



## Virtual Portal for Interaction and ICT Training for People with Disabilities

### The ViPi Educational and Pedagogical Framework Final Version

Outcome No.		D18	
Workpackage No.	5	Workpackage Title	Educational and Pedagogical Framework – Final Version
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Status (F: final; D: draft; RD: revised draft):		F	
File Name:		Pedagogical Framework 3c.docx	

*The ViPi KA3 LLL project (511792-LLP-1-2010-1-GR-KA3-KA3NW) has been partially funded under the Lifelong Learning program, subprogramme KA3 ICT. This publication reflects the views only of the author(s), and the Commission cannot be held responsible for any use which may be made of the information contained therein.*



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## Version History table

Version no.	Date	Dates and comments
1	01/03/2013	Initial draft by Penny Standen (Pre-test version)
2	26/07/2013	2 <sup>nd</sup> draft By Penny Standen and Andy Burton (Pre Pilot Version)
3	25/12/2013	Final draft By Penny Standen and Andy Burton (Final Version)

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## Acronyms / Vocabulary

ACRONYM	EXPLANATION
<b>LO</b>	Learning Object – learning objects in the context of ViPi may be games, sets of games, courses, web sites, web pages, documents, links etc. with a common purpose of serving to educate the trainer or their trainee in ICT skills.
<b>ViPi</b>	Virtual Portal for Interaction and ICT Training for People with Disabilities
<b>OS</b>	Operating System – the platform running on the device, such as Windows 7, Android etc.

## 1 Introduction

One of the core values of ViPi is to recognise and respect people's diversity and provide an effective educational environment that works for a wide range of abilities. This means that a more customised teaching approach has to be adopted according to the individual profile of abilities and needs. To do this, ViPi adopts a blended learning approach. This is a combination of traditional face-to-face classroom methods with computer delivered materials in the form of an online elearning experience (Web and mobile access to e-learning facilities and platforms). This combination allows the trainer to identify what is the most appropriate entry level for each trainee so that they can balance level of challenge with a chance to experience success and progress. With the additional components provided such as learning objects, social network and the facility for creating new material, ViPi allows the trainer to create a personalised learning pathway for each trainee. Flexibility is further enhanced by the facility to access and deliver materials via either desktop computers or mobile devices with Internet access.

With all the options ViPi provides, trainers will need some guidance to enable them to get the best out of the ViPi platform, its tools, Web and mobile services, training material and games and integrate it into current training practices while making use of the provided learning objects to create customized e-portfolios for their trainees. Additionally, adopting computer delivered materials may necessitate trainers re-examining their traditional didactic role and taking a different stance: that of a facilitator who initiates and guides the knowledge construction process. This might include new ways of conducting group work, creating a shared area for collecting resources or for sharing work and collaboratively developing a new resource (Choy and Ng, 2007), with access anytime and from anywhere. Kozma & McGhee (2003) described one of the new roles that ICT has created for the trainer as "Instructional designer" where the trainer takes into account all the resources available to meet the variety of needs his or her trainees have and implements well designed activities to address those needs.

The role of the educational and pedagogical framework is to provide trainers with a blue print on how to optimally use the ViPi platform (Web and mobile) and resources, making use of the provided learning objects to create customized e-portfolios and how to integrate in current training practices.

Objectives of the framework:

- To secure the implementation of ViPi, i.e. to make sure people use it and use it appropriately
- To provide guidelines that could allow implementation for a wide group of clients

The trainees or beneficiaries of ViPi will vary considerably in needs and ability so while there are general pieces of advice and good practice that will apply in all learning environments where ViPi will be used, we cannot always be prescriptive in how ViPi should be used. For this reason, the framework provides dimensions that can generate directives and questions. A directive is like an instruction, i.e. telling someone what they should do, for example "the organisation must be supportive of the introduction of ViPi and possess an appropriate pedagogic culture". Directives are made on the basis of evidence that suggests this advice is good for a range of trainees and learning environments. This is in contrast to situations where actually the trainer has to make up their own mind because only they know the situation in which they are using ViPi. For these eventualities, the framework provides prompts with questions such as "What are realistic training goals for this trainee?" The diagrammatic representation of the framework



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in Annex 1 gives questions and directives for each dimension. Although questions are posed for the trainer to answer in the way they know best fits their environments and trainees, some of the questions have directives provided to assist trainers to answer those questions. In the text below, questions and directives are shown in bold.

## 2 The ViPi Educational and Pedagogical Framework

There are four dimensions to the ViPi blended educational and pedagogical framework taken from Minocha (2009): Educational, social, organisational and technical. While for ease of use, the dimensions are presented as being independent of each other, in practice there are clear relationships between them. For example, the technical dimension includes a directive that the machines and computers are usable for practical exercises. Obviously for this to be in place the organisation needs to check whether sufficient technical support is in place first and rectify it if there are shortcomings.

### 2.1 Educational

This dimension encompasses the factors that are most directly concerned with the individual's learning.

In tailoring ViPi to each trainee, this dimension prompts trainers to answer the following questions and provides directives informed either by existing research or by partners' observations during piloting:

1. **How would the users benefit from improved basic ICT skills?** When answering this, **the trainer should take into account not just what they already know about the trainees' capabilities and achievements so far but they should also involve trainees in discussions about what they would like to learn during the training sessions.** Possible benefits might include:
  - To enhance employability, get employment or remain employed
  - To increase independence and confidence
  - To have chance to experiment with something innovative
  - To improve social communication skills
  - To improve quality of life
2. **How motivated are they?** Some might already be keen, others may not be aware of all the things a computer could do for them and would therefore need some overview of what basic ICT involves. Ways of engaging those who might not understand what they could use IT for might include starting with a game (like fly swat) which would indicate what keyboard or mouse skills might be useful or showing them what they might achieve with basic ICT skills (e.g. taking a photo) or looking for material relevant to them when web browsing .
3. **What are their capabilities?** This information is useful to answer two further questions:
  - a. **What is the appropriate entry level for the trainee?** Answering this will depend on the trainer's knowledge of the current activities of the trainee and their achievements as well as the information gained from completing the user data log. If the trainer is unsure of the appropriate level it is best to err on the side of caution and enter at a slightly lower level in order to minimise the chances of challenge outweighing achievement. What this means is that a certain degree of challenge is required to keep the trainee interested but too much without achieving a goal, and they will become despondent.
  - b. **What are realistic training goals?** These might include learning to use a mouse and keyboard, format documents, learning how to make and edit videos. Once these questions have been answered a searchable database allows users and trainers to search for learning objects of specific relevance to them and their training requirements.

Although this question about capabilities needs answering right at the beginning of the trainee's involvement with the platform, **it is important that the trainer is prepared to reassess the trainee if their observations on progress or feedback received suggests adjustments need to be made.**

4. **How can I help them to be able to do these things?** In answering this not only does the trainer need to identify the appropriate learning materials provided by ViPi but identify how to combine and present them in other words, select the right blend of material. In achieving this, **the trainer needs to ensure the balance between challenge and achievement is right for each person** as described above. One of the beneficiaries piloting ViPi in the UK lost interest when trying a game that was too difficult. The point of balance will differ between individuals.
- a. **Recognise the need for assistance from the trainer** while many of the groups for whom ViPi has been designed may be able to work with it independently, the trainer should always be prepared to offer assistance. Those trainees with high levels of intellectual disabilities may need a lot of assistance before starting to use educational material independently. Even after several sessions a trainee might be failing at a task because they need reminding how to do it. The trainer's involvement should be guided by the principle above about balance challenge and achievement.
  - b. **Select a range of different activities** (e.g. games, online learning materials, classroom discussion) so that a different activity can be undertaken when the trainee's attention flags. For some trainees who are having problems with the e-learning content, practical, gaming or paper-based materials can be interspersed with more didactic activities to bring the trainee's focus back onto the material. As games are popular with everyone they can be used as a reward for either completing something or having tried hard.
  - c. **Select the most appropriate games.** Some games rely on the trainee having reading or numeracy skills, so choose those that match trainees' abilities. Some of the ViPi games have not been specifically designed for visually impaired users, but these games can still be usefully included if the trainer plays the games with the user, while giving a verbal commentary. Games have their own built in reward system which some trainees find motivating especially if they haven't experienced much success in their routine learning sessions. There are a range of publications which can provide further reading for trainers on the use of games for trainees with disabilities (Brown et al, 2009; Brown et al, 2013).
  - d. **Let the trainee determine their own learning speed.** Results from the pilots suggested that it was very important that the teaching and learning took place at the trainees' own speed.
  - e. **Make sure the trainee receives appropriate feedback.** Trainees are not always sure whether they have learned something new, or are doing well in understanding new material, so the trainer must make sure they have been rewarded verbally.

## 2.2 Social

This dimension incorporates issues related to collaboration and group working. Online learning is often described as having the advantage of being able to take place anywhere at any time but this can also mean that the trainee learns in social isolation. Many young people with disabilities can already be experiencing too much social isolation. Thus the right balance must be found between different strands of



blended learning to reduce their feelings of isolation. On the other hand an online community of trainees may actually help those who have difficulties in face-to-face environments. In deciding the best arrangement of social factors to enhance learning, the trainer has to ask them self:

- 1. What is the best balance between individual and group learning?** Piloting with the most intellectually disabled beneficiaries found that training on a one to one basis was necessary as this allowed the ability and needs of each participant to be assessed and the training tailored to work at an appropriate level using appropriate tools and assistive technologies for each participant. Training strategies could also then be adapted on an ad-hoc basis to increase trainee engagement. On the other hand, it should be remembered that group sessions can be popular with trainees enjoying working in a classroom with the physical presence of the trainer/teacher and classmates rather than working alone and remotely. Group sessions probably work best for stimulating discussion (for example, identifying topics that trainees want to learn about) and reinforcing material learnt through individual sessions. Some trainees might enjoy playing some of the games as a group and discussing why some answers are better than others. In answering this question the trainer might discover that the requirement for a high level of one to one learning requires more teaching support to be in place. **Therefore, if starting skill levels vary widely between trainees, ensure there is enough teaching support.**
- 2. Can trainees help each other to learn and can some peers act as tutors?** Trainers should explore the possibility of exploiting peer tutoring as research has emphasised its role in engaging trainees and enhancing learning. The positive effect of peers can take place in a group where the enthusiasm of one can stimulate the entire group, but also trainees can be encouraged to form informal support pairings where one trainee helps another trainee or where one encourages the other or they even set up some friendly competition. This spontaneous occurrence was reported in the Belgian pilot.

### 2.3 Organisational

This dimension refers to the way in which the training centres deal with the introduction and use of ViPi. Organisational factors can often be the biggest barrier to implementation therefore the directive associated with this dimension is that:

- **the school or training centre must be supportive of the introduction of ViPi and possess an appropriate pedagogic culture.** Before engaging with ViPi it is important to determine where ViPi's approach and content fit in with current practices. It is also important to ensure that training centres and the organisations that are responsible for them are happy to adopt this approach. For example an NGO responsible for a training centre might need to approve the incorporation of ViPi outcomes in its current activities.

For most trainers, dealing with these aspects may be outside their remit but three questions that might be useful for them to answer are:

- 1. Is there sufficient technical support for the initiative inside the organisation?** The right level of technical support will ensure that the appropriate assistive technology is available, access to the internet is maintained and the equipment is reliably working to ensure trainees are not frustrated by the technology. If utilising the materials online it must also be ensured that the machines (desktop or mobile devices) made available by the organisation have access to the online ViPi sites including the ATutor e-learning environment, the vipi-skills.eu portal and also the vipi-

project website and the mobile application. There is some crossover with the technological dimension here also as each organisation may have its own technological restrictions, such as locked down PC installation access which needs to be addressed at an organisational level to get all ViPi materials available to trainers and trainees.

2. **Do the trainers themselves feel confident using the ViPi tools?** The flexibility built into ViPi will facilitate its use by trainees with a wide range of ability and learning styles, but they will still require help to use the technology initially and if there is a steep learning curve for the technology or the usability is poor, they will have an unsatisfying experience and may feel that the technology is 'getting in their way'. It is therefore important to ensure trainers have been trained to a level of familiarity with the ICT and AT required by the platform, have received the ViPi handbook and are trained in ViPi outcomes. They should be happy with the initial training sessions and be able to receive ongoing support if they feel they need it.
3. **How will using ViPi fit in with the rest of the trainer's work and the current curriculum?** Does the trainer have sufficient time to devote to this learning? Do they need extra support to ensure that trainees have enough one to one support? Can links be formed to other parts of the curriculum, for example language learning, so that ViPi's activities can be integrated and seen to support learning that the trainees do in other parts of their education? An example of where this might work would be to learn how to create and format a document and include images, for an assignment as part of some other coursework.

## 2.4 Technological

This dimension includes factors related to access, accessibility, implementation and maintenance of the tools and services. For ViPi to be able to run and be available for the trainees who need it, there are important directives that need to be followed:

1. The organisation's current hardware and operating system must support the ViPi software
2. Web permissions must be set to allow access to the web material required to use ViPi for example [vipi-skills.eu](http://vipi-skills.eu), [vipi-project.eu](http://vipi-project.eu), and [isrg.org.uk](http://isrg.org.uk)
3. Machines/computers must have write access so that they are usable for ViPi practical exercises
4. The organisation must offer a sufficient number and type of mobile devices if the mobile application and mobile games of ViPi are to be adopted. Alternatively, the trainer needs to make sure all trainees have their own mobile devices that are compatible with the needs of ViPi applications.

The two questions relevant for this dimension are:

1. **What assistive technology do they need and is it available?** Trainees must have access to the assistive devices they require to access the platform. They may already be using such devices but those who have not previously used such devices may now need to be assessed to ensure they can utilise them where necessary. The piloting found that trainees also had personal preferences, for example touchscreen or laptop but some often wanted to try something new and more challenging.
2. **What adjustments do they need in the software platform options** such as setting games at the right speed, size of fonts used, using a text -to-speech translator. The guiding principle here is to



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remember to get the challenge/achievement balance right for each trainee. There are useful accessibility options at an operating system level which should be explored at an early stage with every trainee to improve their experience of using ViPi. This could be the accessibility settings in Android-based mobile devices, or the Ease of Access Centre in Windows. There may also be adjustments that can be made within individual programs such as font sizes or high contrast modes that may enhance the user experience.

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## Annex 1 – A Visual Representation of the Framework

This diagram is not intended to replace, but to complement and to help to summarise the textual information given in the document

Educational questions	Educational directives
How would the user benefit from improved basic ICT skills?	Take into account knowledge of trainee's capabilities and achievements so far but involve trainees in discussions about what they would like to learn.
How motivated are they?	
What are their capabilities? • What is the appropriate entry level for them? What are realistic training goals?	Be prepared to reassess if trainee observation and feedback indicate problems
How can I help them to do these things?	Ensure the balance between challenge and achievement is right for each person <ul style="list-style-type: none"> <li>Recognise the need for assistance from the trainer</li> <li>Select a range of different activities</li> <li>Select the most appropriate games and other learning objects</li> <li>Let trainee determine their own learning speed</li> </ul> Make sure the trainee receives appropriate feedback

Social Questions	Social directives
What is the best balance between individual and group learning?	If starting skill levels vary widely between trainees, ensure there is enough teaching support
Can trainees help each other to learn and can some peers act as tutors?	

Organisational questions	Organisational directives
	The organisation must be supportive of the introduction of ViPi and possess an appropriate pedagogic culture.
Is there sufficient technical support for the initiative inside the organisation?	
Do the trainers feel confident using the platform (Web and mobile)?	Train trainers in ICT and AT Ensure trainers have received the ViPi handbook and are trained in ViPi outcomes
How will ViPi fit in with the rest of the trainer's work and the current curriculum?	

Technological questions	Technological directives
	Ensure any programs required work on hardware and operating system available
	Ensure vipi-skills.eu, vipi-project.eu and isrg.org.uk can be assessed
	Ensure machines (desktop and mobile) are usable for practical exercises eg have write access
	Ensure all trainees have access to any required mobile technologies.
What ICT/AT do they need and is it available?	
What adjustments do they need in the software platform options and mobile devices?	Ensure ease of access settings are enabled

