Checklist

Technical Faults/Issues		Tick	Comments
Board			
	No Interactivity (touch recognition)		
	Board will not calibrate		
	Missing Pens		
	Broken Pen/Stylus		
	Faulty Sensors/Broken Buttons		
	Missing Cables/Faulty Cables		
Projector			
	Bulbs		
	Warning Lights		
	Missing Cables		
	Out of Focus		
	Poor Positioning		
Software			
	Is the software activated?		
	Installation Problems		
	Is software up to date?		
Sound			
	No Sound		
	Missing sound cables		
Miscellaneous			

Glossary

ACTION RESEARCH

Action research is a family of research methodologies that pursues change and understanding at the same time. It is a process in which participants examine their own practice systematically and carefully; a methodology that is particularly useful in the field of education because it involves action learning characterized by a high rate of reflection.

This research is carried out within the context of the teacher's environment—that is, with the students and at the school in which the teacher works. It is based on the assumptions that teachers become more effective when encouraged to examine and assess their own work and that working with colleagues helps teachers in their professional development.

Action research is typically cyclical using a spiral process that oscillates between action and critical reflection (Dick, 2002). It is not about learning why we do certain things, but rather how we can do things better and how the teachers can change own instruction to impact students (Ferrance, 2000).

Among the different types available for the SmartVET Training Model we have chosen the pilot approach to action research which is used "primarily to derive types or operating repertoires transferable to other situations" (Calvani, 1999). This type also allows us to explore the possibilities of using the IWB in teaching while also leaving space for teachers' self-exploration.

BLENDED LEARNING

Blended learning refers to a mixing of different learning environments that combines the traditional face-to-face classroom with distance (computer-mediated) learning.

The online learning, with modular learning resources and an online community of practice, allows learners to 'personalize their learning' because it presents them with the opportunity to choose resources that they prefer to use using timing, pace and learning style that are most agreeable to them as individuals.

In particular, a VET teachers' online community can:

- guarantee continuity in the communications between its members when they are not able to meet in person;
- provide higher visibility, a faster dissemination and a better circulation of internal communications, since one message is sufficient to request or to provide information to all members at the same time;
- open the community to a wide range of members both geographically and numerically to the extent that members may not even know each other personally.

Involvement in a professional online community will also enable teachers to become familiar with, and deepen the experience of computer-mediated communication, and the use of social networking tools and the Web 2.0 technologies (weblogs, wikis, webinars, etc.).

COGNITIVE APPRENTICESHIP

Cognitive apprenticeship "supports learning by enabling learners to acquire, develop, and use cognitive tools in authentic domain activity" (Brown, Collins and Duguid, 1989).

In the traditional apprenticeship, a 'master' who possesses the knowledge and expertise regarding a 'trade' or profession, teaches all of this to an apprentice, through practical demonstrations, indications and corrections which gradually lead the apprentice towards the example represented by the activities undertaken by the master himself, until a point when the apprentice is capable of undertaking these activities on his own.

Likewise, the cognitive apprenticeship allows the master to model behaviours in a real-world context with cognitive modelling (Bandura, 1997). This approach applies the major strategies used to promote traditional apprenticeships but with greater attention to the metacognitive dimension, to issues of control and the variation of application contexts:

- **modelling** - involves an expert (the Champion) who carries out a task so that teachers can observe and build a conceptual model of the processes that are required to accomplish the task;
- **coaching** - the expert observes the colleagues while they carry out a task and directs the attention to something, offering hints, feedback, reminders, etc. to facilitate the work if necessary;
- **scaffolding** - the expert supports the learners, provides them with a stimulus, presets the work, etc.
- **fading** - the expert gradually removes support to give the learner a progressively larger area of responsibility and autonomy.

The cognitive apprenticeship also introduces other strategies such as articulation (encourage learners to verbalize and reasoning on their experiences), reflection (compare their own problem solving processes with those of an expert or another learner) and exploration (pushing them into a mode of problem-solving on their own).

This approach not only allows the solving of problems in a training environment that uses real contexts (the classrooms) and involves the learners (the VET teachers) in a particular practice, it also allows beginners to assist and learn from the more experienced teachers o n how to deal with problems and tasks for using the IWB.

COMMUNITY OF PRACTICE

Communities of practice are groups of people who share "a concern or a passion for something they do and learn how to do it better as they interact regularly" (E. Wenger, 1998).

They function as real social learning systems in which the learning process does not merely take the form of learning about something, nor is it limited to providing the members with the ability to perform a certain task in a suitable way, rather it consists of a process of structuring and restructuring one's own professional identity based on one's own needs and the meanings negotiated within the group (learning-to-be).

The existence of different levels of 'expertise' becomes the motor that drives the exchange and the sharing of knowledge, competencies and therefore the opportunities of derived or reciprocal learning. The more the expert members of the community gradually guide the less experienced members and the 'novices' towards the acquisition of the important meanings the more they legitimize their belonging to the community.

Whilst it is straightforward to understand the advantages that a less experienced teacher is able to gain from his participation in the community of practice, and therefore the motivation that drives him to participate, it is perhaps not easy to define the reasons that explain why the more experienced members participate.

Firstly, the more experienced members may have the direct advantage of being able to pass on knowledge and capabilities to people who can then work alongside them or replace them in a variety of professional activities.

Secondly, the community provides even the most experienced members with the opportunity to enter into contact with colleagues who are equally as expert or have even more expertise then themselves. They are then able to share their opinions and concerns, and seek out new solutions, if necessary, with regard to working practices.

Finally, a learning community is constituted by demands and requests for help from the less experienced members and this can provide the opportunity to seek out new solutions that are different from the recognized solutions, and also the opportunity to reflect upon one's own activities, forcing the members to clearly express their own practice, thereby reinforcing processes of awareness and meta-cognition.

PEER TUTORING

Peer learning is an approach that values practitioner knowledge and promotes reflective practice as a way to make knowledge explicit.

The emphasis is on the learning from each other's practice and expertise, including the emotional support that peers can offer each other. This collaborative approach can involve VET teachers learning from and with each other in ways that are mutually beneficial and involve sharing knowledge, ideas and experience between workgroup participants.

The peer-to-peer learning can foster more fruitful learning because teachers can share a deep understanding of common challenges, experiences, and practices; they can bring knowledge and innovations they have developed to address new challenges, and share them with others in similar circumstances.

PEDAGOGICAL SKILLS

The pedagogical skills relate to the communication and teaching aspects involved in the use of the Interactive Whiteboard and the added value and benefits that the IWB can make in education to teaching. They include:

- how to use the IWB and design the lessons, switching from a traditional approach (the teacher-centred lesson) towards more interactive and collaborative approaches;
- how the IWB can meet different learning needs and cognitive styles and how to foster a student-centred approach in designing lessons (see the Learning Manual in this regard).

It is important that right away even the 'beginner teachers' give importance to the link between pedagogy and technology. These are particularly important because they make a difference in the effectiveness of the IWB.

TECHNOLOGICAL SKILLS

The technological skills relate to the ability to use the IWB functions including basic features such as calibrating the IWB, pen, eraser, underlining and highlighter tools, manipulating texts and images, making and saving notes in digital ink, printing, using the web resources and advanced features such as using video clips and creating digital lessons with multimedia etc.