

ICT FOR

# ACTIVE TEACHING AND LEARNING

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## INTRODUCTION

It is strongly believed that Information and Communication Technology (ICT) can add value to teaching and learning. All over the world new policies for educational reform are built around the premise and promise of effective ICT integration in teaching and learning. Also in Vietnam much is expected from integration of ICT in Education. Educators are encouraged to reasonably implement ICT in all grades and all subjects. In practice the current use of ICT for teaching practice is limited at best. Therefore it is believed that educators need to be prepared for a changed role for teachers and should know how ICT can be used in such a way as to strengthen the learning process towards active teaching and learning.

ICTs need to be seen as “an essential aspect of teaching’s cultural toolkit in the twenty-first century, affording new and transformative models of development that extend the nature and reach of teacher learning wherever it takes place” (Leach, 2005).

## A TOOLBOX ON ICT FOR ATL

This toolbox is an attempt to prepare teachers for a changed role and aims to show how ICT can be used for Active Teaching and Learning (ATL) to take place. The toolbox is an introduction to some tools which can be used for ATL. All the tools and instructional designs address the process where teachers and learners are constructing knowledge and insight in the world around them through active exploration, experimentation and reflection in interaction with each other and the learning materials.

The starting point of the selection of these tools was that they are easy to use by teachers and learners, easy to find and (mostly freely) available. The tools and technology enhanced instructional designs, all have the potential to innovate and/or transform teaching and learning practice. The different tools can for example support collaborative learning, problem solving, meaningful learning, ...

In this toolkit, the following tools and instructional designs are introduced:

- \* Mind Mapping
- \* Photo Story Telling
- \* Shared Writing
- \* Simulation
- \* Practice and Drill
- \* Webquest
- \* Presentation

## HOW TO USE THE TOOLBOX

The toolbox consists of seven modules. Each module gives a short introduction to a particular tool and instructional design, addressing the power of that particular technology enhanced instructional design. In each module you find illustrative examples and ideas for use of the particular methodology in teaching and learning practice, some thoughts about the added value, as well as some instructions and practical tips on how to start. For all modules there is a section with resources and references, in case you would like to get additional information, often including reflections of other educators on a specific tool or methodology. Finally for each module, a self-test assesses your knowledge on the respective module. The toolbox can be used for the following purposes:

- \* As a self-study package on ICT for ATL

You can proceed through the toolkit at your own pace. After completion of the toolbox, you will have been introduced to a series of possibilities for integrating ICT in teaching and learning activities. The tool will inspire you to try out some things in your own teaching practice.

- \* As a training tool

The toolkit can be used for training purposes: as a reference document for trainings on technology and on pedagogy, as a syllabus on integration of ICT in teaching and learning, full of illustrative examples and application fields.

- \* As a stimulus for collaborative work and a starting point for reflecting on pedagogy and technology enhanced instructional design.

The toolkit is an introduction and does not have the pretention to be complete. Educators around the world are encouraged to explore and apply the designs, to collaborate on applications, to discuss and comment on the proposed ideas.

- \* As...

## **SUBJECT DOMAIN EXAMPLES**

Examples are given for each tool and instructional design for use in different subject domains. The examples are not always directly related to a curriculum or textbook, but can inspire subject teachers of different grades on how the tools can be used for different purposes and for different aspects of a lesson (brainstorm, intro, discussion, feedback, revision, wrap up, ...). Examples range from primary to secondary and higher education (teacher education). Currently the toolbox only contains examples from Vietnam.

All examples from the following subject domains can be found on the toolkit:

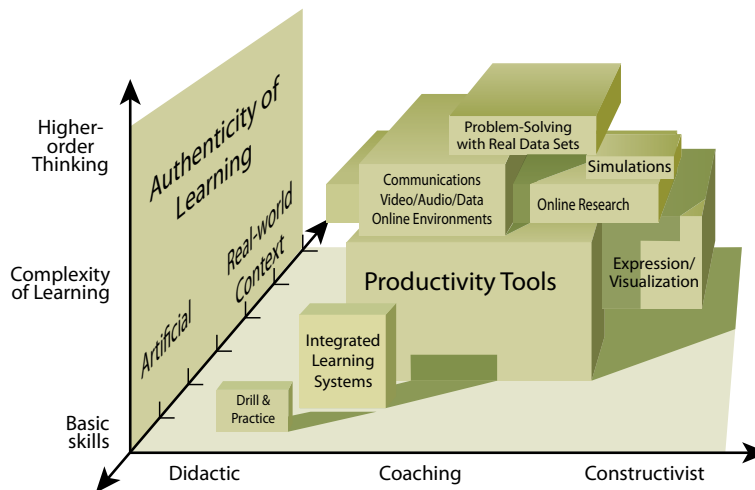
- \* Mathematics, Physics, Chemistry, Technology
- \* Social sciences, Education sciences, Psychology
- \* Geography, Biology, History, Physical education
- \* Literature, Languages, Music and Fine arts

For each module there is a section with some more detailed case studies on how particular designs can be used in the context of a particular lesson. For these examples, illustrative resources and artifacts, lesson plans and/or video fragments of lessons are attached.



## TECHNOLOGY ENHANCED INSTRUCTIONAL DESIGN

The tools are always just an element of a technology enhanced instructional design. Beyond introducing the tools, the toolbox wants in the first place to give inspiration and to reflect on teaching methodologies and student learning. The tools themselves will not automatically change the teaching practice and the learning activity. It all depends on how teachers and learners use the tools. The tools all have the potential to innovate and/or transform teaching and learning practice, with a focus on the learner and real-world applications.



*Instructional Approach to Learning*

This graph puts different ICTs in a continuum representing the relation between the complexity of learning and the instructional approach to learning (NCREL, 2003). Different tools have different potentials to enhance teaching and learning. Practice and Drill exercises for example, are mostly developed by teachers, testing the knowledge or basic skills of the learner. Simulations are often addressing higher order thinking skills where the learners construct knowledge and insight by themselves. In between these extremes you have Presentation tools to express and visualize, Webquests to organize online, problem-based research, Photo Story Telling to combine video and audio data, productivity tools such as word processing software to do Shared Writing, etc...

What is clear is that integration of ICT is not that much about the tool itself, but it is about education and about how the tools are used by teachers and learners to support teaching and learning.

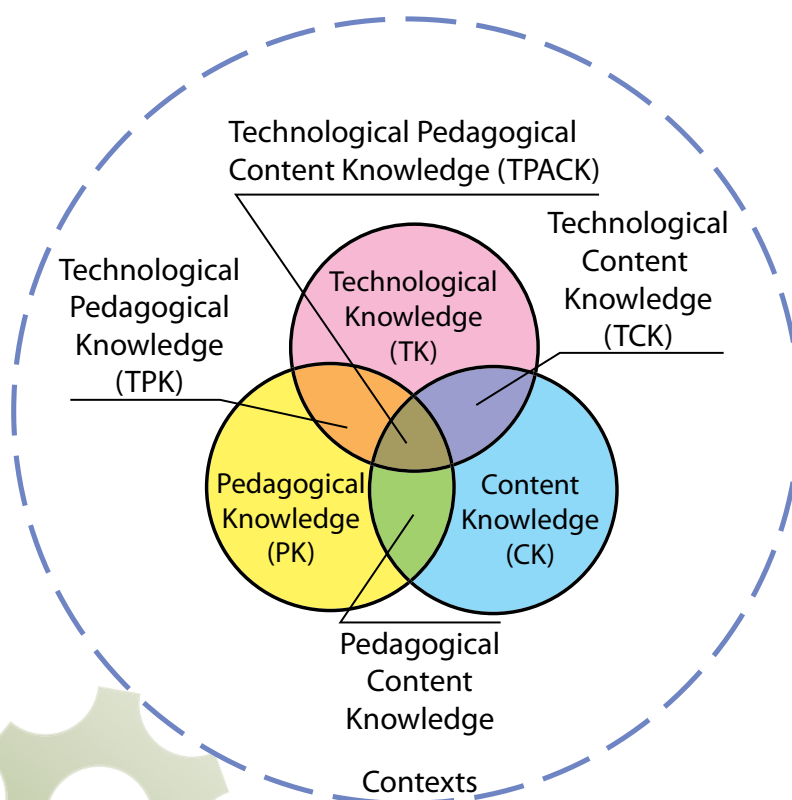
### References

NCREL. (2003). *21st century skills: literacy in the digital age*. North Central Regional Educational Laboratory (NCREL).

### *Input on Technology, Pedagogy and Content*

In this toolkit the learner/trainee will find input on different aspects of continues professional development on integration of ICT, with a focus on technical knowledge, pedagogical knowledge and the interplay between these types of knowledge. Subject examples touch upon content knowledge and serve to inspire subject teachers. It is up to the learner to see what input is most relevant at her/his stage in the integration process.

Integration of ICT in teaching and learning is a process which often takes places in a number of phases. In the first place investments are often made in access and availability of technology and skills training. Educators are trained about ICT and there is a focus on acquisition of ICT skills: teachers, but also learners have to know how to work with the medium and the technology. Another important element is pedagogical training on how to use ICT in teaching and learning. To grow confident in applying ICT in the teaching practice, skills training as well as pedagogical training are required ingredients of continues professional development. And it goes without saying that educators should have in depth insight in the content matter they are teaching.



**The TPACK model** (Technological pedagogical content knowledge) visualizes these important ingredients of continuous professional development. It gives an overview of three primary forms of knowledge an educator needs to possess or acquire for technology integration into their teaching: Technological Knowledge (TK), Pedagogical Knowledge (PK) and Content Knowledge (CK), as well as the interplay and intersections between them.

A teacher capable of negotiating these relationships represents a form of expertise different from, and greater than, the knowledge of a disciplinary expert (say a mathematician or a historian), a technology expert (a computer scientist) and a pedagogical expert (an experienced educator).

Professional development should therefore start from an assessment of and reflection on (personal) training needs.

As this toolkit can be used as a self-study package and/or a training tool on integration on ICT for ATL, a self-test is included which allows you to position yourself and/or your trainees to assess the training needs on Technological Knowledge, Pedagogical Knowledge and Technological Pedagogical Knowledge. The toolkit aims to build capacity and improve knowledge on these aspects of integration of ICT in education. The self-test can be found under "Assessment Tools".

*No assessment on Content Knowledge is provided in the self-test. See the Annex 1 for the self-test on TPACK.*

## Reference

\* <http://tpack.org>

\* Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). *Technological Pedagogical Content Knowledge (TPACK): The Development and Validation of an Assessment Instrument for Preservice Teachers*. *Journal of Research on Technology in Education*, 42(2), 123-149.

## LEARNING BY DOING AND LEARNING FROM PEERS

Input on these different types of knowledge is just the first step in the process of integration of ICT in teaching. It is to the learner to follow up with learning by doing and learning from peers. Learners/trainees are encouraged to apply what they learn in their own teaching practice and to invite colleagues/peers to observe and assess their teaching practice.

To facilitate the preparations of teaching practice and to facilitate lesson observations and peer assessment, a lesson plan template and a Lesson Observation/Assessment Tool (LO/AT) have been developed. A Lesson Observation/Assessment Scenario makes suggestions as to what elements are important for effective lesson observations and



assessments to take place.

The LO/AT is developed by VVOB Vietnam in collaboration with different development cooperation actors in Hanoi (BTC, UNESCO Hanoi, VNIES, HRCTEM) during a consultative workshop on assessment of teaching practice in 2009. The workshop brought together Vietnamese and foreign experts in the field of education in Vietnam, with a special focus on Active Teaching and Learning. The aim of the workshop was to reflect on assessment of the education change process from different perspectives and to develop instruments which allow rigorous assessment of the objectives of ATL.

**The following elements of the teaching practice are assessed with the tool:**

- \* Content
- \* Teacher's activities
- \* Students' activities
- \* Integration of ICT
- \* Classroom organization and management
- \* Outcomes and Output

The LO/AT can be used during and or after a lesson observation in the context of peer-review sessions or teaching competitions.

*See the Annex 2 for the LO/AT.*

## LESSON OBSERVATION/ASSESSMENT SCENARIO

For effective lesson observation and assessment to take place, there are several requirements.

*Timing* is important and the relative cost of doing regular lesson observations and assessments should not overshadow the ascribed benefits.

*Who* is doing the observation and assessment is important. The focus should be on learning from each other. In the context of peer-assessment, peer-reviewers must be peers in the true sense of the word. They must have a similar background and working context, preferably teaching a similar subject in the same level of education. On the other hand, mixed peers could contribute to a more multi-dimensional review and reflection. In the context of a teaching competition, jury members could add value by giving extra dimension to the review and assessment.

Finally lesson observations and assessment must be done with a user-friendly set of criteria which allow for value free and relative objective way of assessing.

The developed LO/AT is a user-friendly set of criteria which should allow for value free and relative objective assessment of teaching practice. Ideally it is used during or after a lesson observation by peers or jury members of a teaching competition. Observers fill out the tool and based on the assessment provide feedback to the teacher under review. No scores will be provided. The objective is to reflect on the different aspects of the lesson and together find out how to improve, if appropriate, the observed lesson.



# Practice And Drill



## INTRODUCTION

Practice and Drill promotes the acquisition of knowledge or skills through repetitive practice. It refers to small tasks such as memorization of spelling or vocabulary, or the practicing of arithmetic facts and may also be found in more sophisticated learning tasks or physical education games and sports. Practice and Drill, like memorization, involves repetition of specific skills, such as addition and subtraction, or spelling...

The purpose of Practice and Drill is to have the learner memorize information. It does not act as the teacher, but as a kind of automated exercise. In Practice and Drill activities questions are presented to the learner, the learner responds, and the software then gives feedback as to whether the answer is correct or incorrect.

Practice and Drill is one of the earliest types of technology enhanced instructional designs, and many educators today believe it to have little value in the classroom. However, Practice and Drill can be very powerful. It provides the student with individualized practice; the student must answer every question. In a classroom setting Practice and Drill provides more time on task than a group lesson can. Learners doing Practice and Drill can set their own pace (if the software allows), and their answers and feedback received are private.

## TEACHING AND LEARNING

### *Education Purposes*

In education, Practice and Drill exercises are used to:

- \* **Refresh or revise:** Practice and Drill helps learners to refresh knowledge that they have learnt, to revise knowledge and skills.
- \* **Consolidate:** Practice and Drill activities help learners master learning materials at their own pace. Practice and Drill exercises are usually repetitive and are used as a reinforcement tool.
- \* **Assess learning needs and orientate:** Practice and Drill helps learners to orient themselves to a new topic or theme, by assessing their existing knowledge and skills related to that topic or theme.
- \* **(Self-) evaluate learning outcomes:** Based on assessment, learners can evaluate their learning needs. Re-take of Practice and Drill exercises can inform learners about their progress in comprehension or ability.

## *In classroom teaching*

Practice and Drill activities can be applied in various stages of the teaching process:

- \* **To introduce the new lesson:** When learners are not familiar with new concepts, Practice and Drill exercises can guide them to the specific theme of the lesson. Their curiosity and attention to the lesson can be stimulated.
- \* **During the lesson:** Learners can consolidate their knowledge and comprehension after finishing certain sections or chapters of the course. Short Practice and Drill exercises can give the teacher immediate feedback about the pace of the lesson.
- \* **To review and evaluate learning outcomes:** Practice and Drill can be used to monitor and evaluate learner's cognition. This can take the shape of a teacher's evaluation as well as of a learners' self-evaluation. The method helps teachers to test learners' knowledge and skills at the beginning of the lesson and to compare with their results after the input.

## *Some notes*

To be meaningful to learners, the skills built through Practice and Drill should become the building blocks for more meaningful learning.

Effective use of Practice and Drill depends on the recognition of the type of skill being developed, and the use of appropriate strategies to develop these competencies. Teachers should develop questions that govern the content of the lesson so that learners stay focused on it.

Multiple choice tests provide a fast and easy way to evaluate whether learners achieve a specific objective. Multiple choice items should be adjusted to avoid the commonplace, and they should be varied to enforce the testing of newly learnt knowledge.

## *Subject examples*

The curriculum application areas for Practice and Drill include any area where basic skill mastery is desired. Memorization of math facts, grammar practice, and foreign language vocabulary practice are examples of appropriate use of this software. There are two ways how Practice and Drill can be integrated in the curriculum. The first way is to focus on a specific subject area or a part of that area. The most common areas are reading and math. The second possibility is to attempt to improve skills in several areas of the curriculum.



### **Some inspiration for use of Practice and Drill in different subjects**

- \* Mathematics: To practice multiplication, division and other simple calculations.
- \* Chemistry: To revise knowledge of chemical elements by matching chemical elements with formulas.
- \* Language: To revise vocabulary by matching descriptions with words, to practice spelling.
- \* Literature: To refresh poetry by gap filling, to practice rhymes by matching.
- \* Geography: To assess knowledge by matching sightseeing spots with cities.
- \* Biology: To refresh an experiment by ordering steps of an experiment, to revise the anatomy lesson by matching body parts.
- \* Music: To assess knowledge about popular music with puzzles or crosswords about musicians and musical works.

### **Some detailed case studies**

#### **Environmental Education**

- \* Level: College
- \* Content: Exploring environment-related concepts
- \* Activities:
  - The students individually work on a multiple choice test.
  - The students exchange the result to each other.
  - The teacher and students check the result together.
  - The students score the result of their peers.

See the exercise in the Vietnamese ICT4ATL toolkit (CD).

#### **Language**

- \* Level: College- Language
- \* Content: Errors in sentences
- \* Activities:
  - The teacher divides the class into four groups.
  - The teacher delivers the multiple choice exercises on errors in sentences to each group (each group works on a laptop).
  - The groups of students do the exercise.
  - The groups of students compare the result to each other.
  - The teacher and the students discuss the errors in the sentences and discuss about causes and solutions.

See the exercise and lesson plan in the Vietnamese ICT4ATL toolkit (CD).

## Maths

- \* Level: Primary
- \* Content: Subtraction
- \* Activities:
  - The teacher asks the students to solve subtraction puzzles on paper.
  - In a plenary session, the teacher asks the students to do each puzzle.
  - The teacher checks the result on MS Excel and gives constructive feedback.
  - The teacher asks the students what they have to pay attention to when doing calculations.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

## English

- \* Level: Lower Secondary
- \* Content: Sport activity
- \* Activities:
  - The teacher plays a video of a boy who says some sentences in which adjectives and adverbs are used.
  - The teacher asks students to do the exercise "Fill in the blanks" designed with Hot Potatoes software.
  - Students are asked to type the answers to the questions.
  - The teacher checks the results and sums up the differences between adjectives and adverbs.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

## Biology

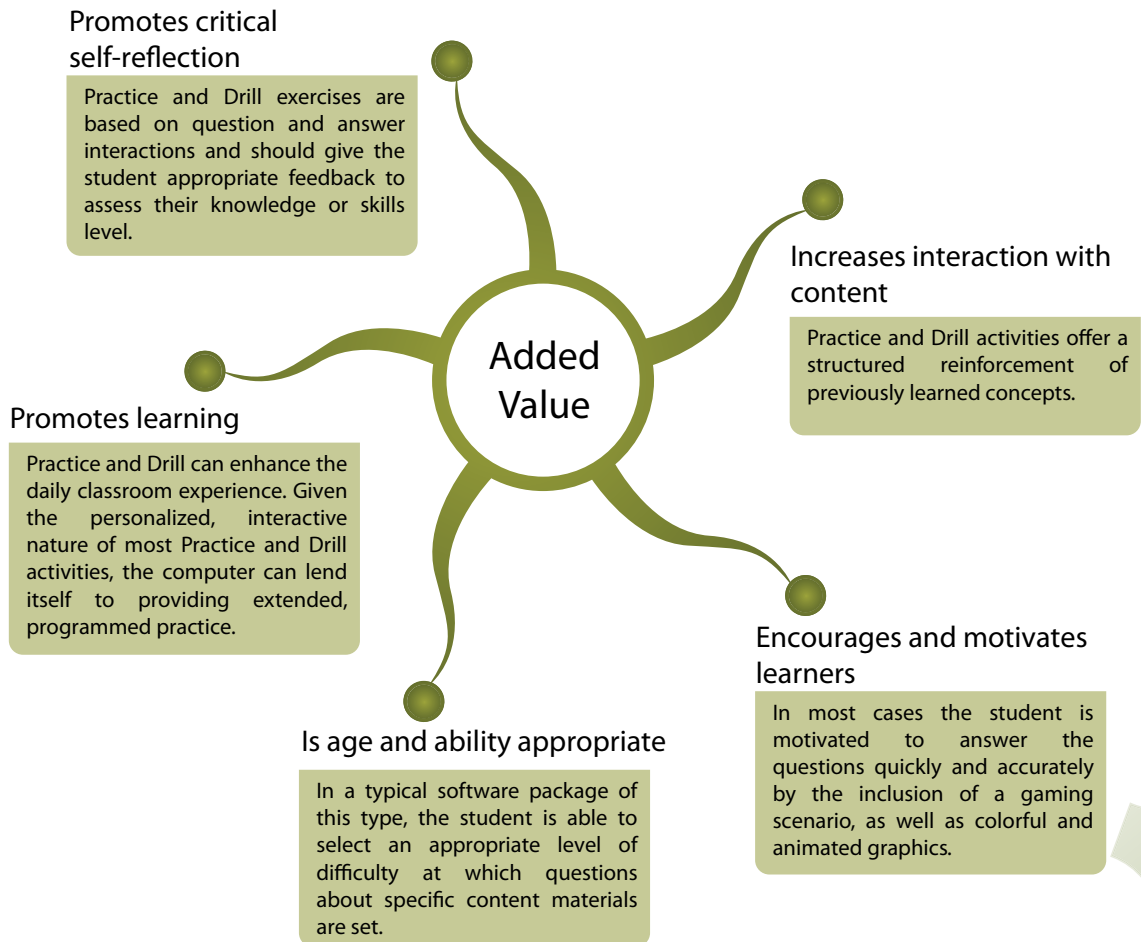
- \* Level: Upper Secondary
- \* Content: Enzyme and its role in metabolism
- \* Activities:
  - Teacher prepares the Crossword on HotPotatoes with questions related to enzymes.
  - Teacher calls some students and have them solve the crossword.
  - Teacher corrects the answer and gives some comments.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

## Added value

Practice and Drill activities help learners to master materials at their own pace. Practice and Drill exercises are usually repetitive and are used as a reinforcement tool. Effective use of Practice and Drill depends on the recognition of the type of skill being developed, and the use of appropriate strategies to develop these competencies. Carried out properly, Practice and Drill appears to be just as essential to complex and creative intellectual performance as they are to the performance of a virtuoso violinist.

### Practice and Drill ...



Practice and Drill exercises can be integrated in classroom Presentations for teachers to assess the pace of the lesson. To complement Webquests, Practice and Drill can be used to consolidate knowledge and insight.

## INSTRUCTION

Practice and Drill exercises can be created with productivity software such as MS

PowerPoint and MS Excel, as well as with more specialized software solutions like Hot Potatoes, Violet or ExE Learning to develop various exercises like crosswords, puzzles, matching/ordering and gap filling exercises, multiple choice tests, etc.

Good Practice and Drill software allows the inclusion of feedback to students, tips for correct answers, and contains a management system to keep track of student's progress.

### **Links to software downloads**

#### \* **ExE Learning**

URL: <http://exelearning.org/>

License: Open source

#### \* **Hot Potatoes**

URL: <http://hotpot.uvic.ca/>

License: Freeware

#### \* **Violet**

URL: <http://violet.vn/main/>

License: Copyright FPT and Bach Kim

### **Tutorials**

- \* Hot Potatoes is open-source software. It includes six applications, enabling users to create interactive multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises for the World Wide Web.

*How to use Hot Potatoes: Download at [http://hotpot.uvic.ca/hotpot6\\_help.pdf](http://hotpot.uvic.ca/hotpot6_help.pdf)*

- \* Violet is Vietnamese software which enables users to create drill-and-practice exercises like gap filling, pair matching, and crossword in Vietnamese.

- \* Link to download tutorial video clips: <http://daotao.violet.vn/>

*How to use Violet in Vietnamese: See Vietnamese ICT4ATL toolkit (CD).*

### **Some tips**

Notice that when selecting Practice and Drill package :

- \* It is developmentally appropriate for the students.
- \* It reinforces skills already taught.
- \* It is based on the individual students' needs.
- \* It meets the curriculum outcomes.

- \* It provides a positive learning experience for the students.
- \* It provides appropriate stimulation and reinforcement for the students.

## RESOURCES

### *References and online resources*

#### *Vietnamese*

- \* *Violet online library*

URL: <http://violet.vn/main/>

*Info:* This website provides the most updated version of Violet- A Vietnamese Practice and Drill software. It also allows users to design an online e-lecture, if she/he registers. Besides, it provides access to different e-resources, e-lectures and tests of different subjects of different levels.

#### *English*

- \* *Opinion about Practice and Drill and testing*

URL: <http://www.innovationlabs.com/blog2/2008/10/drill-and-practice-becomes-drill-and-test/>

*Info :* This is a blog entry on the website of InnovationLabs sharing opinions about the value of Practice and Drill and testing.

- \* *Instruction Strategies Online – Drill and Practice*

URL: <http://olc.spsd.sk.ca/DE/PD/instr/strats/drill/index.html>

*Info:* This website provides general instructions on learning and teaching strategies which help teachers to identify the appropriate approach to engage learners to achieve the best of their learning purpose.

- \* *Software for Education*

URL: <http://robles.callutheran.edu/~crowe/software.html>

*Info:* This website of the School of Education (California Lutheran University) gives an overview of different categories of software for education.

- \* Schery, T., O'Connor, L. (1997). *Language intervention: computer training for young children with special needs*. British Journal of Educational Technology. 28-4, 271-279.

URL: <http://olc.spsd.sk.ca/DE/PD/instr/strats/drill/index.html>

*Info:* This article provides information on the concept of Practice and Drill, its purpose and some possibilities of Practice and Drill software packages for student learning.

\* *Repetition and Drill Dull Creativity*

URL: <http://www.audiblox2000.com/repetition.htm>

*Info:* This article provides different opinions on the added value of Practice and Drill for student learning. It refers to research on Practice and Drill as an effective teaching method.

\* *Hot Potatoes collection*

URL: <http://hotpot.uvic.ca/sites6.htm>

*Info:* This website provides a collection of Hot Potatoes exercises and crosswords.

\* *Teaching and Learning Resource Center*

URL: <http://www.queensu.ca/ctl/goodpractice/help/practiceanddrill.html>

*Info:* This website from Queen's University provides a conceptualization of Practice and Drill teaching strategies.

\* *Tutorial / Drill-and-Practice Software*

URL: [http://www.cdli.ca/~dsulliva/technology/new\\_page\\_4.htm](http://www.cdli.ca/~dsulliva/technology/new_page_4.htm)

*Info:* This website provides background information on functionality of software applications and some tips for educators when designing Practice and Drill exercises.

## **WEB 2.0: PRACTICE AND DRILL ONLINE**

Many existing Practice and Drill exercises, developed for use in different subjects and to assess different kinds of knowledge and skills, can be found online.

The Internet also makes it possible to compare your knowledge and skills with other learners who completed certain Practice and Drill exercises. You can for example compare your typing speed with other users of the Typing Speed Test, or you can test your knowledge on climate change. On Facebook, IQ tests like BrainBuddy are available to test your intelligence and compare it with other Facebook users.

<http://speedtest.10-fast-fingers.com/>

<http://www.nature.org/initiatives/climatechange/activities/art19632.html#q8>

<http://www.intelligencetest.com/>

<http://www.facebook.com/>

## EVIDENCE-BASED RESEARCH

Here you can find some collected papers on technology enhanced instructional designs, describing and analyzing features, effects and impact on teaching, student learning. All papers are addressing integration of ICT in the Vietnamese education context.

Nguyen, H. (2010). *Using Violet software to support the pre-service teachers of the Elementary Education Department in colleges improving the mistakes in mathematical terminologies and symbols, in the unit « Logic ».*

### Abstract

Pre-service teachers of the Elementary Education Department in Thai Nguyen Teacher Training College (TTC) often make mistakes in mathematical terminologies and symbols in the unit « Logic », which leads to the low learning result. The research question is whether multiple choice exercises designed in Violet help improve this situation. The research is conducted with first year students of the Elementary Education Department of Thai Nguyen TTC. An experimental group uses the multiple choice exercises designed in Violet, while the control group only learns in a more conventional way. If the research finding shows that the use of multiple choice exercise designed in Violet helps students to improve their learning in mathematical terminologies and symbols, further research can focus on using this kinds of exercises in different units of Mathematics.

*The full paper will be updated in the second version of ICT 4 ATL toolkit.*

## TEST YOURSELF

Take your time to revise your knowledge on this technology enhanced instructional design.

1. **Many people feel Practice and Drill is out of date and not appropriate for meaningful learning to take place. On the other side of the argument, people still support the idea of Practice and Drill as an effective teaching methodology. For what purposes is it appropriate to develop Practice and Drill exercises?**

- a. To increase learners' acquisition of basic skills in a certain subject area.
  - b. To give background information as a warm up.
  - c. To stimulate the learner's short term memory.
  - d. To assess or review content knowledge.
  - e. To structure, visualize and classify ideas.
  - f. To experiment and explore before discussing theory.
2. **Practice & Drill software packages offer structured reinforcement of previously learned concepts. What are requirements of good Practice & Drill software packages?**

***Good Practice & Drill software packages :***

- a. Should give the learner appropriate feedback.
- b. Should allow the learner to select the appropriate level of difficulty at which questions about specific content materials are set.
- c. Should contain a management system to keep track of learner's progress.
- d. Should motivate the learner by the inclusion of a gaming scenario, as well as colorful and animated graphics.
- e. Should give the learner a score in points.

*See the key at the page 110.*







# Presentation



## INTRODUCTION

Presentation is the practice of showing and explaining the content of a topic to an audience or learners. Presentation is a methodology to support teachers to deliver a specific message.

Presentation is amongst the most common and popular technology enhanced instructional designs because Presentation software can support direct instruction and teaching methodologies. A Presentation program is supposed to help as well the speaker with an easier access to her/his ideas as the participants with visual information which complements the talk.

Presentation programs can either supplement or replace the use of older visual aid technology, such as pamphlets, handouts, blackboards, flip charts, posters, slides and overhead transparencies. Text, graphics, movies, and other objects are positioned on individual pages or “slides” or “foils”. Slides can be printed, or (more usually) displayed on-screen and navigated through at the command of the presenter.

## TEACHING AND LEARNING

### *Educational Purposes*

Presentation is a form of direct instruction. The direct instruction strategy is highly teacher-directed and is among the most commonly used. This strategy is effective for providing information or developing step-by-step skills. It also works well for introducing other teaching methods, or actively involving students in knowledge construction.

In education, Presentations can be used to

- \* **Support the access of ideas:** Presentations are supposed to help as well the speaker with an easier access to her/his ideas as the learner with visual information which complements the talk.
- \* **Attract learners to the content:** Teachers use Presentation software to create visually oriented Presentations that can be displayed on a monitor or projected onto a screen. These programs allow users to insert text, clip art, photographs, and audio into a sequence of slides and to set up custom navigation between slides. All this makes the information transfer more attractive for the learner.
- \* **Sequence the construction of knowledge:** Most Presentation software allows for the creation of individual slides which are presented in a linear way to the learner. A good Presentation takes the learner by the hand to go through an amount of knowledge and/or to construct knowledge in an interactive process between the presenter and

the audience.

### *In classroom teaching*

Presentation software can be used in different parts of the lesson, with different aims and objectives:

- \* **To introduce the new lesson:** Presentations can be used as a warm up, to attract learners' attention, to inform learners about the objectives of the lesson, to recall previous learnt lessons.
- \* **For learners to attain new knowledge:** Presentations can be used to introduce new concepts. Presentations can be used to give learning instructions, to clarify assignments or to provide feedback.
- \* **To review and evaluate learning outcomes:** Presentations can be used by the teacher to consolidate knowledge, to overview and to summarize.

### *Some tips*

The use of Presentation software can result in information overload, leading to tiring and time consuming lesson activities. The learners can become very passive at the end of such an activity.

Another disadvantage of using Presentation software is that sometimes the visual aspects of the Presentation become more important than the content and the learning activities. Some teachers pay more attention to the looks of a Presentation rather than on the active involvement of the learners.

Consider using handouts as a tool to support learners to follow the Presentation. Learners do not need to take notes, and handouts can go along with the exercises. Handouts can help learners to summarize and follow the overview of the lesson.

Consider using pause points which enable learners to review and reflect, take their necessary time to absorb the information, and to self-assess their understanding of the knowledge.

To increase the efficiency of a Presentation and to avoid passive learning from learners, teachers should develop other activities parallel with their presentations.

### *Subject examples*

Some inspiration for Presentations in different subjects:

- \* History: To present a person or event in history, to consolidate a time line.
- \* English: To consolidate a lesson on nouns, to illustrate new words, to draw attention to

spelling.

- \* Chemistry: To present and sequence the steps of an experiment.
- \* Biology: To present on a field trip, to illustrate bird life with pictures, to present microscopic pictures.
- \* Mathematics: To present a mathematical definition, to illustrate the calculation of an area.
- \* Social science: To attract learners to a social issue with a picture presentation, to sequence a theory on human behavior.
- \* Technology: To showcase different types of innovations.
- \* Geography: To show maps and different kinds of roads, to consolidate a lesson about landscapes with a schematic overview.

### Some detailed case studies

#### Biology

- \* Level: Upper Secondary, 11th grade
- \* Content: Bio-Electric potential
- \* Activities:
  - The teacher asks students to look at the Presentation of Bio-Electric Potential.
  - The teacher asks students the question: How to measure the Bio-Electric Potential of a squid?

See the Presentation in the Vietnamese ICT4ATL toolkit (CD).

#### Geography

- \* Level: Primary
- \* Content: Hanoi
- \* Activities:
  - The teacher shows the map of northern Vietnam on MS PowerPoint.
  - The teacher asks the students to answer some questions:
    - Where is Hanoi located?
    - Which provinces border Hanoi?
    - How can you get from your province to Hanoi (with what kind of transportation)?
  - The teacher calls some students to the front to answer the questions.
  - Giáo viên đưa ra đáp án và kết luận.
  - The teacher gives the correct answer and makes a conclusion.

See the Presentation, lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

## Environmental education

- \* Level: College
- \* Content: Drain water and solid waste in Vietnam
- \* Activities:
  - Students watch a video without subtitles about the situation of waste water and solid waste and raise questions for discussion.
  - Students present their own solutions in a Presentation.
  - Students write their subtitles.
  - The teachers asks students to reflect on the situation of waste in their own local environment and in Vietnam.

See the Presentation in the Vietnamese ICT4ATL toolkit (CD).

## IT

- \* Level: College/ University
- \* Content: Wiki
- \* Activities:
  - The teacher asks a question on how to collaborate with each other?
  - The teacher gives a Presentation on the concept and characteristics of Wiki.
  - The teacher asks students to follow the step-by-step Wiki tutorial on a Presentation and to practice setting up a Wiki page.
  - The teacher goes around scaffolding students.

See the Presentation in the Vietnamese ICT4ATL toolkit (CD).

## Chemistry

\* Level: Upper Secondary

\* Content:  $\text{NH}_3$

\* Activities:

- The class is divided into 5 groups.
- Each group finds information on a specific topic on  $\text{NH}_3$  (chemical structure, physical characteristics, complex, properties) and makes a Presentation.
- Each group gives the presentation in the class.
- Each Group does an experiments to illustrate and explain phenomena (with Digital Photo Story).

See the Presentation, lesson plan and video clip in the Vietnamese ICT4ATL toolkit (DC).

## Chemistry

\* Level: Higher education

\* Content: Role of forests and green trees

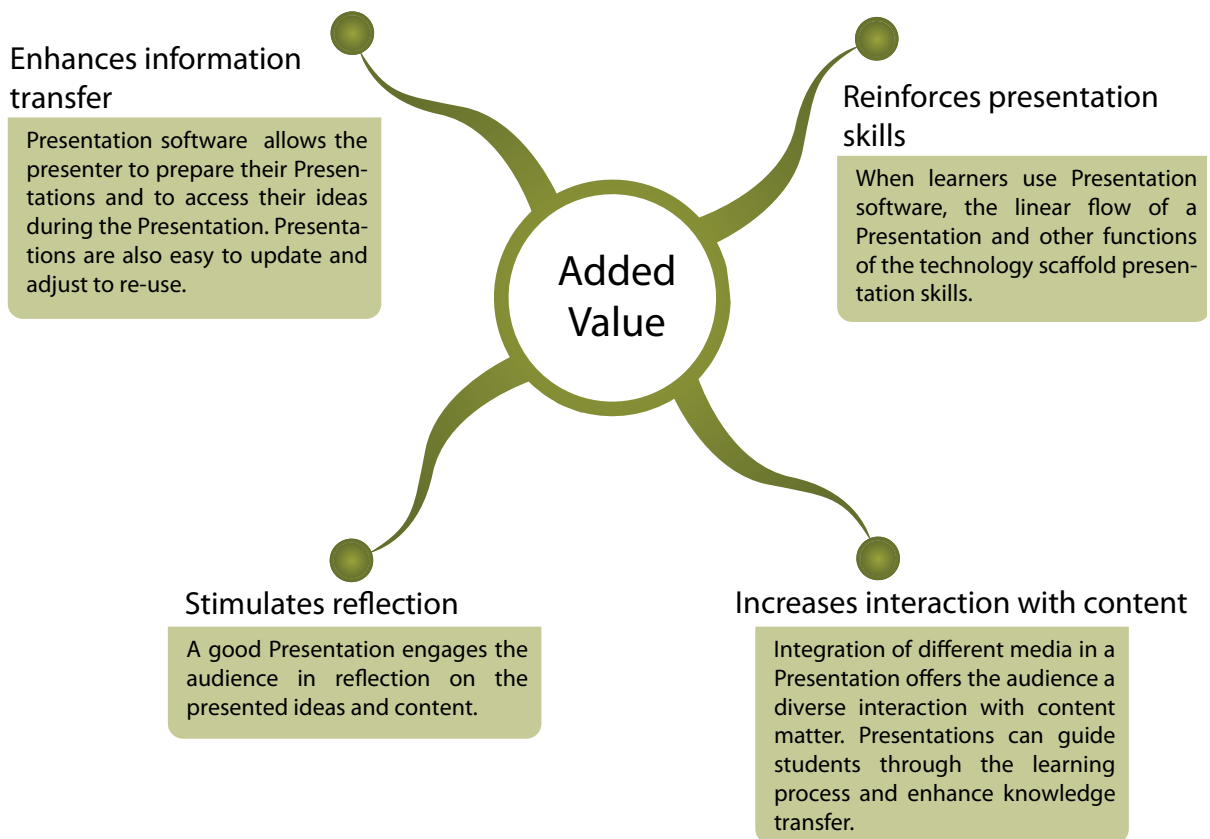
\* Activities:

- The lesson is organized like a competition with 4 groups and some students as jury members. The groups prepared 4 topics before going to class.
- Students use PowerPoint and video clips to present their topics.
- The teacher raises questions for students to answer and links to the next topic.
- After the Presentations of the groups, the examining board evaluates and scores.

See the video clip in the Vietnamese ICT4ATL toolkit (CD).

## Added value

### The use of Presentations in teaching and learning...



## INSTRUCTION

Presentations such as pamphlets, handouts, posters, etc. can be made on paper, on the blackboard or the whiteboard, on flip charts, etc...

Typically Presentation software includes three major functions: an editor that allows text to be inserted and formatted, a method for inserting and manipulating graphic images and a slide show system to display the content.

MS PowerPoint or Open Source alternatives (Open Impress from Open Office) are very popular software solutions to develop digital Presentations where text, graphics, movies and other objects are positioned on individual pages or "slides" or "foils". Slides can be printed, or (more usually) displayed on-screen and navigated through at the command of the presenter.



Recently a new presentation paradigm has emerged: zooming presentation programs (eg. AHEAD and Prezi). Instead of individual slides these ZUIs (zoom user interface) are based on one infinite canvas on which all content is presented. This allows for non-linear presentations, the option to present richer detail of content, and to give a better overview and understanding of complex visual messages and relations.

### **Links to software downloads**

\* **MS PowerPoint (trial version)**

URL: <http://office.microsoft.com/en-us/>

License: Copyright © 2010 Microsoft Corporation.

\* **Impress**

URL: <http://vi.openoffice.org/> (Vietnamese version)

URL: <http://www.openoffice.org/> (English version)

License: Free, open source, Copyright © 2010, Oracle and/or its affiliates.

\* **AHEAD**

URL: <http://ahead.com/>

\* **Prezi**

URL: <http://prezi.com/>

License: © 2010 Prezi Inc.

### **Tutorials**

The Photo Story tutorial (*See ICT4ATL toolkit*) guides you through the basic steps of developing a Presentation in MS PowerPoint, starting from opening the software and adding titles and subtitles, to saving and presenting the Presentation.

The following steps are showed in detail:

1. Open Presentation software
2. Add title and subtitle of presentation
3. Create new slides
4. Present text
5. Illustrate with pictures, ...
6. Tables, ...
7. Charts, ...
8. Create theme
9. Save presentation
10. Show presentation

## MS PowerPoint (trial version)

Manual: <http://www.msoffice-tutorial-training.com/> (in English)

## Impress

Manual: <http://www.tutorialsforopenoffice.org/> (in English)

### *Some tips*

Notice that when using Presentations in classrooms for teaching and learning:

- \* Care must be taken on the class facility, including light, space, and position of the screen.
- \* Slide color is important. Too bright colors would annoy people. A Presentation should have a plain, light-dark background to lighten the text and ease people's eyes.
- \* Display time needs to be considered.
- \* If sound, or video files are used, it is better to adjust those files to be default and integrated in MS PowerPoint.
- \* Font used should be appropriate and functioning for every computer. Recommended Fonts to use are Unicode, Arial or Times New Roman.
- \* Font size should be appropriate (in range of 20-44 pt), depending on the Presentation style and the audience.
- \* The number of words on a slide should be limited as the slides are used to help teachers elaborate their presented ideas.
- \* Slides should mainly be composed of illustrative figures, images and videos. Good selected illustrations enhance the Presentation efficiency.
- \* Animated transactions increase the attraction for the audience. However it is recommended that these effects are not overused as they can distract the learning focus of the learners.
- \* Slides should not repeat the content of the lecture. A Presentation should only give bullet points on the problem. Images can stimulate learners' thinking and can help learners to brainstorm before giving their answers. The Presentation should be designed to attract learners in the teaching-learning process.

## RESOURCES

### References and online resources

#### Vietnamese

- \* *6 ways to convert MS PowerPoint slides to Flash*  
URL: [http://www.quantrimang.com.vn/kienthuc/tin-hoc-van-phong/ms-powerpoint/56305\\_6-cach-chuyen-doi-tap-tin-trinh-chieu-tu-PowerPoint-sang-Flash.aspx](http://www.quantrimang.com.vn/kienthuc/tin-hoc-van-phong/ms-powerpoint/56305_6-cach-chuyen-doi-tap-tin-trinh-chieu-tu-PowerPoint-sang-Flash.aspx)  
Info: This article provides six ways to convert MS PowerPoint slides to Flash.
- \* *How to convert MS PowerPoint to Video*  
URL: [http://www.quantrimang.com.vn/kienthuc/tin-hoc-van-phong/ms-powerpoint/65149\\_Chuyen-doi-cac-trinh-dien-Powerpoint-thanh-video.aspx](http://www.quantrimang.com.vn/kienthuc/tin-hoc-van-phong/ms-powerpoint/65149_Chuyen-doi-cac-trinh-dien-Powerpoint-thanh-video.aspx)  
Info: This article shows how to use Leawo Powerpoint Converter to convert MS PowerPoint to video.
- \* *MS PowerPoint Instructions*  
URL: <http://www.dayhocintel.net/diendan/showthread.php?s=0af1154d9a874f861ae6c3c6d33f6beb&t=7107>  
Info: This website provides a download link to a manual in Vietnamese on MS PowerPoint.
- \* *Tips for using MS PowerPoint*  
URL: [http://www.quantrimang.com.vn/kienthuc/tin-hoc-van-phong/ms-powerpoint/62734\\_MS-PowerPoint-Bai-12-Cac-meo-su-dung-PowerPoint.aspx](http://www.quantrimang.com.vn/kienthuc/tin-hoc-van-phong/ms-powerpoint/62734_MS-PowerPoint-Bai-12-Cac-meo-su-dung-PowerPoint.aspx)  
Info: This article provides some notes on making an effective MS PowerPoint Presentation.
- \* *MS PowerPoint- 5 ways how to upload MS PowerPoint slides on the web*  
URL: <http://mspil.net.vn/gvst/forums/p/1343/2431.aspx>  
Info: This website shows five possibilities to upload an MS PowerPoint Presentation to the web.

#### English

- \* *PowerPoint is Evil*  
URL: <http://www.wired.com/wired/archive/11.09/ppt2.html>  
Info: This is an opinion article (essay) about the power of MS PowerPoint and good and bad Presentations.
- \* *PowerPoint is not Evil*  
URL: <http://www.ntlf.com/html/sf/notevil.htm>  
<http://www.ntlf.com/html/sf/cyberspace.htm>

*Info:* This is a response to the essay about “PowerPoint is Evil”, sharing an opinion about the pedagogical value of the Presentation tool.

\* *PowerPoint and the future of education*

URL: <http://www.ellenfinkelstein.com/Education.htm>

*Info:* This is an MS PowerPoint Presentation about technology and education.

\* *PowerPoint in education*

URL: <http://www.shockmd.com/2009/03/05/powerpoint-in-education/>

*Info:* This is a blog entry about MS PowerPoint in education with a comparison with “traditional” lectures or Presentations.

\* *Wikipedia about Presentation programs*

URL: [http://en.wikipedia.org/wiki/Presentation\\_program](http://en.wikipedia.org/wiki/Presentation_program)

*Info:* This website provides information about Presentation programs, with a brief history and a description of main features.

## THE WEB 2.0: PRESENTATIONS ONLINE

The internet makes it possible to share and publish Presentations online on websites such as slideshare. Moreover, collaboration on Presentations is possible via many web-based Presentations tools such as Zoho Show and Prezi. Also Google Docs allows for multiple users to work on Presentations. Via Google Docs you can edit Presentations anytime and from anywhere. Moreover you can choose who has access to your Presentations and you can share changes in real time.

<http://www.slideshare.net/>

<http://show.zoho.com/>

<http://prezi.com/>

<http://docs.google.com/>

## EVIDENCE-BASED RESEARCH

Here you can find some collected papers on technology enhanced instructional designs, describing and analyzing features, effects and impact on teaching and student learning. All papers are addressing the integration of ICT in the Vietnamese education context.

Trương, T. (2010). *Students’ usage of MS PowerPoint software to present group discussion in teaching in Pham Van Dong School, Quang Ngai.*

## Abstract

MS PowerPoint is easy to use and appropriate for the students in Pham Van Dong University, Quang Ngai. To improve the awareness on possibilities of ICT, the pedagogical capacity and ICT skills of students, teachers of Biology require students to use Presentation software to make a Presentation on some topics of Biology. The research is conducted in two groups: the Biology-Chemistry College class and the Intermediate Kindergarten class. One group develops an MS PowerPoint Presentation on one specific topic of Biology while the other group prepares a traditional presentation without the use of Presentation software. The teacher compares the two groups and their presentations on the content of the presentation, the students' lecturing skills and their level of understanding.

*The full paper will be updated in a later version of the "ICT 4 ATL toolkit".*

## TEST YOURSELF

Take your time to revise your knowledge on this technology enhanced instructional design.

### 1. True or False?

- Presentation software can support direct instruction teaching methodologies. Therefore Presentations cannot be used to actively involve students in knowledge construction.
- Presentation programs can either supplement or replace the use of older visual aid technology. Especially the possibility to integrate different media such as text, graphics, movies, and other objects, can attract students in a more engaging way to the content.
- Presentation software and tools only allow for the creation of individual slides which are presented in a linear way to the learner.

### 2. Typically Presentation software includes three major functions. Which one is not a major function of Presentation software:

- An editor that allows text to be inserted and formatted.
- A system to generate automatic feedback.
- A method for inserting and manipulating graphic images.
- A slide-show system to display the content.

*See the key at the page 110.*



# Mind Mapping



## INTRODUCTION

**A Mind Map** is a diagram used to represent words, ideas, tasks, or other items linked to and arranged around a central keyword or idea. Mind Mapping is a graphical way to represent ideas and concepts. In a Mind Map, information is structured in a way that resembles closely how the brain actually works.

Mind Maps can be created on paper, on a blackboard or whiteboard or with a computer (digital). A digital Mind Map can be developed by using productivity software, such as MS PowerPoint or MS Word, or with more advanced and specialized Mind Map software solutions. **Concept Mapping** is a similar idea, but focuses on connections between concepts in different, diverse patterns, while Mind Maps are based on radial hierarchies denoting relationships around a central governing concept. In this toolkit, both ideas are used interchangeably.

Mind Mapping as an instructional design is a powerful concept in education as it brings a new, non-linear perspective on the construction of ideas, knowledge and insight and as such innovates and transforms interaction between teachers and learners.

## TEACHING AND LEARNING

### *Education Purposes*

In education, Mind Maps can be used to:

- \* **Brainstorm:** Learners can develop ideas on a given topic and list all ideas related to the topic.
- \* **Categorize ideas:** After listing all ideas, learners can try to find relations between them and categorize them in order to make the Mind Map systematic and easy to analyze.
- \* **Identify problems and solutions:** In some cases, Mind Maps help to identify problems for learners and to find out appropriate solutions.
- \* **Record and present ideas:** Learners can use Mind Maps to record their ideas, to take note and to visually present their ideas to an audience.

### *In classroom teaching*

Mind Maps can be used at different times during a lesson for different purposes:

- \* **To introduce the new lesson:** The teacher can give learners a topic and ask them to list ideas around that topic.
- \* **For learners to attain new knowledge:** The teacher can ask learners to develop a

Mind Map to review and summarize key issues which they have just learnt, which helps them to consolidate the lesson. The teacher can also combine a Mind Map and questions on the topic, which helps learners to understand better and to master knowledge systematically.

- \* **To review and evaluate learning outcomes:** The teacher can ask learners to draw Mind Maps on a learning topic, through which she/he can assess their level of mastery.

### ***Subject Examples***

Some inspiration for use of Mind Maps in different subjects:

- \* Chemistry: To brainstorm about chemical features of agents.
- \* Technology: To systemize overall knowledge on breed, food and living habitat.
- \* Pedagogy: To systemize teaching methodologies at pre-schools.
- \* Biology: To present plants' growth processes, the nutrition pyramid (designing daily meals according to nutrition pyramid), relations in animals' population and community, and the structure of organs.
- \* History: To identify historical stages of a country and give related information in each stage.
- \* Literature: To summarize a story (roles, situation, climax, action, etc.).
- \* Foreign languages (English): To identify negative adjectives and categorize them according to prefixes (ir-, un-, in-, im-, dis).





## Some detailed case studies

### Mathematics

- \* Level: Upper Secondary, Grade 10
- \* Content: Usage of signs in first-order binomial, Grade 10 Algebra
- \* Activities:
  - The teacher divides the class into four groups.
  - Each group has to :
    - (1) Identify equation forms, (2) Provide the solutions for the inequation puzzle, and (3) Solve the inequation puzzle given by the teacher.
  - Groups of students present their outcomes in class.
  - The teacher and groups of students give feedback for the presentation.

See the Mind map in the Vietnamese ICT4ATL toolkit (CD).

### Social science

- \* Level: Upper Secondary
- \* Content: World population distribution
- \* Activities:
  - The teacher shows the world population distribution map to the students.
  - Based on the map, the teacher asks questions related to population distribution (what causes migration? What areas most populous? ....)
  - The students use a Mind Map to answer the questions.
  - The teacher makes comments about the answers.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

### Biology

- \* Level: Lower Secondary, Grade 7
- \* Content: Benefits of maritime products
- \* Activities:
  - The teacher divides the class into four groups.
  - Each group develops a branch of the Mind Map on one issue related to benefits of maritime products: (1) role, (2) context, (3) reasons for reduction and (4) measures to protect maritime products.
  - Groups of students present their outcome in class.
  - The teacher and groups of students give feedback for the presentation.

See the Mind Map in the Vietnamese ICT4ATL toolkit (CD).

## Biology

- \* Level: College, Chemistry-Biology, Biology-Physical Education
- \* Content: Summarize the classification of species and their evolution stage of angiosperms
- \* Activities:
  - The teacher divides the class into ten groups (each group represents one category of species).
  - The teacher shows the pictures of species on projector.
  - o Students, in groups, present the origin of the species of their category and draw a Mind Map on the evolution stage of that category.
  - The teacher gives comments on the Mind Map.

See the lesson plan in the Vietnamese ICT4ATL toolkit (CD).

## Education science

- \* Level: University, post-graduate
- \* Content: Developing a common definition of Active Teaching and Learning (ATL)
- \* Activities:
  - The lecturer and students discuss about definitions of ATL.
  - The lecturer and students brainstorm about different features of ATL definitions on a Mind Map.
  - The lecturer and students classify different features of ATL.
  - o Based on the Mind Map, students develop their own definition of ATL in Microsoft Word.

See the Mind Map in the Vietnamese ICT4ATL toolkit (CD).

## Literature

- \* Level: Lower and Upper Secondary - Grade 9, Grade 12
- \* Content: Prison Diary poems written by President Ho Chi Minh
- \* Activities:
  - The teacher gives learning tasks for the students: Each student draws a Mind Map to summarize knowledge related to President Ho Chi Minh's life, career, and social context of "Prison Diary" and topics of the diary.
  - Students individually draw a Mind Map.
  - Students share the Mind Map to each other.
  - One student presents his/her Mind Map on the screen, while the other classmates add more ideas to complete the Mind Map.
  - The teacher gives feedback on the complete Mind Map.

See the Mind Map in the Vietnamese ICT4ATL toolkit (CD).

## English

- \* Level: Lower Secondary
- \* Content: Vacation
- \* Activities:
  - The teacher prepares a Mind Map on “My vacation” (which might include: Where? When? How? What did you feel?...).
  - The teacher asks the students to answer the questions by jotting down some notes.
  - The teacher asks one or two students to come to the computer and type their answer.
  - After the students have filled out the Mind Map, the teacher can ask other students for questions or comments.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

## Psychology

- \* Level: University (Teacher Training)
- \* Content: Cognition
- \* Activities:
  - The lecturer and students build a Mind Map around the key word “cognition” related to the cognitive process (ie. knowledge summary).
  - During this activity, the lecturer asks questions: “Why human beings need to conceive the world? How do human beings conceive the world?”
  - Students identify relations of different nodes in the Mind Map.
  - Students in groups find out main concepts and sub-concepts based on the knowledge summary.
  - Students in groups adjust or add more items in the Mind Map where necessary.
  - Each group presents their Mind Map and their learning process.
  - The lecturer and students gives feedback on the Mind Map.

See the Mindmap and video clip in the Vietnamese ICT4ATL toolkit (CD).

## Social science

- \* Level: Primary
- \* Content: Traffic
- \* Activities:
  - The teacher asks the question: “How did you get to school this morning?”
  - Some students name some kinds of vehicles that they used to get to school.
  - The teacher shows a Mind Map to the students and asks the students how many modes of transportation there are.
  - The teacher asks the students to place the vehicles on the right modes of transportation.
  - The teacher gives comments.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

## Added value

Using Mind Maps in teaching and learning helps transforming “chalk and talk” teaching into more constructivist approaches to develop insight and knowledge. Mind Maps are ideally developed in a step by step process where teachers and learners interact with each other. Since it is an activity that is both analytical and artistic, it engages the brain in a rich way, helping in all its cognitive functions. Mind Maps can be used in many different contexts, it is simple and fun.

## Mind Mapping ...

### Stimulates reflection (recall)

When information enters the brain, Mind Mapping activities facilitate a rapid record of ideas into a structured system.

### Supports problem solving skills

Mind Maps provide learners with a comprehensive view and allow them to look at problems from different angles.

### Assists in planning

Mind Maps help learners to systemize related information in a simple way in planning to write a letter, a script, a book or planning a meeting, a holiday, etc.

### Is highly interactive

During the Mind Mapping process, learners can interact with their peers and the teacher.

### Enhances effective presentations

Mind Maps facilitate learners to organize ideas appropriately. Mind Maps are easy to understand and to present without having to look at the recorded notes in detail.

### Inspires and boosts creativity

Mind Mapping helps to go beyond the more traditional way of thinking by linear recording of events and allows new ideas to be created rapidly by association.

## Added Value

Mind Mapping can support Shared Writing activities, as they can inspire and assist in planning. For the same reasons they can be used to design a scenario for a Photo Story. Mind Maps can easily be integrated in Presentations.



## INSTRUCTIONS AND SOFTWARE DOWNLOADS

Mind Maps can be created with productivity software such as MS Word or MS PowerPoint as well as with more specialized software solutions such as Freemind, Emindmaps or Inspiration.

### *Links to software downloads*

\* **EdrawMap**

URL: <http://www.edrawsoft.com/freemind.php>

License: Freeware, Copyright EdrawSoft 2004-2010

\* **Emindmaps**

URL: <http://www.emindmaps.com/>

License: Freeware (earlier version), Copyright Mindjets

\* **Freemind**

URL: [http://freemind.sourceforge.net/wiki/index.php/Main\\_Page](http://freemind.sourceforge.net/wiki/index.php/Main_Page)

License: GNU

\* **Inspiration**

URL: <http://www.inspiration.com/>

License: Copyright ©2010 Inspiration Software, Inc.

### *Tutorial*

The Photo Story tutorial (*See the ICT4ATL toolkit*) guides you through the basic steps of developing a Mind Map, starting from a central keyword and including branches and nodes with additional information on the key concept.

The following steps are showed in detail:

1. Open Mind Mapping software
2. Start a “new” Mind Map
3. Add topics and sub-topics
4. Insert extra branches and arrange
5. Zoom out ... or in
6. Add pictures or figures
7. View Mind Map and/or print
8. Save Mind Map as an image

## Some tips

Notice that when creating a Mind Map:

- \* Start from the center with an image or a topic.
- \* Use colors, images, symbols, codes and arrows throughout the Mind Map appropriately (e.g., different colors are used to separate ideas). Each word/image must be alone and sit on its own line.
- \* Select key words and write them down in capital letters. Concise and informative words are highly recommended. The lines should be connected, starting from the central image. Main and sub-branches are connected by lines.
- \* Keep the Mind Map clear by using radial hierarchy, numerical order or outlines to embrace the branches.
- \* Use cross links: Information in one part of the mind map can be related to other parts. Users can use lines to show cross relations.



## RESOURCES

### References and online resources

#### Vietnamese

- \* Dang, T. (2007). *Tony Buzan, the Mind-Mapper*.  
URL: <http://tuoitre.vn/Nhip-song-tre/194908/Tony-Buzan-nguoi-ve-ban-do-tu-duy.html>

*Info:* In this article, you can find a conversation between Tony Buzan, the inventor of the Mind Map concept, and Vietnamese young people. Tony Buzan explores brain activity and the importance of the Mind Map approach for boosting creativity and memorizing ideas.

#### English

- \* *Concept Maps and Problem Based Learning*  
URL: <http://www.cotf.edu/ete/pbl2.html>

*Info:* On this website you can find out how Mind Mapping can be done to facilitate Problem Based Learning. The different steps in creating a Concept Map are presented and applied to a problem solving process in Biology.

\* *Blog: exploring Mind Mapping*

URL: <http://litemind.com/what-is-mind-mapping/>

*Info:* This is a blog where the author explores the idea of Mind Mapping in depth, provides tips, talks about computer (digital) Mind Mapping, published Mind Maps etc.

\* Buzan, T. (2003). *Mind Maps for Kids: An Introduction*. UK: Thorsons.

URL: Purchase at <http://www.amazon.co.uk/Mind-Maps-Kids-Tony-Buzan/dp/0007151330> (English version)

Purchase at <http://www.vinabook.com/ban-do-tu-duy-cho-tre-em-bi-quyet-cua-tro-gioi-m11i29532.html> (Vietnamese version)

*Info:* Mind Maps for Kids is Tony Buzan's first book written specially for a younger audience, suitable for ages 7 to 14. In Mind Maps for Kids, Tony Buzan explains this amazing system using step-by-step examples in every subject across the curriculum. He shows just how easy Mind Mapping is and how it can help kids to / remember things and concentrate better / make clearer and better notes / revise and ace exams! / come up with ideas and unlock the imagination / save time. As well as tips for improving memory and concentration, the book is packed with jokes, cartoons and brainteasers.

\* *Definition of Concept Maps*

URL: [http://users.edte.utwente.nl/lanzing/cm\\_home.htm](http://users.edte.utwente.nl/lanzing/cm_home.htm)

*Info:* This website provides a definition of Concept Maps and some examples and links to Mind Mapping software.

\* *Sample Mind Maps for writing activities*

URL: <http://www-personal.umich.edu/~jmargeru/conceptmap/types.htm>

*Info:* On this website some samples are shown of some of the kinds of Mind Maps students might create in pre-writing for various kinds of assignments, such as problem-solution map, process development map, Mind Map on convincing arguments, research topics and story order.

\* *Possibilities of using Mind Mapping*

URL: <http://www.graphic.org/mind-mapping-software/>

*Info:* This website provides some possibilities of using Mind Maps in different purposes: in management, in teaching and learning, and in personal development.

\* *Inspiration software*

URL: <http://www.inspiration.com/Parents/Visual-Thinking-and-Learning?fuseaction=techniques>



*Info:* This website from the software providers of “Inspiration” Mind Mapping software provides background information and theoretical background to the concepts of visual thinking and learning and links to suggested reading materials.

\* *Wikipedia about Mind Map*

*URL:* [http://en.wikipedia.org/wiki/Mind\\_map](http://en.wikipedia.org/wiki/Mind_map)

*Info:* This page provides the Wikipedia definition of Mind Map, describing the characteristics of a Mind Map, providing guidelines, describing the history, different use, and information about effectiveness in learning.

## WEB 2.0: MIND MAPPING ONLINE

The Internet significantly enhances the potential to brainstorm, categorize ideas and construct Mind Maps in an interactive way. Several online tools, such as Bubbl, Mind42, etc. allow you to publish your work online and collaborate with friends and colleagues on your Mind Map, at any time, all over the world.

Some online Mind Mapping tools can be found in the following links:

<http://www.mindmeister.com/>

<http://www.mindomo.com/>

<http://bubbl.us/>

<http://freemindshare.com/>

<http://www.mind42.com/>

## EVIDENCE-BASED RESEARCH

Here you can find some collected papers on technology enhanced instructional designs, describing and analyzing features, effects and impact on teaching, student learning. All papers are addressing the integration of ICT in the Vietnamese education context.

\* Nong, B., Pham, T. & Tran, T. (2009). *Applying Mind Mapping in teaching and learning Psychology*. 13th APEID UNESCO Conference: ICT Transforming Education, Hangzhou: China.

### **Abstract**

The aim of this paper is to examine the effects of digital Mind Mapping over paper-based Mind Mapping and conventional teaching methods on students' academic achievement and attitudes in learning Psychology. For the study, 90 first year students of Thai Nguyen Teacher Training Institute in Vietnam were selected. The participants were randomly allocated to three groups: experimental group, control group 1 and



control group 2. The teaching method used for the experimental group was digital Mind Mapping, conventional method for control group 1, and paper-based Mind Mapping method for control group 2 respectively. A pre-test and post-test control group research design was used. Findings show that there was a significant positive difference in students' academic achievement and attitudes towards learning Psychology through the computer-based Mind Mapping teaching and learning method.

*The full paper in English can be downloaded in Vietnamese ICT4ATL toolkit.*

*The Vietnamese version will be updated in the second version of ICT4ATL toolkit.*

- \* Tran, P. (2010). *Different methods and ways to use Mind Mapping in teaching Plant anatomy for students of Quang Nam University.*

### **Abstract**

Recently, teachers at different levels in Quang Nam province have applied different ways of using Mind Mapping in education. This research provides some input on the use of Mind Mapping in teaching plant anatomy, for students in Quang Nam University. Research shows a positive effect of using Digital Mind Mapping on improving interest, comprehension and memorization of students.

*The full paper will be updated in the second version of ICT 4 ATL toolkit.*

### **TEST YOURSELF**

Take your time to revise your knowledge on this technology enhanced instructional design.

#### **True or False?**

- In a Mind Map, information is structured in a way that resembles closely how the brain actually works. Therefore it is only appropriate to use Mind Mapping in subjects like Psychology, Pedagogy or Social sciences.
- Mind Maps can be created with software on a computer, but cannot be created on paper, on a blackboard or on a whiteboard.
- Mind Mapping is a simple tool to visualize complex concepts, relations between concepts and ideas, and processes.
- By using digital Mind Maps learners don't have to think any longer. The software will do this automatically for them.
- Mind Maps are organized around one key idea or concept, while concept maps are based on connections between concepts in more diverse ways.

*See the key at the page 110.*



# Shared Writing



## INTRODUCTION

Shared Writing is a writing process where participants develop ideas together. Shared Writing focuses on the process of composing text, sharing thoughts and ideas. The final outcome goes beyond a text written by an individual.

Shared Writing can be done with pen and paper, on a blackboard or a whiteboard, or facilitated by a computer with word processing software. The Shared Writing strategy enables teachers to make the writing process concrete and visible to students. In Shared Writing, the teacher and students compose text together, with both contributing their thoughts and ideas to the process.

Shared Writing is a simple but powerful technology enhanced instructional design. Word processing and writing skills are an essential aspect of 21st century skills and Shared Writing activities engage learners to use ICT to interactively create and to construct knowledge and insight.

## TEACHING AND LEARNING

### *Educational Purposes*

In education, Shared Writing can be used to:

- \* **Develop ideas and brainstorm:** The teacher and/or learners write down ideas and thoughts of learners/peers. Everyone can add ideas and discuss.
- \* **Categorize ideas:** The teacher can verbalize learners' ideas and asks them to focus on vocabulary, grammar choices and idea arrangement. Text can be organized to cover different aspects of an idea.
- \* **Edit and revise:** Learners can collaborate on a report or on a descriptive text to come to a better text document. Revisions can be made with track changes which allow comparing contributions to the text.
- \* **Analyse:** By arranging text and ordering, learners can get a more structured insight in content. Knowledge can be summarized and consolidated.
- \* **Present:** A text can be presented for revision or agreement.

### *In classroom teaching*

Shared Writing activities can be done at different stages of a lesson for different purposes:

- \* **To introduce the new lesson:** The teacher can start from a Mind Map of ideas gathered

around the key concept of the lesson and continue with a Shared Writing activity to bring the ideas together in a text.

- \* **For learners to attain new knowledge:** Learners can be asked to synthesize their knowledge in a shared text. They can work in groups on a text to construct knowledge and insight. The teacher can consolidate knowledge by finalizing a shared text.
- \* **To review and evaluate learning outcomes:** Learners can be asked to write down, to review and to summarize what they have learnt. The teacher can use these documents to assess learning outcomes.

### *Some tips*

Notice that when doing Shared Writing in a classroom context, the following steps can be followed:

1. The teacher/learner introduces a text and writes the topic on the blackboard or types it onto the text document.
2. Teacher/learner writes/types the first sentence. The teacher can use a class list and Story Telling order so that learners know their turn to add, revise, comment, etc...
3. The first learner can read the story written on the blackboard or on text document and think of one or two more sentences to continue the story. The next person will continue in the same way.
4. The last learner brings the story to an end.
5. The teacher cooperates with learners to edit and finalize the story. The teacher may ask learners what they think of it.

This process can be adapted flexibly to the class context and lesson content.

### *Subject examples*

Some inspiration for use of Mind Maps in different subjects:

- \* Language and Literature: To tell a story, to do a spelling check, to adjust ideas, to write an essay in group or a narrative.
- \* Biology: To report on a class fieldtrip, to write down observations.
- \* Chemistry, Physics: To summarize an experiment.
- \* Social science: To describe a situation or to report on an observation, to transcribe interviews.



- \* History: To narrate an important event, to write a biography, to summarize a historical period.

### Some detailed case studies

#### English

- \* Level: Upper Secondary
- \* Content: Technology and you
- \* Activities:
  - The teacher divides the class into groups.
  - Each group of students works together to type a paragraph about the use of computers on MS Word.
  - The teacher shows the output of the group work on the screen.
  - The teacher makes comments about the finished work and corrects mistakes (if any).

Xem kế hoạch bài học và đoạn băng trong đĩa CNTT cho DHTC.

#### Physics

- \* Level: University, Mathematics-Physics class
- \* Content: Magnet - Period 1
- \* Activities:
  - The teacher shows the students pictures on the use of magnets.
  - The teacher divides the class into groups of six.
  - Each group of students writes a paragraph in an MS Word document about the use of magnets.
  - The teacher and students edit one group's Shared Writing and gives comments.

See the Shared Writing extract in the Vietnamese ICT4ATL toolkit (CD).

#### Vietnamese language

- \* Level: Upper secondary/ University or College
- \* Content: Mistake correction - exercises
- \* Activities:
  - The teacher asks students to look for and correct mistakes in some sentences.
  - The students work in group on the text and discuss about mistakes and make corrections, using the track change function in MS Word.
  - The students present their final corrected text.
  - The teacher evaluates and provides feedback.

See the Shared Writing extract in the Vietnamese ICT4ATL toolkit (CD).

## Literature

- \* Level: Primary
- \* Content: Make up a new ending of «Legend of areca nuts and betel leaves».
- \* Activities:
  - The teacher divides the class into three groups.
  - Each group's representative tells a part of the legend from the original version after the teacher gives the starting sentences of that part.
  - After reflecting on the legend, each group of students in turn is asked to write a new, more optimistic ending for the legend.
  - The output of the group work is shown on the screen and students and the teacher comment on it.
  - The new end of the legend is matched with the first parts of the story to make a complete legend.

See the Shared Writing extract in the Vietnamese ICT4ATL toolkit (CD).

## Vietnamese Literature

- \* Level: Lower Secondary
- \* Content: Folk tales
- \* Activities:
  - The teacher asks the students about the definitions of fables and fairy tales and how to distinguish them.
  - The teacher divides the class into two groups.
  - The first group uses Mind Map to type the definitions of fables and fairy tales.
  - The second group uses MS Word to type the differences between fables and fairy tales.
  - The teacher corrects the answers and gives final comments.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

## Pedagogy

- \* Level: University, Office Administration
- \* Content: Environment - Period 2
- \* Activities:
  - In this lesson, the teacher combines Mind Mapping and Shared Writing activities.
  - The teacher asks the students to write about causes of pollution and different kinds of pollution on a Mind Map (or the teacher prepares a Mind Map on environmental pollution).
  - The teacher divides the students into groups.
  - Each group of students writes about the consequences of pollution and measures to prevent pollution in a MS Word document.
  - The teacher cooperates with students to finalize the produced text of each group.

See the Shared Writing extract in the Vietnamese ICT4ATL toolkit (CD).

## Vietnamese language

- \* Level: Primary
- \* Content: States and comparison
- \* Activities:
  - The teacher shows a poem/a paragraph which compares an action of one thing/animal to the other, along with a photo of that thing/animal on the computer.
  - The teacher asks the students to write a sentence to compare the action of one thing/animal to the other.
  - The teacher and the other students comment on the sentence.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).



## English

- \* Level: University, first year
- \* Content: Writing - Describing people and things.
- \* Activities:
  - The teacher shows a love story designed with Photo Story Telling software and asks students to watch the Photo Story.
  - The teacher randomly asks 5-7 students to create a story based on the Photo Story by each of them reading out loud a sentence.
  - The teacher types the sentences in an MS Word document and shows them on the screen.
  - The students use the editing tool and track changes in the MS Word to edit and finalize the story. The teacher gives comments on the story.
  - Teacher gives comments.

See the Shared Writing extract in the Vietnamese ICT4ATL toolkit (CD).

## History

- \* Level: University, College (History-Geography class)
- \* Content: Conditions to develop a civilization.
- \* Activities:
  - The teacher divides the class into four groups.
  - The first group presents a Photo Story about the exploration of Colombo.
  - The teacher provides the other three groups with a hypothetical situation: "Imagine that you were sailors on Colombo's ship. The ship is located in the Northern Philippines during a stormy night. You only have a compass, a sea map, a porch and a quadrant. How will you manage to return to Vietnam?" Each group writes down a different action plan for that situation:
  - Group 2 identifies the ships' position on the sea map.
  - Group 3 uses the compass to determine the direction.
  - Group 4 drives the ship to the West.
  - The teacher finalizes a complete journey, based on the action plans developed by students.

### Added value

The purpose of Shared Writing is to model the thought process involved in writing and to allow students to engage in and focus on the process. Students can focus exclusively on the thinking involved in writing. Shared Writing is also a powerful method for direct teaching of key skills and concepts needed in the writing process.

## Shared writing...

### Is highly interactive

Shared Writing by definition takes place in group or in pairs and is therefore based on interaction. Individuals feel valuable when they share with each other. Therefore encouragement to cooperate is an essential part of Shared Writing activities.

## Added Value

### Promotes independent and critical thinking

By Shared Writing, learners exchange their ideas, compare different points of view and work towards a product which is better than the sum of individual contributions. Learners can focus on creating and thinking independently while the teacher types the text.

### Stimulates reflection

Learners can reflect on the contents and ideas when they edit and review the text, when they rearrange and synthesize.

Shared Writing can result in a narrative for a Digital Photo Story, or Photo Stories can be an inspiration for Shared Writing. Mind Maps can be used to start a Shared Writing activity. Shared Writing can be organized to systematically report on Simulations, or to facilitate group work in the context of a Webquest.

## INSTRUCTION

Shared Writing can be done with productivity software such as MS Word or similar word processing software solutions. A particularly interesting feature of word processing software is the ability to use track changes to follow up on changes in the text when working with multiple writers.

### Links to software download

#### \* **Microsoft Word** (trial version)

URL: <http://office.microsoft.com/en-us/FX102855291033.aspx>

License: Copyright © 2010 Microsoft Corporation

#### \* **Open Office**

URL : <http://download.openoffice.org/other.html>

License: Free, open source, Oracle and/or its affiliates



### Some tips

In this overview below you can find some popular functions of common word processing tools, matched with some possibilities for Shared Writing.

Composing functions	Activities
Cut and paste	Text of unarranged sentences. E.g. In a poem or a literature work – learners practice collecting words to arrange them into a poem.
Insert	Learners insert connectives into a simple text to see its influences. E.g. insert marks into the text, such as comma.
Delete	Taking note: Students delete inappropriate parts in the text. E.g. Delete emphasis adjectives in the text.
Format	Students discover the effects of fonts when presenting poems and literature works; insert images.
Provide templates to support writers	E.g. A sample to guided writing, allowing learners to use and adjust when writing.
Columns	Learners design article columns, information sheets and reports.

## RESOURCES

### References and online resources

#### Vietnamese

- \* Information society. *Track Changes and Comment Functions in Microsoft Word*  
URL: <http://xahoithongtin.com.vn/8810p0c252/chuc-nang-tracks-change-comments-trong-microsoft-word.htm>  
Info: This website provides general instructions on how to open and use Track Changes and Comment functions in MS Word.

## English

### \* *A Balanced Writing Program*

URL: [http://www.hillsborough.k12.nj.us/139210101317713720/lib/139210101317713720/A\\_Balanced\\_Writing\\_Program.pdf](http://www.hillsborough.k12.nj.us/139210101317713720/lib/139210101317713720/A_Balanced_Writing_Program.pdf)

*Info:* This document explains different steps in Shared Writing activities and gives some examples and possible topics for Shared Writing activities.

### \* *Reading and Language Arts*

URL: <http://www.teachervision.fen.com/reading-and-language-arts/skill-builder/48883.html>

*Info:* This is a website introducing the concept of Shared Writing and arguing about the importance of the methodology in teaching and learning.

### \* *Shared Writing Methodology*

URL: <http://www.alpine.k12.ut.us/depts/curriculumDept/subjects/langArts/Framework/SharedWriting.pdf>

*Info:* This document introduces some guiding principles of Shared Writing as a cooperative instructional activity and asks for some reflection on the methodology.

### \* *Teaching ideas*

URL: <http://www.teachingideas.co.uk/ict/sharedwr.htm>  
<http://www.teachingideas.co.uk/more/timefiller/magicpenss.htm>

*Info:* These websites provide the process of Shared Writing and several pen starters for the Shared Writing.



Shared writing

## WEB 2.0: SHARED WRITING ONLINE

The Internet significantly enhances the possibilities to do Shared Writing activities. Very exciting is the Wiki concept where users can work together on a shared text at any time at any place in the world via a connected computer.

Wikipedia is a popular online encyclopedia developed in a collaborative way by its users. Other platforms are available to set up Shared Writing activities according to your own needs and context. Blog platforms are ideal to share your writings with a broader community of peers, friends and colleagues. Possibility to comment or even to share blogs makes blogging a tool to reflect, to discuss and to collaborate.

Also online forums often involve Shared Writing as a community of users is enabled to discuss, revise ideas, share and collaborate.

In Google Docs you can upload text documents and save to your desktop, you can edit anytime and from anywhere. Moreover you can choose who has access to your

documents and you can share changes in real time.

Một số công cụ trực tuyến về Bài viết chia sẻ có thể tìm thấy ở các trang web sau:

<http://vi.wikipedia.org/>

<http://pbworks.com/>

<http://www.wikispaces.com/>

<http://www.wikidot.com/>

<http://www.blogger.com>

<http://wordpress.com/>

<http://vn.360plus.yahoo.com/>

<http://www.docs.google.com/>

## TEST YOURSELF

Take your time to revise your knowledge on this technology enhanced instructional design.

### 1. What is a Wiki ?

- a. A Wiki is a collaborative project where different people are working on a shared text online.
- b. A Wiki is an Interactive Whiteboard system.
- c. A Wiki is an article on the Wikipedia.
- d. A Wiki is a person with the New Zealand nationality, connected to the Internet.
- e. A Wiki is an online Mind Map, created by different people.

### 2. There are some suggested steps to do Shared Writing in class.

- a. Students read the first sentence of the writing and write the second sentence.
- b. The teacher writes the first sentence of the writing in the word processing program.
- c. The teacher presents the topic of the writing and introduces the process of making writing.
- d. The teacher and students revise the writing to have a better writing.
- e. Students in turn read and continue writing.
- f. After completing the story, the teacher reads the writing.

*See the key at the page 110.*



# Photo Story Telling



## INTRODUCTION

Every picture tells a story and one image can tell more than 1000 words. A Digital Photo Story combines different media. A Digital Photo Story is a story made up by images, accompanied with written text, voice, motions, transitions and music, resulting in a rich product that can be used to express, share, describe, present, ... to tell a story.

Even though Photo Stories can be told with the images or pictures printed out, computer technology and specialized software solutions allow for a mash up of different media, unleashing unbound creativity in Story Telling.

*"Digital Storytelling is the modern expression of the ancient art of storytelling. Digital stories derive their power by weaving images, music, narrative and voice together, thereby giving deep dimension and vivid color to characters, situations, experiences, and insights."*

(Leslie Rule, Center for Digital Storytelling)

## TEACHING AND LEARNING

### *Education Purposes*

In education, Photo Story Telling can be used to:

- \* **Present:** Learners can use a Photo Story to report on a trip, a visit or a meeting, to describe a phenomenon, a person or an event. Students can describe for example a normal day in their life, or the place where they live with a story of pictures and narrated with voice.
- \* **Introduce:** Teachers and learners can make an overall introduction of an object or a word by using images.
- \* **Explain:** Teachers and learners can use a sequence of pictures to explain a phenomenon or a certain process.
- \* **Tell a story:** Teachers and learners can tell the story of a character or an event by pictures.
- \* **Create a learning situation:** Teachers can engage learners in a visual story and encourage learners to solve presented problems.

## In classroom teaching

Teachers of different subjects can use Photo Story Telling at different stages of a lesson:

- \* **To introduce the new lesson:** The teacher can introduce new concepts, ideas and background information, as a warm-up to engage learners in the learning process, to illustrate a problem.
- \* **For learners to attain new knowledge:** Learners can be asked to develop a Digital Photo Story to describe what they have learnt, synthesizing their knowledge, etc...
- \* **To review and evaluate learning outcomes:** The teacher can produce a Digital Photo Story as a visual summary of main concepts of the lesson, to revise and conclude a lesson.

## Some tips

Notice that when using Photo Story Telling:

It is most important to start from the “story” you want to tell. After identifying ideas, a good Digital Photo Story has a scenario or a plan, after which images, photos, voice and music can be collected. The quality of a Photo Story depends in the first place on the quality of *ideas and the message* of the story rather than on technical aspects of the multimedia product.

The following steps can guide you through the development of a Photo Story:

1. Identify ideas
2. Design scenario/plan
3. Collect data (images, photos, narrative voice, music)
4. Develop the Digital Photo Story (see tutorial)
5. Share, present, publish the Digital Photo Story

## Subject Examples

Some inspiration for use of Digital Photo Story Telling in different subjects:

- \* Chemistry: To instruct about steps of an experiment, to introduce models in environmental technology, production procedures of chemicals, and the impact of chemicals on the environment.
- \* Physics: To illustrate the establishment and the development of hydroelectric and

thermal power plants, to explain a power transmission system, voltage transformer types, electricity production procedures, activities of a hydroelectric power plant.

- \* Psychology: To introduce concepts of general psychology, to reflect on socio-historical characteristics of human psychology.
- \* Civil education: To tell stories of contemporary people in the society.
- \* Biology: To present the growth process of a tree, a fieldtrip, stories about animals under water and on land.
- \* History: To tell the story of a people in history, achievements or events.
- \* Geography: To describe local environmental problems, to report on a fieldtrip, to illustrate a study on natural and social phenomena.
- \* Literature: To describe and summarize a story (characters, context, climax, actions...).
- \* Foreign language: To illustrate listening exercises, to develop listening, speaking, reading and writing skills.

### Some detailed case studies

#### Physics

- \* Level: Lower Secondary
- \* Content: Electromagnetism
- \* Activities:
  - The teacher asks students to name the facilities and the steps to set up the experiment.
  - The teacher divides the class into groups and each group sets up the experiment.
  - One student of each group is assigned to take the pictures while the experiment is taking place.
  - The teacher connects the camera (from one group) with the computer to show the pictures using the projector.
  - The teacher makes comments and concludes: An electric current in a wire creates a circular magnetic field around the wire.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

#### Chemistry

- \* Level: Upper Secondary
- \* Content: Ammoniac
- \* Activities:
  - The teacher asks students to prepare the assignment before the lesson.
  - A group of students experimented with putting an egg inside a very small bottle.
  - The group of students made a Photo Story of the experiment.
  - In class, the group of students asks the classmates to watch the Photo Story and explain what is happening in the experiment.
  - The class answers the questions and some students present the characteristics of ammoniac.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

### Literature

- \* Level: Primary
- \* Content: Describe a thing/an animal
- \* Activities:
  - The teacher uses Photo Story to make it easy for students to make sentences and record the correct answer.
  - The teacher shows some pictures and asks some questions (for example: What is this animal? Can you give a brief description about this animal?)
  - The students give their answers.
  - The teacher records the correct answer.
  - The teacher plays the record to the students.

See the lesson plan and video clip in the Vietnamese ICT4ATL toolkit (CD).

### Biology, Chemistry

- \* Level: University
- \* Content: Explore the pollution of Tra Khuc River, Quang Ngai Province
- \* Activities:
  - The teacher provides the instruction to students to "Collect a sample of water of Tra Khuc River and check its quality with the measurement tool".
  - Students in groups collect a sample of water and analyse the sample.
  - Students present the process of their research and the result, using Photo Story or other presentation tools.
  - The teacher and students give feedback.

See the Photo Story in the Vietnamese ICT4ATL toolkit (CD).

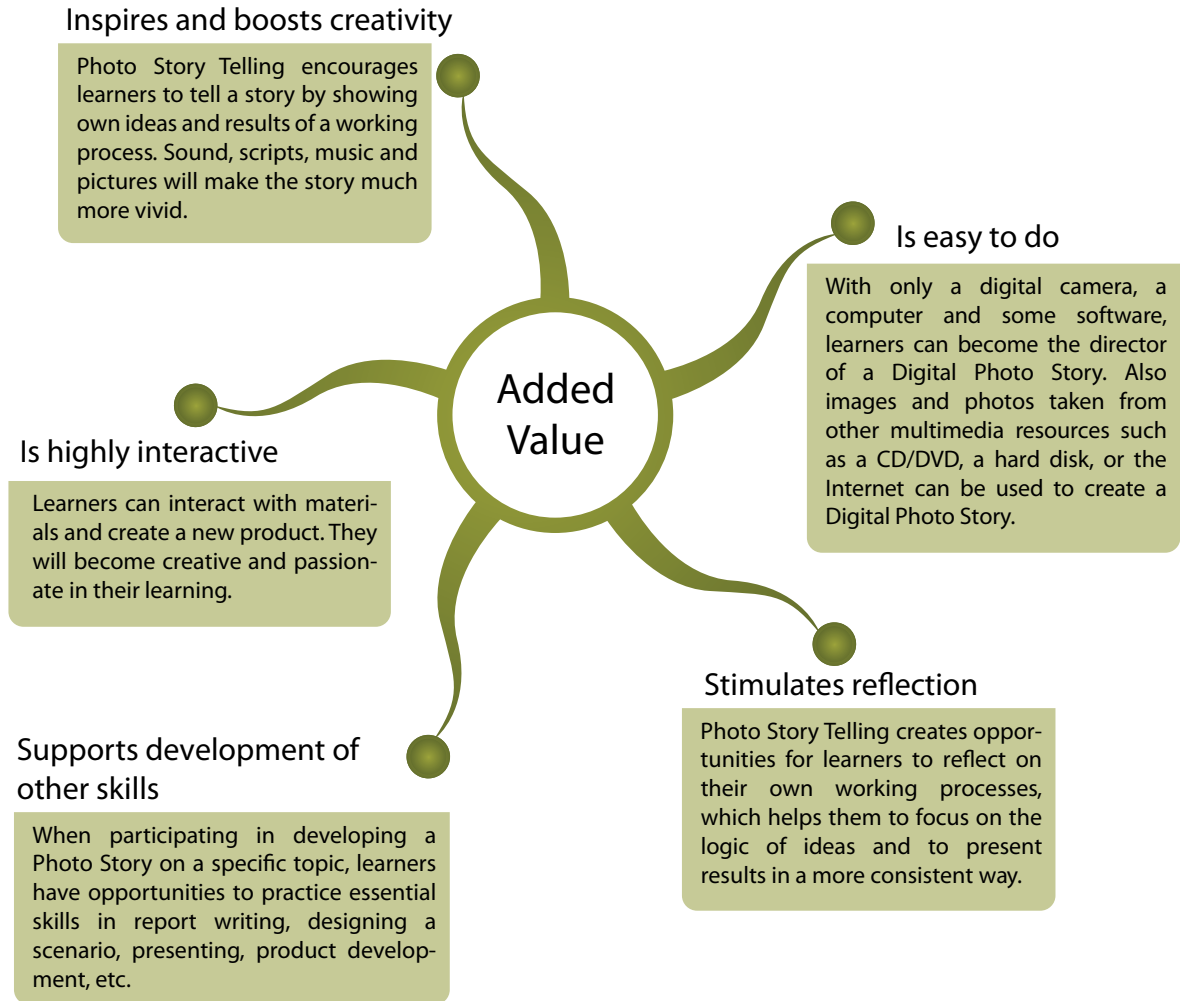
### English

- \* Level: University, first year
- \* Content: Simple Past Tense
- \* Activities:
  - Students learn the simple past tense.
  - The teacher asks students individually to develop a Photo Story to tell about her/his vacation.
  - The student develops the Photo Story.
  - The student tells her/his classmate about her/his Photo Story.

See the Photo Story in the Vietnamese ICT4ATL toolkit (CD).



## Photo Story Telling...



## INSTRUCTIONS AND SOFTWARE DOWNLOADS

Digital Photo Stories can be created with productivity software such as MS PowerPoint or similar presentation tools as well as with more specialized software solutions. Most popular is Photo Story 3 for Windows.

### Links to software downloads

#### \* **Photo Story 3 for Windows:**

URL: <http://www.microsoft.com/downloads/details.aspx?FamilyID=92755126-a008-49b3-b3f4-6f33852af9c1&DisplayLang=en>

(Click on Continue- Download Plug-in- Download Photo Story and start to run Photo Story).

License: Copyright © 2010 Microsoft Corporation.

- \* **Window Media Player 10.0** (a prerequisite software for running the Photo Story 3 for Windows):

URL: <http://www.microsoft.com/windows/windowsmedia/player/10/default.aspx>

License: Microsoft Windows Media & HDCD—Logo License Agreement.

## **Tutorial**

The Photo Story tutorial (See the ICT4ATL toolkit) guides you through the basic steps of developing a Photo Story: from opening the software, to viewing the end product. The tutorial illustrates the basic functions of Photo Story 3 for Windows.

The following steps are showed in detail:

1. Open Photo Story
2. Begin a new story
3. Arrange your pictures
4. Import and arrange your pictures in Photo Story
5. Add titles to your pictures
6. Narrate your pictures
7. Add background music
8. Save your story
9. View your story

## **RESOURCES**

### **References and online resources.**

#### **Vietnamese**

- \* *Creating illustrated image slides*

URL: [http://www.vietco.com/news/detail.php?news\\_id=8383](http://www.vietco.com/news/detail.php?news_id=8383)

*Info:* This article provides step-to-step instructions on creating a Photo Story, using Photo Story 3 for Windows.

- \* PC World. *Presentation with Photo Story 3*

URL: <http://www.pcworld.com.vn/articles/cong-nghe/lam-the-nao/2006/06/1189146/trinh-dien-anh-nhe-nhang-voi-photo-story-3/>

*Info:* This article provides instructions of how to create the framework for the story, add slide animation and export the story into a video clip.

## English

- \* *Steps in creating Photo Story.*

URL: [http://www.teachnet.ie/innovative\\_teacher/default.asp?NCID=365](http://www.teachnet.ie/innovative_teacher/default.asp?NCID=365)

*Info:* This website from Teachnet presents the steps in creating a Digital Photo Story and introduces some topics that users can select for their photo story projects.

- \* *Functions of MS Photo Story 3.*

URL: <http://www.digitalchalkie.com/2006/09/05/microsoft-photostory-3/>

*Info:* This website introduces Microsoft Photo Story 3 and some possibilities of using this software in teaching and learning.

- \* Geary, M. (2007). *Making Book Trailers with Photo Story 3.*

URL: [http://www.homepages.dsu.edu/mgeary/vita/phun\\_w\\_photostory3.pdf](http://www.homepages.dsu.edu/mgeary/vita/phun_w_photostory3.pdf)

*Info:* This article discusses values of Photo Story and instructions on using Photo Story software.

- \* *Ideas for Early Phase Classroom.*

URL: <http://www.learningplace.com.au/deliver/content.asp?pid=36049>

*Info:* This website from Education Queensland provides some interesting ideas on Digital Photo Story Telling in the Early Phase Classroom.

- \* *Examples for different subjects.*

URL: <http://www.bamaed.ua.edu/cse489/photostory.html>

*Info:* This website from the College of Education (Alabama University) provides links to examples of using Photo Story in some subjects such as Mathematics, Social sciences, and English.

- \* *Wikipedia about Photo Story.*

URL: [http://en.wikipedia.org/wiki/Photo\\_Story](http://en.wikipedia.org/wiki/Photo_Story)

*Info:* This webpage presents the Wikipedia definition of Photo Story, with a description of the history of the concept.

## WEB 2.0: PHOTO STORY TELLING ONLINE

The Internet significantly enhances the potential to tell stories to a broad community of peers, colleagues or friends. A plentiful of online platforms allow to share and comment on multimedia products such as Digital Photo Stories, going from the very popular YouTube to more specialized platforms such as 5min, where users share instructional videos and Photo Stories, or platforms to share slides. Also popular Blog platforms allow for incorporating Digital Photo Stories into blog entries.

<http://www.youtube.com/>

<http://www.slideshare.net/>

<http://www.5min.com/>

<http://www.blogger.com>

## EVIDENCE-BASED RESEARCH

Here you can find some collected papers on technology enhanced instructional designs, describing and analyzing features, effects and impact on teaching and student learning. All papers are addressing the integration of ICT in the Vietnamese education context.

Bui, T. (2009). *Using Photo Story in teaching English writing skills at Pham Van Dong University, Quang Ngai province.*

### Abstract

Visual tools are an important stimulus for learning languages. Photo Story (PS) is a tool which students can use to visualize their ideas and tell their stories with digital stills. This study investigates whether using PS improves students' English writing performance. The research is carried out in the teacher education institute of Quang Ngai province in Vietnam. For the study, the sample is a group of 100 students of the first year students in the teacher training programme. One group is the experimental group, to whom PS is introduced as a writing tool, while the other group is the control group, which is given traditional instructions on English writing. Classroom observations are carried out to compare student motivation. To assess learning achievements, an evaluation form on English writing performance progress is used. This evaluation form allows comparing the groups of students who used the tool with the control group

who were instructed in a more traditional way.

*The full paper will be updated in the second version of ICT 4 ATL toolkit.*

## TEST YOURSELF

Take your time to revise your knowledge on this technology enhanced instructional design.

### 1. Fill the gaps with the given phrases. Each phrase is used only once.

**very easy to use**

**present**

**tell a story**

**concepts**

**a study trip**

Digital Photo Story Telling offers many possibilities for teaching and learning. Teachers of different subjects can use it to introduce \_\_\_\_\_, ideas, as a warm up, or to give background information. The power lies in the fact that the software is \_\_\_\_\_ and everybody with a digital camera can become a director of a Photo Story. Students can use it as a way to \_\_\_\_\_ reports. It can be used to give explanation to the process of a chemistry experiment, to report on \_\_\_\_\_, to \_\_\_\_\_ about a character or a person in history ...

### 2. Which element is most important to create a Photo Story?

- a. Ideas for a story and a story board
- b. A digital photo camera or pictures stored on your computer
- c. Software to arrange your pictures
- d. A microphone to add voice to the Photo Story
- e. A medium to publish or share your story

*See the key at the page 110.*



# Simulation

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## INTRODUCTION

A Simulation can be defined as the process of creating a model (i.e., an abstract representation) of an existing or proposed system (e.g., a project, a business, a mine, a watershed, a forest, the organs in your body) in order to identify and understand those factors which control the system and/or to predict (forecast) the future behavior of the system. Almost any system which can be quantitatively described using equations and/or rules can be simulated.

As such, a Simulation can be described as an “imitation” of a real system. Computer programs can be used to create Simulations, for example to simulate different weather conditions, chemical reactions and even biological process.

A Simulation is a powerful and important tool because it provides a way in which alternative designs (or plans and/or policies) can be evaluated without having to experiment on a real system, which may be costly, time-consuming, dangerous or simply impractical to do. That is, it allows you to ask “What if?” questions about a system without having to experiment on the actual system itself.

## TEACHING AND LEARNING

### *Education Purposes*

In education, Simulations can be used to:

- \* **Analyse phenomena, objects and events:** Through interacting with a Simulation, by changing inputs and customizing, learners can observe different regimes of one phenomenon in order to draw a conclusion.
- \* **Identify problems and solutions:** By manipulating different factors of a system, learners can get insight in the system and identify or forecast problems and provide possible solutions.
- \* **Explain complex processes:** Teachers can use Simulations to illustrate how things work, for learners to get a better insight and understanding.
- \* **Consolidate:** After knowledge input, Simulations can be used to apply and consolidate theory.

### *In classroom teaching*

Simulations can be used at different times during a lesson for different purposes:

- \* **To introduce the new lesson:** A Simulation can inspire and engage learners, creating a learning situation for them to think and reflect, or to have an overall view on a certain

issue.

- \* **For learners to attain new knowledge and insight:** A Simulation is a visual tool stimulating observers to develop ideas and questions for discussion in order to solve a problem.
- \* **To review and evaluate learning outcomes:** A Simulation can be used to review theory, a lesson or a chapter. Students can apply what they have learned and predict the behaviour of the simulated system. The teacher can assess to what extent the students understand and are able to apply the theory.
- \* **For relaxation (learning by playing):** Simulations often take the shape of interesting games to help learners to apply related knowledge from the lesson.

### *Subject examples*

Simulations are often used in subjects as science and mathematics, but also in economics and social sciences, when it is possible to design models of systems which can be explored and where factors can be manipulated to observe change.

### *Some inspiration for using Simulations in different subjects*

- \* Physics: To explore and analyse phenomena in mechanics, electricity, electronics, optics, nuclear atoms, technology.
- \* Biology: To model anatomy, to experiment, to simulate reactions.
- \* Chemistry: To observe nuclear reactions, to experiment with salt and dissolvants, to illustrate Mendeleev's periodic system: by changing neutron's parameters, users can observe changes in chemical elements.
- \* Mathematics: To apply geometry, to apply algebra, to draw graphs, to calculate, to illustrate functions, to explain mathematical concepts.
- \* Geography: To predict and explain population growth, to simulate climate change, to explore the world map, to experiment with sea temperature and sea level rise: by changing temperature, users can see changes in sea level.
- \* Economics: To apply economic growth models, to experiment with inflation.
- \* Language: To simulate the sound and pronunciation of foreign languages.



## Some detailed case studies

### Psychology

- \* Level: College
- \* Content: Communication psychology
- \* Activities:
  - The teacher asks students to do the Accurate Personality Test.
  - The students do the Accurate Personality Test.
  - The teacher discusses with the students the outcomes of the Personality Simulation.

Download Simulation:

<http://www.download3000.com/download-color-personality-test-count-reg-43520.html>

### Physics

- \* Level: College of Physics
- \* Content: Projectile motion versus Transverse motion
- \* Activities:
  - The teacher divides the class into groups.
  - Groups of students work on the Simulation by changing inputs such as the mass of the object, velocity and shooting angle.
  - Groups of students formulate the motion equation and trajectory equation of a projectile object.
  - The teacher sums up the formulation of the motion equation and trajectory equation.

Download Simulation:

[http://download.cnet.com/Genius-Maker-Free-Edition/3000-2054\\_4-10829432.html?tag=mncol;rbxcrdl1](http://download.cnet.com/Genius-Maker-Free-Edition/3000-2054_4-10829432.html?tag=mncol;rbxcrdl1)

[http://phet.colorado.edu/sims/projectile-motion/projectile-motion\\_en.html](http://phet.colorado.edu/sims/projectile-motion/projectile-motion_en.html)

See the lesson plan and the video clip in the Vietnamese ICT4ATL toolkit (CD).

## Mathematics

- \* Level: Upper Secondary
- \* Content: Parabol
- \* Activities:
  - The teacher asks students to work on a Simulation (in pairs) on the concept of Parabol.
  - The students change parameters  $a$ ,  $h$ ,  $k$  in the Simulation.
  - The learners observe parabols with the parabol equation  $y = a(x - h) + k$ ; or  $x = a(y - k) + h$  and give their comments.
  - The teacher asks the students what are the shapes of the parabol,  $y = a(x - h) + k$ ; or  $x = a(y - k) + h$ .

Download Simulation:

<http://members.shaw.ca/ron.blond/TLE/QR.PARABOLA.APPLLET/index.html>

## Mathematics

- \* Level: Lower Secondary
- \* Content: Area of a triangle
- \* Activities:
  - The teacher asks students in groups to cut a triangle into parts to make a rectangle.
  - The teacher calls some students to do the task.
  - The teacher uses Sketchpad to illustrate how to make a rectangle from a triangle.
  - The teacher concludes that the area of the triangle is equal to the area of the rectangle.

See the lesson plan and the video clip in the Vietnamese ICT4ATL toolkit (CD).

## Biology

- \* Level: Upper secondary, Grade 11 or Lower Secondary, Grade 8
- \* Content: Cross-breeding (Grade 8), Dissociation principles (Grade 11)
- \* Activities:
  - The teacher asks students to individually explore the Pea Plant Genetics Lab.
  - The students explore the Lab and identify dissociation principles.
  - The teacher asks students to share the dissociation principles with their peers.
  - The teacher sums up the dissociation principles.

Download Simulation:

[http://thuviensinhhoc.com/index.php?option=com\\_content&view=article&id=1419:pea-plant-genetics-lab-phong-thi-nghim-o-vi-cay-u-ha-lan&catid=58:football&Itemid=863](http://thuviensinhhoc.com/index.php?option=com_content&view=article&id=1419:pea-plant-genetics-lab-phong-thi-nghim-o-vi-cay-u-ha-lan&catid=58:football&Itemid=863)

## Geography

\* Level: Secondary

\* Content: Weather

\* Activities:

- The teacher introduces a spreadsheet template to record data on the weather in Ho Chi Minh City.

- The students record temperature over the course of half a day (or a full day) in the classroom in the spreadsheet template.

- During the next lesson the students present the graph that is automatically created in the spreadsheet Simulation.

See the Simulation in the Vietnamese ICT4ATL toolkit (CD).

## Geography

\* Level: Upper Secondary, College, University

\* Content: Population growth

\* Activities:

- The teacher explains how to explore the different countries in the Simulation.

- The students change the countries in the Simulation.

- The students observe changes in population pyramids and the relation between average birth rate, average death rate and population by age group and population diagram.

- The students discuss in pairs the different factors which predict future demographics. They draw conclusions on population policies and predict the consequences of population growth to the society.

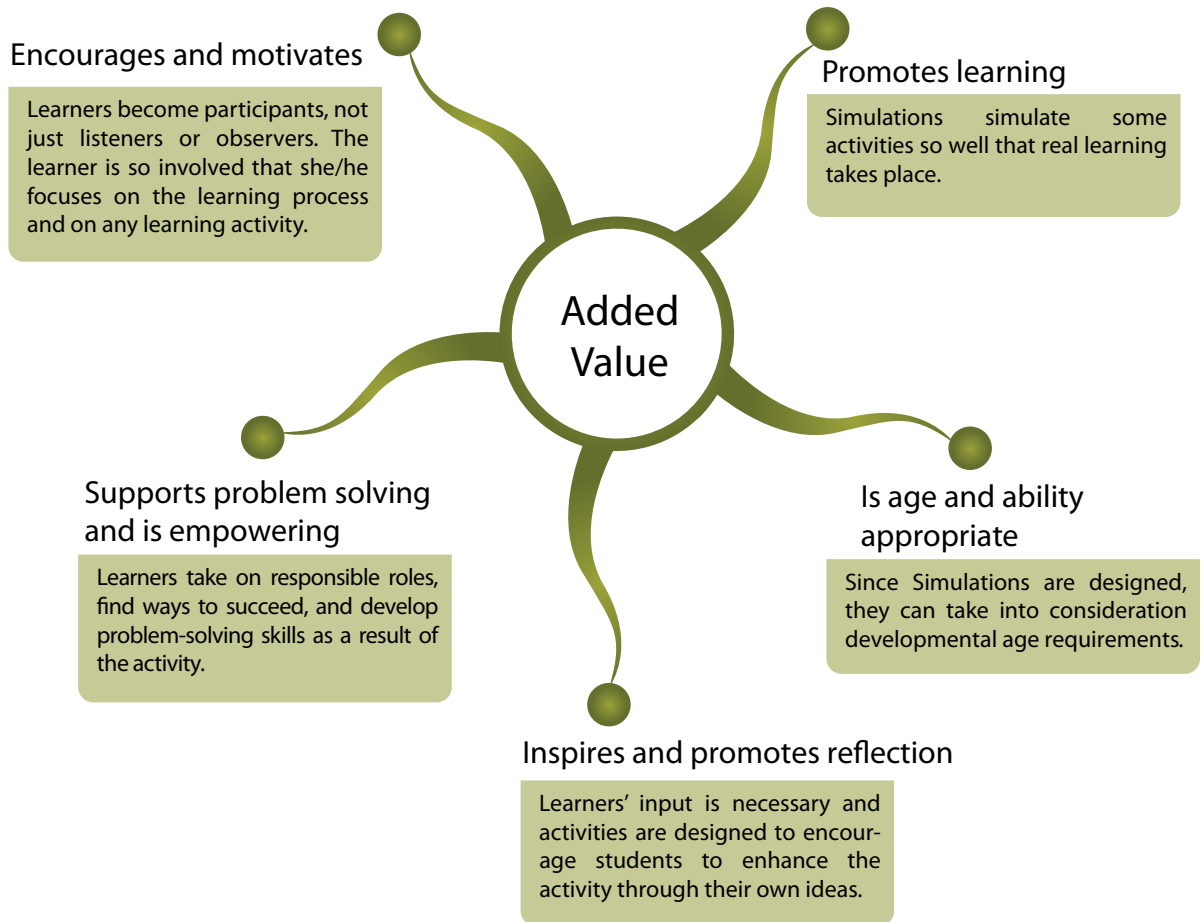
- The teacher and students discuss possibilities to reduce the risk of overpopulation.

Link to Simulation:

<http://www.learner.org/courses/envsci/interactives/demographics/demog.html>

## Added value

### *Simulations and using Simulations for teaching and learning ...*



Simulations can be the challenging assignment of a Webquest: students take the role of an investigator or scientist to explore the Simulation and to find out a solution. Shared Writing exercises can be organized to describe the steps of a Simulation, for students to deeply understand the Simulation.

## INSTRUCTIONS AND SOFTWARE DOWNLOADS

Many already developed Simulations can be recycled for use in different subjects. The Internet provides a wide access to Simulations developed by educators alike.

With basic productivity software such as spreadsheets, presentation or animation software, you can also develop your own Simulations or Interactive exercises. Specialized software solutions such as Crocodile Clips (Yenka) allow to develop and customize more specialized and accurate Simulations for teaching and learning activities.

Hereunder you can find basic information about these tools and downloads of instructions and tutorials:

### \* **Interactive Spreadsheets**

MS Excel is easy to use and an effective tool for problem solving, drawing graphs and analyzing data. MS Excel easily converts data in many forms; it is a good tool to facilitate calculation and graphing.

URL: <http://office.microsoft.com/en-us/>

License: Copyright © 2010 Microsoft Corporation

*Manual: See the ICT4ATL toolkit*

### \* **Excelets**

“Excelets are interactive spreadsheets designed in MS Excel. They are “Javaless” applets stimulating a mathematical model or a illustrating a simple concept.

*Instruction and tutorials:*

<http://academic.pgcc.edu/~ssinex/excelets/> (in English)

### \* **Interactive Presentations**

MS PowerPoint can be used to design interactive exercises by adding some features such as buttons, pop-ups and hyperlinks.

URL: <http://office.microsoft.com/en-us/>

License: Copyright © 2010 Microsoft Corporation

### \* **Java and Flash Applets**

An Applet is a special program that can be embedded inside a web page like inserting a picture into one page. When you use a Java or Flash browser to view applet pages, the applet codes will be transferred to your system and run in the digital Applet browser. With Java or Flash you can program animations and Simulations.

*Instruction and tutorials:*

<http://www.java.com/en/download/manual.jsp>

<http://www.adobe.com/support/flash/downloads.html>

#### \* **Crocodile Clips and Yenka**

Crocodile Clips and Yenka Simulation are Simulations for different subjects (Mathematics, Physics, Chemistry, Technology). A large library of Simulations is ready to use for Simulation of classic situations in these respective subjects. The user can also create own Simulations. The software is very popular in Vietnam.

URL: <http://www.crocodile-clips.com/>

<http://www.yenka.com/>

License: © Copyright 1994-2009 Crocodile Clips Ltd

#### \* **Simquest**

Simquest is a software package designed to create basic digital simulations for teaching and learning. It allows users to create interactive Simulations and author them to their exercises and explanation in an instructional environment.

URL: <http://www.simquest.nl/>

License: Freeware

#### \* **Java**

Pre-requisite add-on to play some simulations in the classroom.

URL: <http://www.java.com/en/download/>

License: Freeware, Oracle Corporation Binary Code License Agreement

#### \* **Adobe Flash Player**

Pre-requisite add-on to play some simulations in the classroom

URL: <http://get.adobe.com/flashplayer/>

\* **Simulations or Games?**

Simulations can be used for relaxations and often take the shape of games. Popular games like the Sims (1-3) engage gamers (or learners) in a Simulation of daily activities of a family, and in the society in general.

URL: <http://thesims.ea.com/>

## RESOURCES

### *Links to other software downloads*

\* *Resources for Physics, Chemistry and Mathematics*

**3DproS 1.0**

URL: <http://s3dpros.sourceforge.net>

**Brad's FREE Science SOFTWARE 2.1**

URL: <http://www.scienceshareware.com/indexSub.htm>

**Chemistry Forum**

URL: <http://forum.hoahoc.org/showthread.php?t=221>

**CHEM LAB 2.0**

URL: [www.modelscience.com](http://www.modelscience.com)

**Chem Sim**

URL: <http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/simDownload/index4.html#chemRxn>

**Electronics Workbench**

URL: <http://www.box.net/shared/rma8ut6x4s>

**Electronics Workbench (Tutorial)**

URL: <http://www.scribd.com/doc/7270277/hng-dn-s-dng-Phn-mm-Electronic-Workbench-5>

**Geogebra**

URL: <http://www.geogebra.org/cms/>

**Green Forest**

URL: <http://www.greenforest.hu/>

## **Kent ICT**

URL: [http://www.kenttrustweb.org.uk/kentict/kentict\\_theme\\_ms\\_ind.cfm](http://www.kenttrustweb.org.uk/kentict/kentict_theme_ms_ind.cfm)

## **Maple**

URL: <http://www.maplesoft.com/products/maple/>

## **Mathematic models and its application in engineering and mathematics**

URL: <http://www.ibiblio.org/links/index.html>

## **MatLAB**

URL: [www.mathworks.com](http://www.mathworks.com)

## **MATHEMATICA v3.0**

URL: <http://www.wolfram.com/products/mathematica/index.html>

## **Parabola Applet**

URL: <http://members.shaw.ca/ron.blond/TLE/QR.PARABOLA.APPLET/index.html>

## **Phet Colorado**

URL: <http://phet.colorado.edu/index.php>

## **Physics Simulations v 1.3**

URL: [http://download.cnet.com/Physics-Simulations/3000-2054\\_4-10739212.html](http://download.cnet.com/Physics-Simulations/3000-2054_4-10739212.html)

## **Physics Lab**

URL: <http://www.myphysicslab.com/>

*Resources for Geography*

## **Demographics**

URL: <http://www.learner.org/courses/envsci/interactives/index.php>

## **Earth Explorer**

URL: <http://www.vnschool.net/download/education/InstallEarthExplorerDEM.exe>

## **Ecological Footprint**

URL: <http://www.ecologicalfootprint.com>

*Resources for Foreign Languages*

## **Sayzme**

URL: <http://www.datafurnace.net.au/sayzme/>

## **Hanosoft (for Chinese)**

URL: [www.hanosoft.com](http://www.hanosoft.com)



\* *Other websites*

<http://www3.interscience.wiley.com:8100/legacy/college/halliday/0471320005/simulations6e/index.htm>

<http://www.colorado.edu/physics/2000/index.pl>

<http://www.falstad.com/mathphysics.html>

<http://micro.magnet.fsu.edu/optics/tutorials/index.html>

<http://www.mip.berkeley.edu/physics/physics.html>

<http://sites.google.com/site/frbwrthes/thingiemao>

<http://vatlysupham.hnue.edu.vn/java/ph14vn/>

## References and online recourses

### English

\* *Interactive Excel Spreadsheets: A Visualization Tool for Mathematics and Science*

URL: <http://academic.pgcc.edu/~ssinex/excelets/>

*Info:* This website provides several examples of Excelets and instructions on how to make Excelets.

\* *Education and Stimulation – games and computer*

URL: <http://www.cofc.edu/~seay/cb/simgames.html>

*Info:* This website provides critical insight in the added value and also the limitations of games and Simulations used in education.

\* *About value of Simulation in education*

URL: <http://www.stanford.edu/class/symbsys205/commentaryonsimulationineducation.htm>

*Info:* This website presents the value of Simulation in education: Replacing real world models and Exploring Simulation Models.

\* *Software for Education*

URL: <http://robles.callutheran.edu/~crowe/software.html>

*Info:* This website of the School of Education (California Lutheran University) gives an overview of different kinds of software for education.

\* *Wikipedia about Simulations and Computer Simulations*

URL: <http://en.wikipedia.org/wiki/Simulation>

*Info:* This webpage presents the Wikipedia definition of Simulation with a classification and terminology, information about computer Simulations and background on the use of Simulations in education and training.

## WEB 2.0: SIMULATIONS ONLINE

Simulations can be used and/or downloaded online for use in education. Apart from an improved access to resources, the Internet also has the potential to make Simulations much more interactive. Simulations can be used simultaneously by multiple users all over the world, which means that individual users have less control over the modeled systems as such. This also implies a much “realer” simulation, especially for Simulations of complex human interactions.

Multi-user games and Simulations can become part of the daily life of learners. An extreme example is the virtual world of Second Life where users can simulate life by connecting, socializing and creating. In other multiplayer online simulation games, a large number of players interact with one another within a virtual game world. Facebook is the ideal platform to connect gamers to interact in Simulations such as Farm Buddy, where the users create and maintain a garden.

<http://secondlife.com/>

<http://www.facebook.com/>

## EVIDENCE-BASED RESEARCH

Here you can find some collected papers on technology enhanced instructional designs, describing and analyzing features, effects and impact on teaching and student learning. All papers are addressing the integration of ICT in the Vietnamese education context.

Nguyen, T. (2010). *Using Physics Simulation software in teaching – one of the measures to improve the effectiveness of Physic lessons at Quang Nam University.*

### Abstract

Using Simulation in teaching is one of the effective methods to improve the learning and teaching quality of teaching Physics. In this research, different ways of using Simulation software for Physics in Quang Nam University are presented. In addition, some recommendations of using Simulation to activate students are proposed.

*The full paper will be updated in a later version of the “ICT 4 ATL toolkit”.*

## TEST YOURSELF

Take your time to revise your knowledge on this technology enhanced instructional design.

### 1. True or False?

- A Simulation can only represent imaginary situations, no real situations.
- In a Simulation the learner can change variables and observe what happens in the virtual, digitally created environment.
- Simulations do not allow to study or try things that are difficult or impossible to do in real life.
- With some basic ICT skills, teachers and learners can create an electronic Simulation themselves with productivity software.

### 2. Which one of the following is the more effective way of using the simulation in the class if the goal of the lesson is to let the students discover a theory actively?

- The teacher shows the simulation and explains the theory
- Students change the variables in simulation, explore it and present the theory by themselves.

### 3. Fill the gaps with the suitable verbs.

**replace      learn      enforcing      starting      experiment      have fun**

Simulations offer a way for learners to \_\_\_\_\_ underlying theories through exploration. Instead of \_\_\_\_\_ from theory before doing exercises, Simulations allow to \_\_\_\_\_ and explore, invent, which will bring thorough understanding and insight in the matter. Many game like Simulations exist where learners can \_\_\_\_\_ while \_\_\_\_\_ knowledge at their own pace. Simulations can also be used to \_\_\_\_\_ situations or experiments which are difficult to bring to the classroom because of limitations like danger, cost, size, etc.

*See the key at the page 110.*



# Webquest



## INTRODUCTION

A Webquest is an assignment where students are asked to use the World Wide Web to learn about and/or synthesize their knowledge about a specific topic. A Webquest requires the synthesis of new knowledge by accomplishing a “task”, or a “quest”, often to solve a hypothetical problem or to address a real-world issue.

A Webquest, as originally designed by Bernie Dodge and Tom March, follows certain steps, going from the introduction and the assignment, to the evaluation of the learning outcomes. Typically there is a list of links to follow to complete the activity. Often the learners take a certain role. They can work in groups and individuals take different responsibilities like observing, collecting information, note taking, reporting, presenting, etc...

The objective of a Webquest activity is to promote “transformative” learning outcomes, accomplished through the reading, analysis, and synthesis of Web-based information. The power lies in the fact that Webquest activities empower learners to real life issues and to become more ICT literate in the act. As such they become true citizens of the 21st century.

## TEACHING AND LEARNING

### *Educational Purposes*

In education, Webquests are organised to:

- \* **Identify problems and solutions:** All Webquests start from a challenging assignment and invite the learner to take a role and find a solution.
- \* **Stimulate and scaffold exploration:** A well-designed Webquest puts content in context. It lets students learn about a topic as part of a larger framework. In some cases, a Webquest can also let learners explore a topic as part of an interdisciplinary unit. Learners are guided through the exploration of resources with questions, assignments and guidelines for evaluation.
- \* **Present and evaluate learning outcomes:** Most Webquests result in the learners presenting their findings. Evaluation of the learning outcomes is incorporated in a good Webquest, with detailed assessment criteria and rubrics.

### *In classroom teaching*

A Webquest is a relatively complex instructional design. It takes a significant amount of time and insight to develop a good Webquest which addresses contextualized learning needs. For application in the Vietnamese curriculum and textbooks, the ideal

format suggested for the organization of a Webquest is the homework format. During a first lesson the teacher introduces the Webquest and the assignment and discusses with the students the assessment criteria. The students work at home or in their free time on the Webquest, individually or in group. After completion of the Webquest, learners can present their homework in the classroom.

### ***A Webquest consists of the following parts***

1. Introduction: To set the stage for the activity, to catch the reader's attention to draw them into the quest, to provide background information.
2. Task: To state what the students will be required to do, to avoid surprises down the road, to detail what products will be expected and the tools that are to be used to produce them.
3. Process: To give a step-by-step description, concise and clearly laid out, to provide links to Internet sites interwoven within the steps.
4. Evaluation: To display a rubric to measure the product as objectively as possible, to leave little room for question
5. Conclusion: To summarize the experience, to allow reflection about the process, to add higher level questions that may be researched at another time. To give food for thought as to where they can go with the information they have learned, using it in a different situation.

### ***Some tips***

Notice that when organizing a Webquest:

The quality depends on the ideas and thoughts that go into it, more than on the flashy presentation techniques. It's easy to create a mediocre Webquest, and it's far more difficult to create a quest that really works well.

Therefore, these questions should be considered before designing a Webquest:

- \* What are the big ideas I want my students to learn as a result of this lesson?
- \* Why is this information important?
- \* Where does the information fit into the specific context of this unit?
- \* How does this information fit into the broader curriculum?
- \* How can this information help students make connections across subject

areas?

Most Webquests have a “hook.” This can be a treasure hunt, a game, or some other activity which is embedded in the quest. The simplest “hook” is the collection of facts and information from the various sites which make up the quest. These “hooks” can be more elaborate, and since they are an important motivating factor, teachers should use their imagination in creating incentives for their students.

- \* A good Webquest puts the power of the web behind teachers’ topics. Teachers can guide the learners to a specific website, with detailed instructions of what materials to look for, or they can just give learners the topic for learners to plan their own research on the web.
- \* A good Webquest is also highly visual. The web is a visual medium, and your presentation will be far stronger if it includes sites with lots of pictures, maps, animations, or even sounds. These are teaching tools that keep students’ interest.
- \* Good Webquests are easy to use. Students should be able to move easily from one location to the next without a lot of tedious mouse-work. This is one reason that a Webquest which is itself a web page can be attractive.
- \* Even the best Webquest won’t help much if it doesn’t relate to the rest of your class materials. The more closely your Webquest ties into the rest of your in-class content, the more powerful it will be in helping your students learn the topic – regardless of how and where it is presented.

Once you have defined the elements of your Webquest, you’re ready to begin locating materials to include. Once you have collected a series of suitable websites, consider them generally:

“Is that the common theme or contrast one that your Webquest offer??”

“Are different sites stating different opinions or approaches from yours when it comes to the same topic?”

### ***Subject examples***

Good Webquests rely on material that is age and ability appropriate. The web contains everything from nursery rhymes to postdoctoral papers, and finding information that is written and presented at a level that will appeal to your students can be one of the most challenging aspects of creating a Webquest. The web’s wealth of information also makes Webquests a great way to provide lessons which can be experienced at multiple levels.



The links can include a few resources for high-ability students, as well as some for students with limited abilities. By grouping these, a Webquest can be a challenge for students of several ability levels. Webquest can be used in subjects and projects where learners are encouraged to discover themselves and present the results based on their research.

### Some detailed case studies

#### Physics

- \* Level: Upper Secondary, 10th grade
- \* Content: Electrical efficiency
- \* Activities:
  - Taking different roles (Electrical engineer, Mathematician, Environmental Research Analyst, etc), students come to understand different concepts of electricity, the advantages and disadvantages of clean natural ways of making electricity, calculating of the amount of electricity used by Mexican people, etc. From this information, students make a poster to encourage Mexican people to save energy.

Go to: <http://www.ats.edu.mx/proyectos/racevedo/Electricity/index.htm>  
(in English).

#### Mathematics

- \* Level: Lower Secondary
- \* Content: The Pythagorean Theorem
- \* Activities:
  - Students search on the provided websites and take note on information on Pythagoras and the Pythagorean Theorem. They also have to provide ways and reason on how to solve a real-life problem by applying the Pythagorean Theorem.

Go to: <http://questgarden.com/40/35/0/061104085820/>

(in English).

#### Pedagogy

- \* Level: College, in the component "Learning and teaching activities in Secondary Education".
- \* Content: Chapter 2: Educational content-School violence in lower secondary school
- \* Activities:
  - Taking different roles (friends, parents, teachers and local government officers), students synthesize information from the provided websites to come to understand the concept of school violence, causes and measures against school violence. At the end of the lesson, a presentation, a poster and a propaganda article are shared in the class.

See the Webquest in the Vietnamese ICT4ATL toolkit (CD).



### Geography/ Environmental Education

\* Level: Upper Secondary/College

\* Content: Environmental pollution

\* Activities:

Being researchers, students select a type of pollution and search information on the definition, causes, and its effect of this type of pollution on the Earth. Students have to prepare a presentation on this type of pollution and write an action plan to protect the Earth.

See the Webquest in the Vietnamese ICT4ATL toolkit (CD).

### Environmental Education

\* Level: All levels

\* Content: Climate change

\* Activities:

Taking different roles (researchers, farmers, and students), learners are asked to read articles and watch a video clip on climate change. Later on, they develop an article, a presentation, and a poster on the concept, on causes and effects of climate change, and on measures to reducing global warming.

See the Webquest in the Vietnamese ICT4ATL toolkit (CD).

### Biology/Environmental Education

\* Level: All levels

\* Content: Field trip survival

\* Activities:

On a field trip on ecosystems, students are asked to play the role of organisms. They build their understanding about the connection and change of animals. A food web is built based on these findings and later on, a presentation on MS PowerPoint is needed to share with all.

Go to: <http://kristin.wielenga.googlepages.com/> (in English).

## Geography

\* Level: Lower Secondary/Upper Secondary

\* Content: A hunt in Africa

\* Activities:

Students are in a hypothetical situation: Each student takes the role of an animal in Africa and searches information on its living condition, eating habits, etc... Later on, they develop a presentation and a newsletter to present about that animal.

Go to:

<http://sites.google.com/site/ict4you/c/%E1%BA%A5utr%C3%BAcchung%E1%BB%A7aWebquest> (in Vietnamese).

## Foreign Language

\* Level: Primary/ Secondary

\* Content: Superlatives

\* Activities:

In this Webquest, students take the roles of a verb researcher expert, a linguist, an editor or a designer. They together will make and publish a very special journal on the most amazing records related to human beings, sports, nature, etc. In their role, students are asked to search on the Internet the news, to write sentences, to edit and design a journal.

Go to: <http://www.xtec.net/~jcunille/Amazing%20Superlatives/index.htm> (in English).

### Literature

- \* Level: Upper Secondary School/College- Literature
- \* Content: The new poetry movement
- \* Activities:
  - Being a Vietnamese poet of the new poetry movement, each student tells about her/his life and her/his work.

See the Webquest in the Vietnamese ICT4ATL toolkit (CD).

### Vietnam Culture\_101

- \* Level: College\_Language
- \* Content: Chapter 2: Vietnam Culture Process, part II.3: Dai Viet Culture
- \* Activities:
  - Taking different roles (historical researcher, Vietnam Folksong collector, archeologist and researcher on arts and crafts), students develop a presentation on different achievements of Dai Viet Culture.

See the Webquest in the Vietnamese ICT4ATL toolkit (CD).

### Geography 101 and tourism resources

- \* Level: College- Geography
- \* Content: Tourism resources of seas and islands of Vietnam
- \* Activities:
  - The teacher shows video/pictures on resources of seas and islands of Vietnam. The teacher asks students to take different roles (tourism businesses, resource managers, fishermen community, and researchers on environment). Students make and give Presentations on the value of sea and island resources, causes of environmental pollution of seas and islands, and measures to protect the resources.

See the lesson plan in the Vietnamese ICT4ATL toolkit (CD).

### English

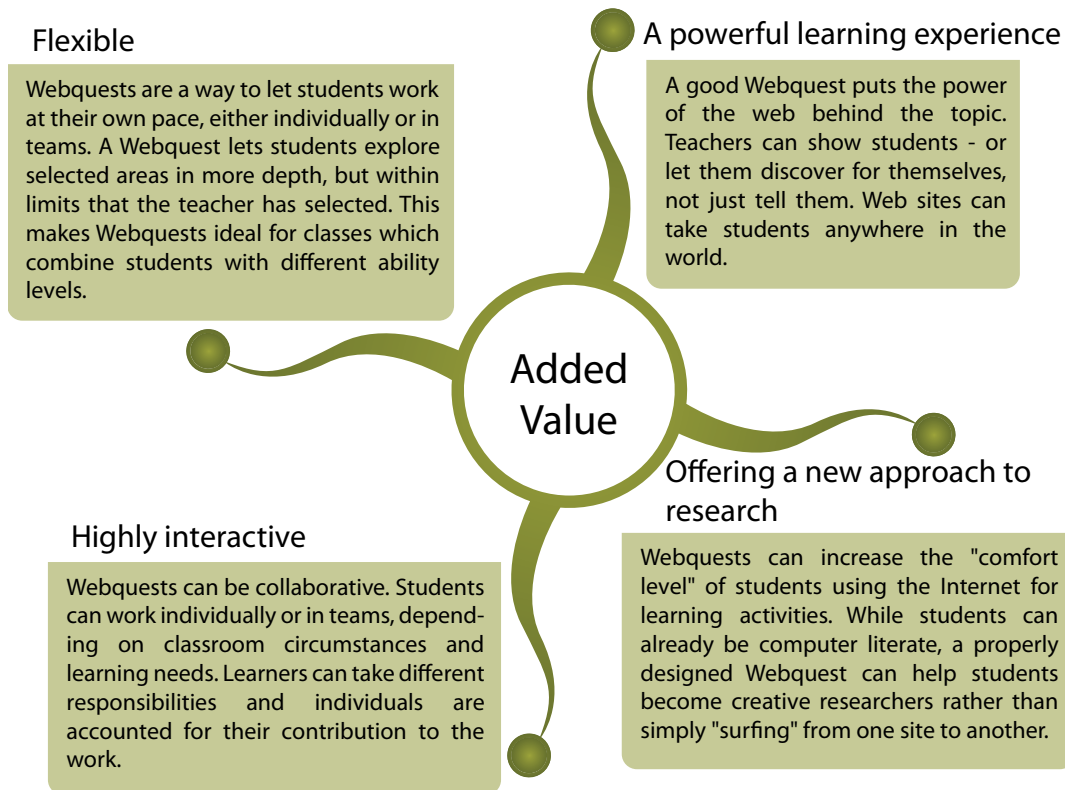
- \* Content: Music
- \* Level: High school
- \* Activities:
  - The teacher lets the students listen to the song 'Blowin' in the wind' once. Afterwards, the teacher introduces some information about the song and the writer Bob Dylan. The students, divided into six groups, read the Webquest carefully and complete the tasks in the Webquest.

Go to:

<http://teacherweb.com/WQ/HighSchool/Music/uh1.stm> (in English).

## Added value

### Participating in a Webquest is ...



## INSTRUCTION AND SOFTWARE DOWNLOADS

Webquests can be created as a website with web development tools, but they may be as well be developed and implemented using simpler productivity tools and technologies such as word processing or presentation software solutions. Webquest assignments can be given on paper, certainly the simplest and most portable option. A Webquest assignment can also be given on the web itself by sending students to a web page which serves as the "home base" for the student's information search. Teachers can also present Webquests with multi-media software such as MS Powerpoint.

Here you can find more information on two tools which allow you to easily create your own web content: Google Sites for online website development and eXe Learning as a

software download.

\* **Google Sites**

Google Sites is a free and easy way to create any share websites.

URL: [www.sites.google.com](http://www.sites.google.com)

*Instruction and tutorials*

[http://www.google.com/sites/help/intl/en\\_GB/overview.html](http://www.google.com/sites/help/intl/en_GB/overview.html) (in English).

\* **eXe Learning**

The eXe project developed a freely available Open Source authoring application to assist teachers and academics in the publishing of web content without the need to become proficient in HTML or XML markup. Resources authored in eXe can be exported in IMS Content Package, SCORM 1.2, or IMS Common Cartridge formats or as simple self-contained web pages.

URL: [www.exelearning.org](http://www.exelearning.org)

License: Openware

*Instruction and tutorials*

URL: <http://en.wikibooks.org/wiki/EXELearning> (in English).

## RESOURCES

### Online resources

\* *The Webquest Model*

URL: <http://Webquest.org/>

*Info:* This is the most complete and current source of information about the Webquest Model.

\* *Quest Garden*

URL: <http://questgarden.com/>

*Info:* This is a collection of Webquests.

### References

#### Vietnamese

\* Global Education. *Webquest- effective learning and teaching method, using Internet.*

URL: <http://www.globaledu.com.vn/ViewDetail.aspx?contentID=2655>

<http://www.globaledu.com.vn/ViewDetail.aspx?contentID=2658>

*Info:* This website explains the concept of Webquest, provides criteria to develop a Webquest and gives detailed instruction on how to design different parts of a Webquest.

- \* ICT4you. *Webquest*

*URL:* <http://sites.google.com/site/ict4you/Webquest>

*Info:* This website provides an easy definition, the structure and an example of a Webquest.

## English

- \* *Putting Discovery into the Curriculum*

*URL:* <http://www.teachersfirst.com/summer/Webquest/quest-b.shtml>

*Info:* This website provides insight in what is a Webquest and gives some reasons why Webquests are useful for teaching and learning.

- \* *Concept to Classroom*

*URL:* <http://www.thirteen.org/edonline/concept2class/Webquests/index.html>

*Info:* This website provides everything about Webquests, its benefits, history, essential parts and information on how to develop a Webquest.

- \* *Wikipedia about Webquest*

*URL:* <http://en.wikipedia.org/wiki/Webquest>

*Info:* This webpage presents the Wikipedia definition of Webquest with details about how to develop a Webquest, and background to use in different education grades and levels.

## WEB 2.0: WEBQUESTS ONLINE

As implied by the name, a Webquest is an inquiry-based, on-line learning activity. It is an ideal format to bring the Internet to the classroom. Even though similar quests can be organized with offline resources and delivered on paper, with word processing or presentation software, much added value lies in the enabling power of the web to explore a wide range of information from different points of view at the click of a mouse.

For educators around the world, the Internet also makes it possible to share and collaborate on the development of Webquests. Quest Garden for example makes it

easier for teachers to collect ideas, to recycle and re-use existing Webquests for classroom use.

<http://Webquest.org/index.php>

<http://questgarden.com/>

## EVIDENCE-BASED RESEARCH

Here you can find some collected papers on technology enhanced instructional designs, describing and analyzing features, effects and impact on teaching and student learning. All papers are addressing the integration of ICT in the Vietnamese education context.

Tran, T. (2009). *Using Webquest in Teaching Environmental Education in Vietnam*.

### Abstract

Students learn best when they construct knowledge by themselves. Webquests have the potential to activate students by enhancing their critical thinking and problem solving skills. This paper focuses on Webquest in teaching Environmental Education (EE) in Vietnam. The paper starts with an introduction to different learning theories, and with an introduction to the Webquest concept and its added value to teaching and learning. The perception (of educators) on Webquest are explored and one example of Webquest in Environmental Education is given. The paper concludes with some implications for using Webquest.

*The full paper in English can be downloaded from the ICT4ATL toolkit (CD).*

## TEST YOURSELF

Take your time to revise your knowledge on this technology enhanced instructional design.

1. **A Webquest is an assignment which asks learners to use the World Wide Web to learn about and/or synthesize their knowledge on a specific topic. A typical Webquest contains 6 elements, finishing with a Teacher Page where educators share information about the Webquest with colleagues.**
  - a. Process.
  - b. Task.
  - c. Introduction.
  - d. Teacher page.

- e. Evaluation.
- f. Conclusion.

**2. Most Webquests have a 'Hook'. What is a 'Hook'?**

- a. Where the Webquest can be published online, it is the online location of a Webquest.
- b. The motivating factor of a Webquest, the challenge and incentive for the learner to start the quest.
- c. The collection of links to websites where the learners can find all necessary information to fulfill the assignment.
- d. The central topic of a Webquest.

**3. True or False?**

A Webquest allows students to freely surf and explore every resource on the web they can find.

*See the key at the page 110.*



## ANNEX 1: SELT- TEST ON TPACK

Please indicate to what extent you agree with the following statements.

1	2	3	4	5	
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	
	1	2	3	4	5
<b>Technological Knowledge</b>					
I know how to solve my own technical problems.					
I can learn technology easily.					
I keep up with important new technologies.					
I frequently play around with the technology.					
I know about a lot of different technologies.					
I have the technical skills I need to use technology.					
I have had sufficient opportunities to work with different technologies.					

	1	2	3	4	5
<b>Pedagogical Knowledge</b>					
I know how to assess student performance in a classroom.					
I can adapt my teaching based upon what students currently understand or do not understand.					
I can adapt my teaching style to different learners.					
I can assess student learning in multiple ways.					
I can use a wide range of teaching approaches in a classroom setting (collaborative learning, direct instruction, inquiry learning, problem/project based learning etc.).					
I am familiar with common student understandings and misconceptions.					
I know how to organize and maintain classroom management.					

	1	2	3	4	5
Technological Pedagogical Knowledge					
I can choose technologies that enhance the teaching approaches for a lesson.					
I can choose technologies that enhance students' learning for a lesson.					
My teacher education program has caused me to think more deeply about how technology could influence the teaching approaches I use in my classroom.					
I am thinking critically about how to use technology in my classroom.					
I can adapt the use of technologies that I am learning about to different teaching activities.					

After filling the above Self-test TPACK, the feedback will be provided for you to improve the technological and pedagogical knowledge.

If you would like to see the result and feedback on TPK, see the Assessment part in the Vietnamese ICT4ATL toolkit.

## ANNEX 2: LO/AT

### LESSON OBSERVATION/ASSESSMENT TOOL

#### *Introduction*

This **Lesson Observation/Assessment Tool** can be used during and or after a lesson observation in the context of a peer-review session or a friendly teaching competition.

The following elements of the observed lesson will be assessed:

- \* Content
- \* Teacher's activities
- \* Students' activities
- \* Integration of ICT
- \* Classroom organization and management
- \* Outcomes and Output
- \* Integration of Environmental education

#### GENERAL INFORMATION

Reviewer/Assessor	
Your name	
Affiliation and position	
Subject(s) teaching and grade	
E-mail	
Telephone	

Teacher under review/assessment	
Title of lesson under review	
Name of teacher	
Subject	
Grade/Level	
Name of school	
Date of teaching	
Lesson period	

### CHECKLIST HARDWARE AND FACILITIES USED

Laptop or desktop	
Data projector and screen	
Set of laptops or desktops	
Multimedia room	
Photo camera	
Video camera	
Internet connection	
Wireless keyboard and/or mouse	
Interactive whiteboard system	
Blackboard/whiteboard and chalk/pens	
Handouts	
Flipcharts	
Overhead projector and slides	
Paper pictures, graphs	
Others...	

## CONTENT OF THE LESSON

In this lesson, the content ...	Very Clear	Clear	Somehow Clear	Not at all
is accurate, clear, logical/systematic and scientific.				
is contextualized to the local situation/environment.				
builds on previous knowledge.				
raises problems, and supports students' thinking development.				
supports cultural heritage and traditions.				
supports moral and traditional values.				
supports environmental values.				
relates to the reality and age of the students.				

## TEACHER'S AND STUDENT'S ACTIVITIES

### *Teacher's activities*

In this lesson, the teacher ...	Very Clear	Clear	Somehow Clear	Not at all
uses teaching methodologies in accordance with the learning objectives and subject.				
uses a variety of teaching methodologies appropriate to the level of the students.				
involves all/most of the learners to participate in the lesson.				
encourages the learners to be creative and independent in thinking.				
evaluates the learning outcomes of the learners.				
starts from the experience of the learners.				

supervises the learning progress and adjusts (e.g. provides feedback on the student product, ...)				
provides clear instructions for each activity/assignment.				
introduces the lesson objectives and subject matters in an interesting way.				
respects the students' identity.				

## OVERALL ASSESSMENT ON TEACHING PRACTICE OF THE TEACHER

*Is the teacher a coach, giving guidance to the students?*

.....

.....

.....

.....

.....

### *Learners' activities*

In this lesson, the learners ...	Very Clear	Clear	Somehow Clear	Not at all
are prepared for the lesson.				
show interest in the topic, ask critical questions, showing individual thought.				
interact with each other in the learning process.				
demonstrate what they have learned.				
evaluate their own learning progress and outcomes.				
actively construct their own knowledge in collaboration with their peers and others.				
develop deep understanding about a topic of interest relevant to the subject area/s being studied.				

develop a scientific understanding of the world.				
show motivation for subject tasks.				

## OVERALL ASSESSMENT ON THE LEARNING PRACTICE OF THE STUDENTS

*Do the students participate actively?*

.....

.....

.....

.....

.....

.....

## INTEGRATION OF ICT

In this lesson <u>the teacher uses ICT for ...</u>	Yes	No
production of documents (e.g. handouts or overhead transparencies produced with Word processing software).		
presentation during lecturing (e.g. slideshow presentation produced with Presentation software).		
integration into learning activities (e.g. Simulation software, Data processing packages, MindMapping, Shared writing, Photo story telling).		
accessing offline information as resource material (e.g. information, images, video of CD-ROM/DVD) <b>during the lesson implementation.</b>		
accessing online information as source of information (information on Internet/WWW) <b>during the lesson implementation.</b>		
electronic communication with students (e.g. E-mail, World Wide Web (WWW), ...) <b>to prepare or follow up for the lesson.</b>		

classroom management in a computer classroom setting (e.g. classroom management software like NetOp).		
---	--	--

<b>In this lesson, <u>the learners use ICT to ...</u></b>	<b>Very Clear</b>	<b>Clear</b>	<b>Somehow Clear</b>	<b>Not at all</b>
integrate different media to create appropriate products.				
orientate themselves to a new subject.				
gather information from electronic databases.				
process collected data.				
solve a problem, supported by the computer.				
give a presentation supported by the computer.				
synthesize their knowledge.				
communicate with others (locally and/or globally).				

<b>Overall assessment on the use of ICT: In this lesson, <u>ICT is supporting students to ...</u></b>	<b>Very Clear</b>	<b>Clear</b>	<b>Somehow Clear</b>	<b>Not at all</b>
be motivated and engaged in the learning process.				
explore and/or experiment.				
construct knowledge, understanding, insight in the world.				
reflect on issues.				
interact with each other.				



## CLASSROOM ORGANIZATION AND MANAGEMENT

	Very Clear	Clear	Somehow Clear	Not at all
The lesson is well timed.				
The classroom is a friendly, collaborative environment.				
The set up of the furniture enables Active Teaching and Learning.				
The facilities are sufficient for teacher and student use.				
The facilities are compatible with the teaching methodology.				
The facilities are supporting learning goals.				
The facilities make teaching and learning more easy, more convenient.				

## OUTCOMES AND OUTPUT

In this lesson ...	Very Clear	Clear	Somehow Clear	Not at all
learning objectives are summarized at the end of the lesson.				
learning objectives are evaluated.				
learning objectives are met.				
knowledge, as well as skills and attitudes are acquired.				
learning skills are acquired.				
learners can apply acquired knowledge and skills.				

*Please list the output of the lesson (student presentations, mindmaps, stories, ...).*

**INTEGRATION OF ENVIRONMENTAL EDUCATION (FILL OUT IF APPLICABLE)**

In this lesson, <u>the teacher</u> ...	Very Clear	Clear	Somehow Clear	Not at all
is fair and accurate in describing environmental issues and conditions.				
fosters awareness of natural and built environment.				
helps learners understand the interdependence of all life forms.				
develops lifelong skills that enable learners to address environmental issues.				

In this lesson, <u>the learners</u> ...	Very Clear	Clear	Somehow Clear	Not at all
acquire awareness of the global implications on the environment.				
critically evaluate their own and society's values.				
gain insight in an environmental issue.				
develop their own solution to environmental issues.				



### ANNEX 3: TEST YOURSELF

**1. Which of the following statements are true? (true or false)?**

- a. Most tools can be used for different kinds of subjects, however, the teacher should be certain that it is the most appropriate form of instruction.
- b. Some tools have more potential to activate learners in the learning process, however, it all depends on how the tools are used by the teacher and the learners.
- c. The quality of teaching and the use of ICT depends on the ideas and thought that go into it, more than on flashy, highly advanced presentation technologies.

**2. Assessment of your teaching practice makes you reflect on the use of ICT for education. What elements is most important when you assess a lesson where ICT is integrated? (multiple choice)**

- a. The use of ICT by the teacher: what hardware and software is used by the teacher during the lesson?
- b. The use of ICT by the students: what hardware and software is used by the students during the lesson?
- c. The activeness of the students: to what extent do students constructing knowledge and insight in the world around them through active exploration, experimentation and reflection in interaction with each other and the learning materials?
- d. The technical quality of the digital products like presentations and handouts: e.g. the clearness of pictures used, slideshow colors, sound quality of audio files, ...

**3. Effective integration of ICT in teaching and learning starts with reflection on how tools can be used to add value to education. Can you match the following software with the given methodologies?**

a. Inspiration	1. Simulation
b. Crocodile Clips	2. Shared Writing
c. MS Word	3. MindMapping
d. Hot Potatoes	4. WebQuest
e. ExE Learning	5. Practice & Drill

**4. Many people feel Practice & Drill is out of date and not appropriate for meaningful learning to take place. On the other side of the argument, people still support the idea of Practice & Drill as an effective teaching methodology. For what purposes is it appropriate to develop Practice & Drill exercises?**

- a. To increase learners acquisition of basic skills in a certain subject area.
- b. To give background information as a warm up.
- c. To stimulate the learner's short term memory.
- d. To assess or review content knowledge.
- e. To structure, visualize and classify ideas.
- f. To experiment and explore before discussing theory.

**5. Practice & Drill software packages offer structured reinforcement of previously learned concepts. What are requirements of good Practice & Drill software packages?**

Good Practice & Drill software packages:

- a. Should give the learner appropriate feedback.
- b. Should allow the learner to select the appropriate level of difficulty at which questions about specific content materials are set.
- c. Should contain a management system to keep track of learner's progress.
- d. Should motivate the learner by the inclusion of a gaming scenario, as well as colorful and animated graphics.
- e. Should give the learner a score in points.

**6. True or False?**

- a. In a Mind Map, information is structured in a way that resembles closely how the brain actually works. Therefore it is only appropriate to use Mind Mapping in subjects like Psychology, Pedagogy or Social sciences.
- b. Mind Maps can be created with software on a computer, but cannot be created on paper, on a blackboard or on a whiteboard.
- c. Mind Mapping is a simple tool to visualize complex concepts, relations between concepts and ideas, and processes.
- d. By using digital Mind Maps learners don't have to think any longer. The software will do this automatically for them.

- e. Mind Maps are organized around one key idea or concept, while concept maps are based on connections between concepts in more diverse ways.

**7. What is a Wiki?**

- a. A Wiki is a collaborative project where different people are working on a shared text online.
- b. A Wiki is an Interactive Whiteboard system.
- c. A Wiki is an article on the Wikipedia.
- d. A Wiki is a person with the New Zealand nationality, connected to the internet.
- e. A Wiki is an online MindMap, created by different people.

**8. Order the different steps in a logical order from 1 (first step) to 5 (last step).**

- a. Students read the first sentence of the writing and write the second sentence.
- b. The teacher writes the first sentence of the writing in the word processing program.
- c. The teacher presents the topic of the writing and introduces the process of making writing.
- d. The teacher and students revise the writing to have a better writing.
- e. Students in turn read and continue writing.
- f. After completing the story, the teacher reads the writing.

**9. Fill the gaps with the given phrases. Each phrase is used only once.**

**very easy to use  
concepts**

**present  
a study trip**

**tell a story**

Digital Photo Story Telling offers many possibilities for teaching and learning. Teachers of different subjects can use it to introduce \_\_\_\_\_, ideas, as a warm up, or to give background information. The power lies in the fact that the software is \_\_\_\_\_ and everybody with a digital camera can become a director of a Photo Story. Students can use it as a way to \_\_\_\_\_ reports. It can be used to give explanation to the process of a chemistry experiment, to report on \_\_\_\_\_, to \_\_\_\_\_ about a character or a person in history ...

**10. Which element is most important to create a Photo Story?**

- a. Ideas for a story and a story board.
- b. A digital photo camera or pictures stored on your computer.
- c. Software to arrange your pictures.
- d. A microphone to add voice to the Photo Story.
- e. A medium to publish or share your story.

**11. True or False?**

- a. A Simulation can only represent imaginary situations, no real situations.
- b. In a Simulation the learner can change variables and observe what happens in the virtual, digitally created environment.
- c. Simulations do not allow to study or try things that are difficult or impossible to do in real life.
- d. With some basic ICT skills, teachers and learners can create an electronic Simulation themselves with productivity software.

**12. Which one of the following is the more effective way of using the simulation in the class if the goal of the lesson is to let the students discover a theory actively?**

- a. The teacher shows the simulation and explains the theory.
- b. Students change the variables in simulation, explore it and present the theory by themselves.

**13. Fill the gaps with the suitable verbs.**

**replace      learn      enforcing      starting      experiment      have fun**

Simulations offer a way for learners to \_\_\_\_\_ underlying theories through exploration. Instead of \_\_\_\_\_ from theory before doing exercises, Simulations allow to \_\_\_\_\_ and explore, invent, which will bring thorough understanding and insight in the matter. Many game like Simulations exist where learners can \_\_\_\_\_ while \_\_\_\_\_ knowledge at their own pace. Simulations can also

be used to\_\_\_\_\_ situations or experiments which are difficult to bring to the classroom because of limitations like danger, cost, size, etc.

**14. A Webquest is an assignment which asks learners to use the World Wide Web to learn about and/or synthesize their knowledge on a specific topic. A typical Webquest contains 6 elements, finishing with a Teacher Page where educators share information about the Webquest with colleagues. Please order all elements in logical order (from 1 to 6).**

- a. Process.
- b. Task.
- c. Introduction.
- d. Teacher page.
- e. Evaluation.
- f. Conclusion.

**15. Most Webquests have a 'Hook'. What is a 'Hook'?**

- a. Where the Webquest can be published online, it is the online location of a Webquest.
- b. The motivating factor of a Webquest, the challenge and incentive for the learner to start the quest.
- c. The collection of links to websites where the learners can find all necessary information to fulfill the assignment.
- d. The central topic of a Webquest.

**16. True or False?**

A Webquest allows students to freely surf and explore every resource on the web they can find.

**17. True or False?**

- a. Presentation software can support direct instruction teaching methodologies. Therefore Presentations cannot be used to actively involve students in knowledge construction.



- b. Presentation programs can either supplement or replace the use of older visual aid technology. Especially the possibility to integrate different media such as text, graphics, movies, and other objects, can attract students in a more engaging way to the content.
- c. Presentation software and tools only allow for the creation of individual slides which are presented in a linear way to the learner.

**18. Typically Presentation software includes three major functions. Which one is not a major function of Presentation software:**

- a. An editor that allows text to be inserted and formatted.
- b. A system to generate automatic feedback.
- c. A method for inserting and manipulating graphic images.
- d. A slide-show system to display the content.

**19. Fill in the gaps:**

**tool                  active                  way                  methodology**

ICT is a \_\_\_\_\_ supporting \_\_\_\_\_ teaching and learning (ATL) process. However, the added value of ICT to this process depend not only on the tools themselves but also on the \_\_\_\_\_ the teachers and learner use the tools. In other words, it depends on the teaching and learning \_\_\_\_\_.

**20. Crossword:**

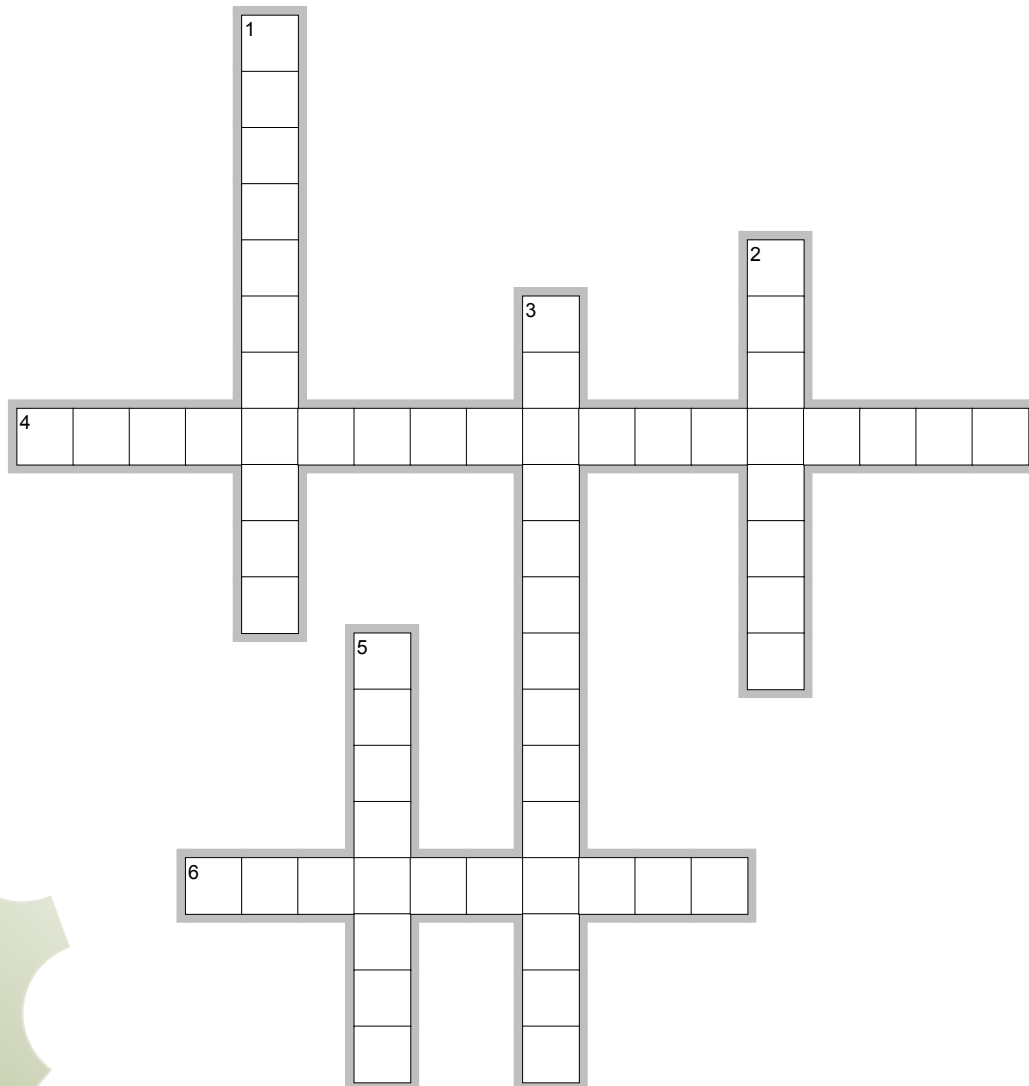
**Across**

- 4. An exercise to practice a skill or to assess content knowledge.
- 6. An interactive exercise where learners can change input and variables to see what happens in the virtual, digitally created environment.

**Down**

- 1. A story made of pictures.

2. A diagram used to represent words, ideas, tasks, or other items linked to and arranged radially around a central key word or idea.
3. A writing activity where different participants create a text together.
5. An assignment which asks learners to use the World Wide Web to learn about and/or synthesize their knowledge on a specific topic An assignment which asks learners to use the World Wide Web to learn about and/or synthesize their knowledge on a specific topic.



EclipseCrossword.com

*See the key at the page 110 and page 111.*

## KEY TO TEST YOURSELF

Q 1 : All are correct.

Q 2: c

Q 3: a. 3, b. 1, c. 2, d. 5, e. 4

Q 4: a, b, c, d

Q 5 : All are correct.

Q 6 : a. False, b. False, c. True, d. False, e. True, f. True

Q 7 : a

Q 8: a. 3, b. 2, c. 1, d. 6, e. 4, f. 5

Q 9: a. concepts, b. very easy to use, c. present, d. a study trip, e. tell a story

Q 10 : a

Q 11 : a. False, b. True, c. False, d. True

Q 12 : b

Q 13 : a. learn, b. starting, c. experiment, d. have fun, e. enforcing, f. replace

Q 14 : a. 3, b. 2, c. 1, d. 6, e. 4, f. 5

Q 15 : a

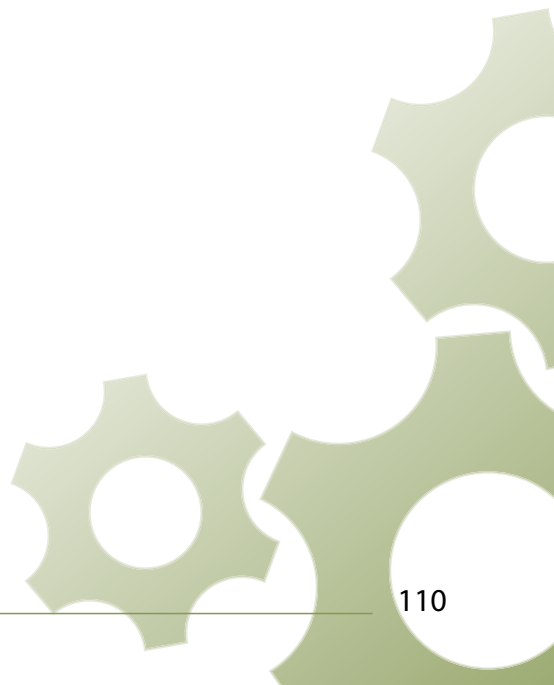
Q 16 : False

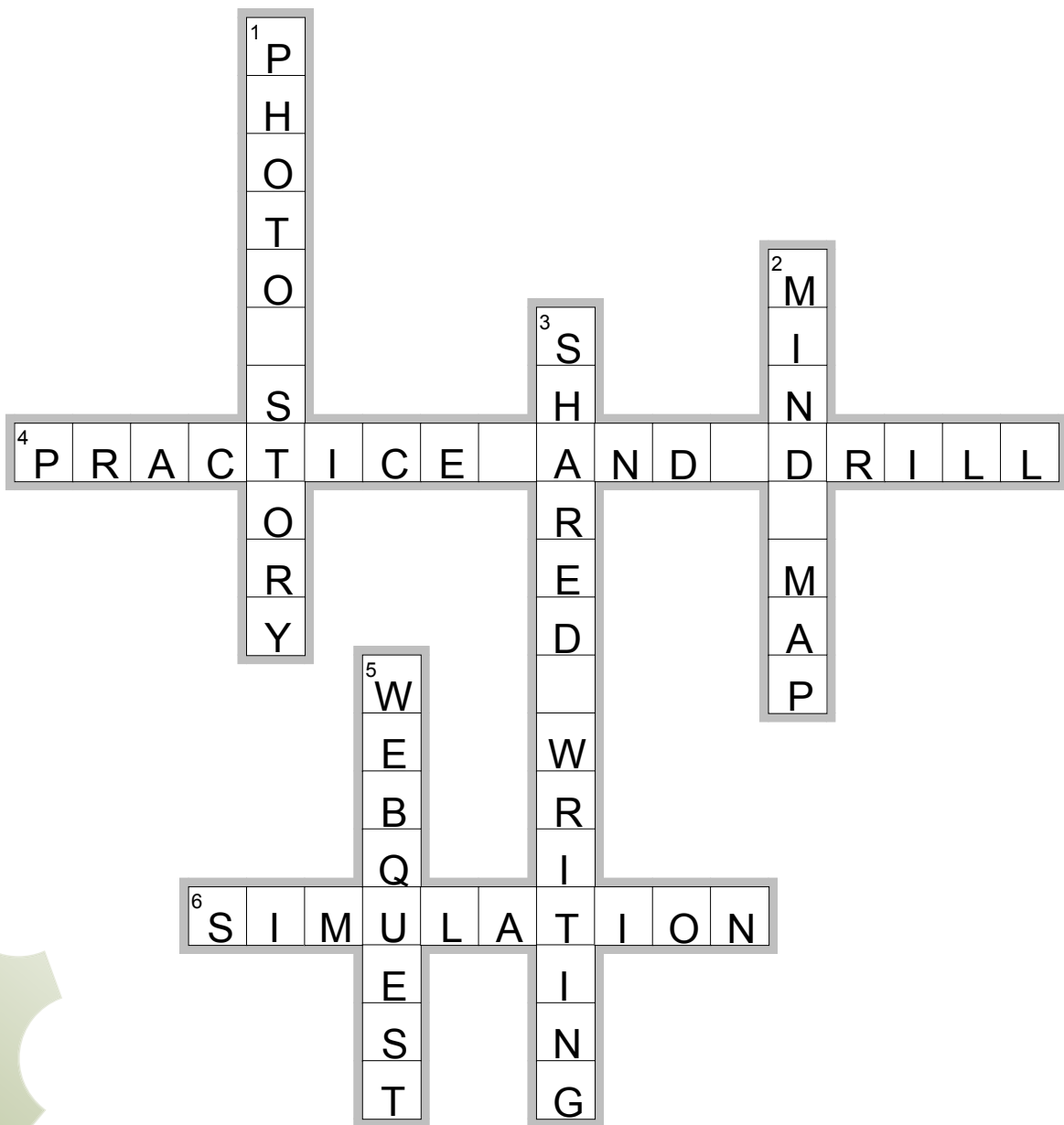
Q 17 : a. False, b. True, c. False

Q 18 : b

Q 19 : a. tool, b. active, c. way, d. methodology

Q 20 :





EclipseCrossword.com

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- \* The ICT core group members from the 5 partner institutes of VVOB Vietnam:
  - Nghe An Teacher Training College
  - Pham Van Dong University, Quang Ngai
  - Quang Nam University
  - Quang Ninh Teacher Training College
  - Thai Nguyen Teacher Training College
- \* The ICT department of UNESCO Bangkok, the Vietnamese National Institute for Education Sciences, the National Project Implementation Unit of the Lower Secondary Education for the Most Disadvantaged Regions Project (MOET/ADB), the Department of Secondary Education of the Ministry of Education and Training, Dr. Le Huy Hoang from the Hanoi National University of Education and in particular Mr. Nguyen Vinh Hien, Vice Minister of the Ministry of Education and Training for his interest in the programme and for his encouragement.

**Development of digital toolkit by 1-2-3 Education Development and Investment Joint Stock Company**

This toolkit is part of a training package on teaching methodology and integration of ICT in education. For more information visit the VVOB Vietnam.

website: <http://www.vvob.be/vietnam>

For queries regarding the ICT for ATL toolkit, comments and suggestions for improvement, please contact [vvobict4atl@gmail.com](mailto:vvobict4atl@gmail.com).

*Hanoi, 30 November 2010*

# ICT FOR ACTIVE TEACHING AND LEARNING

This toolkit introduces seven technology enhanced instructional designs and contains a series of examples illustrating these designs. But integration of ICT in teaching and learning always continues and always changes with the introduction of new tools and with creative educators developing new applications and ideas to integrate into teaching and learning.

Therefore we invite you to share the tools that that you use as well as examples and ideas of using these tools in teaching and learning. Also research papers on added value of these tools for teaching and learning can be shared. As soon as we have enough materials we hope to update the toolkit with new modules and/or exiting examples, illustrations and research findings.

Please send your ideas and examples to: [vvobict4atl@gmail.com](mailto:vvobict4atl@gmail.com)

For lesson ideas, please use the lesson plan template included in the toolkit.

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