Computer-based Language Learning with Interactive Web Exercises

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Abstract

Supporting the learning of children or students, educators can implement the potential of the computer and the Internet. The Language Centre of the University of Victoria/Canada developed the Web authoring software "Hot Potatoes" to create interactive Web exercises without programming knowledge. The software is free for educational institutions and can be downloaded from the website http://web.uvic.ca/hrd/halfbaked/. The paper shows the use of Hot Potatoes and discusses the strengths and weaknesses of interactive Web exercises.

1. Introduction

Beneath the use as a source of information the Internet is added as a learning tool to support online learning programmes and interactive Web exercises. Much of the literature on Computer-based-Learning shows that one of the main barriers to create teaching materials is the difficult technology, so teachers need the help of an expert for planning, design, and delivery of Web based learning programmes and exercises. To create easily interactive Web exercises for language learning the Language Centre of the University of Victoria/Canada developed a Web authoring software named Hot Potatoes [1].

This authoring software is a Web site development system that allows Web pages to be visually created without programming knowledge. The software helps the author to develop interactive exercises and generates the HTML- and JavaScript codes for the Web pages in the background. The interactive Web exercises can be viewed and used in a browser in Internet, intranet or from different data mediums. Such interactive Web exercises improve learning and are more enjoyable and meaningful for learners than traditional exercises on paper. The didactical role of interactive teaching exercises is primarily to reinforce the understanding of presented material and to add more variety in learning and training.

2. The use of Hot Potatoes

Hot Potatoes is offered to public educational institutions by the Language Centre of the University of Victoria and is free for use by non-profit organisations on the condition that the produced Web exercises using the software are freely available to anyone via Internet. Hot Potatoes software can be downloaded for Windows and for Apple from the University website http://web.uvic.ca/hrd/halfbaked/ and is available in different languages. The site includes beneath the download, news, support and links to other Hot Potatoes web pages, tutorials and answers to frequently asked questions. The download file is about 9 MB, the full program needs 34,2 MB. After download and setup, there is the possibility to choose the language for the surface of the program. The standard language is English, available languages are German, Spanish, Finnish, French, Italian, Dutch, Norwegian and Portuguese.

The Hot Potatoes software consists of five different basic programmes for creating interactive multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises and the

Masher, which is used for larger units of materials linked together. The Masher requires a separate registration key, which can only get by buying a commercial licence for Hot Potatoes. Hot Potatoes creates two different files of one exercise; the work file that can be re-opened and updated at any time, and the HTML-File for the browser.

(Fig.1 Screenshot of Hot Potatoes)

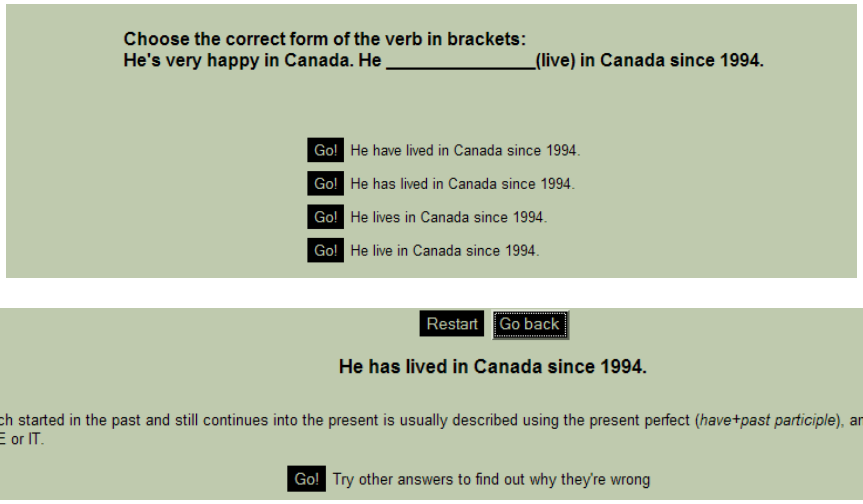
All tools allow the adding of individual text, picture and sound or video files to create exercises. Many language departments of Universities are using Hot Potatoes for self-assessment exercises and they integrate them in Moodle or Blackboard Learning Management Systems.

1.1 Question-based exercises - JQuiz program

JQuiz is a tool for creating question-based exercises. Each quiz can consist of an unlimited number of questions with four basic question types, multiple-choice questions, short-answer questions, hybrid questions or multi-select questions.

In multiple-choice questions, the student chooses an answer by clicking. If the answer is correct, the button changes to "correct", and if it's wrong, it will show "false" and gives (if added by the author) a feedback specific to that answer, explaining why it's correct or wrong. The score for each question at the end of the exercise is based on the number of trials to get a correct answer.

For language learning there are a lot application areas of JQuiz. The following example shows a multiple-choice quiz with grammar exercises for English as second language. It is very important to give targeted feedback also for correct answers,

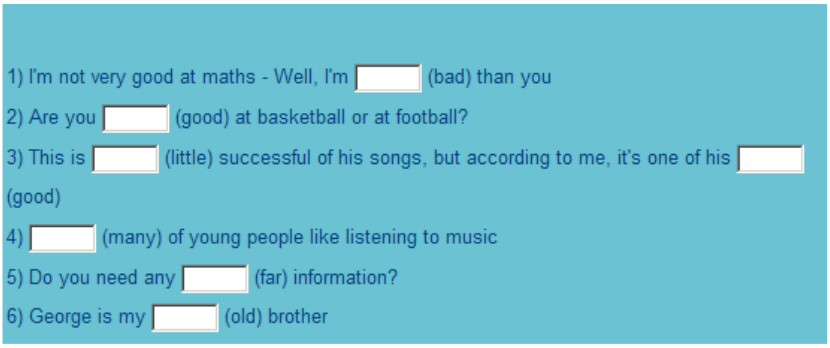


(Fig.2 Multiple-choice quiz with feedback http://web.uvic.ca/hrd/halfbaked/howto/mcquestion.htm)

1.2 Gap-fill exercises - JCloze program

The JCloze program creates gap-fill exercises. Gap-fill exercises are original texts with missing words. The idea of a gap-fill exercise is that the learner completes all the gaps before checking. Unlimited correct answers can be specified for each gap, and the student can ask for a hint and see one letter of the correct answer. A specific clue can also be included for each gap.

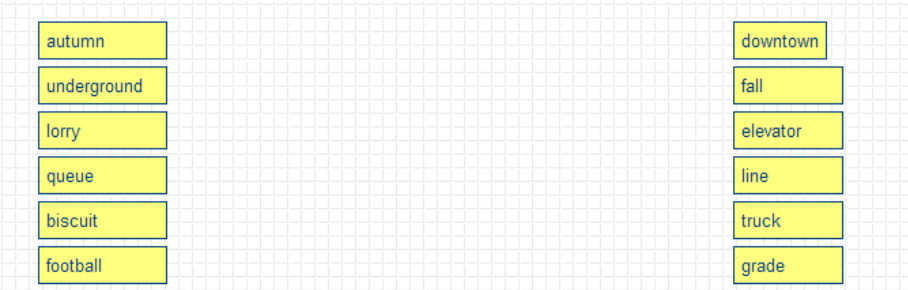
In language learning, gap-fill exercises are useful for reading and general text understanding, but they can also be used for grammar exercises. The following example shows training of comparatives and superlatives for English as second language.



(Fig.3 Example Gap-fill exercise http://www.cyberteacher.it/esercizi/ing_2compsup2.htm)

1.3 Matching exercises - JMatch program

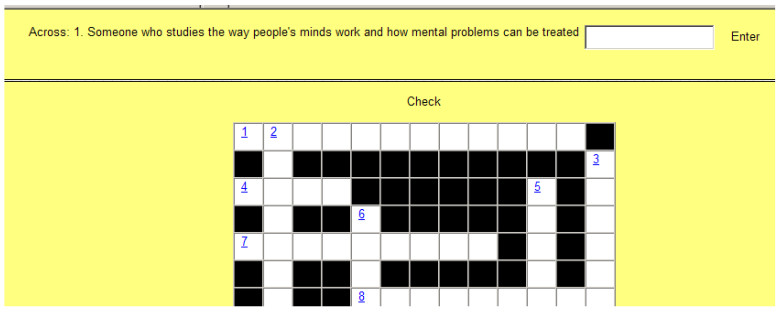
The JMatch program creates matching or ordering exercises. A list of fixed items either pictures or text appears on the left with jumbled items on the right. This can be used for matching vocabulary to pictures or translations, or for ordering sentences to form a sequence or a conversation. In the following example we see an exercise to learn the differences between British and American English.



(Fig.4 Matching exercise http://www.cyberteacher.it/esercizi/ing_britamer.htm)

1.4 Crosswords - JCross program

JCross is used to make crossword exercises. As in J JCloze, a hint button allows the student to request a free letter if help is needed. It is possible to use the automatic grid maker to create a crossword of a list of words. It is also possible to integrate pictures into the exercises or the exercise timer, which can be added to any exercise of Hot Potatoes. The example shows a crossword about "jobs" and trains the reading and text understanding.

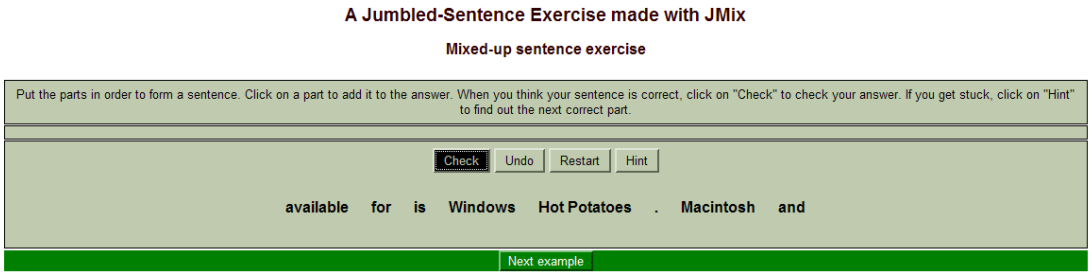


(Fig.5 Crossword http://www.cyberteacher.it/esercizi/ing_jobs_exercise.htm)

1.5 Jumbled-sentence exercises - JMix program

The JMix program creates jumbled-sentence or jumbled-letter exercises. It is possible to specify as many different correct answers as needed, based on the words or letters and punctuation in the base sentence or base word. A hint button can give the student the next correct word or segment of the sentence. Two output formats are available, the standard and the drag-drop format.

For didactical use word order exercises are useful.



(Fig.6 Jumbled-sentence exercise http://web.uvic.ca/hrd/hotpot/wintutor6/jmix1.htm)

2. Strengths and weaknesses of Hot Potatoes

2.1 Strengths

Although exercises can also be created on paper, a web-based survey has a lot of advantages, because Web browsers and Internet connections are widely available.

First of all the summarizing of the exercise results is done automatically and show the students the outcome of their work. Pupils can evaluate their learning progress by a score (%) and by clicking a button, which lists all questions and answers given with their appropriate labels "correct" or "false". There is actually no additional effort for a presentation of the results, as they can be viewed on the web directly on the screen. A great benefit is the possibility to add targeted feedback to every answer option for wrong and correct answers. The feedback message is shown after the option has been clicked. For the teacher and designer of the interactive web exercises, it is a complex task to create good feedback messages. Feedback supports students enormously because they can even learn from

wrong answers. The University of Victoria added an informative tutorial named "How to write good multiple-choice questions" at their Hot Potatoes Website to help teachers to create proper material for their pupils and students [2].

Hot Potatoes allows creating exercises for several quiz and questioning types and this makes the training more enjoyable and fun. In the technical literature the connection between learning and entertainment is named "edutainment". The teacher can meet the learners' needs and design the exercises in connection to his lessons. Pupils usually prefer to fill in electronic forms rather than paper forms. They are more motivated to use computers and the outcome is more efficiency in learning. Interactive Web exercises increase interaction and motivate learners. The exercises can be done at any time and any place, even previously to the first lesson or as a homework assignment. Resources have a potential for widening the access for example to part-time or working students. They can be used frequently and they are a useful source of supplementary materials to conventional exercises. Students can train for examination with these self-tests. All units of exercises can contain hyperlinks to other parts of the Web. The pedagogical advantages of this combination of tools are obvious. Adding a lexical resource to a Hot Potatoes computer-based exercise motivates the student to learn, to try, to make mistakes, to explore and try again.

2.2 Weaknesses

There are also several disadvantages of Web exercises. The necessary infrastructure must be available and affordable; access to adequate computer equipment can be a problem for pupils and students. Limited bandwidth causes slower performance for sound, video, and large graphics. Hot Potatoes is not a tool to design Web-based exams, because this would require a range of technological features. But in summary, the list of advantages is longer than the list of disadvantages.

References

[1] Language Centre of the University of Victoria http://web.uvic.ca/hrd/halfbaked/ (8.8.2011)

[2] Tutorial http://web.uvic.ca/hrd/halfbaked/howto/mcquestion.htm (15.8.2011)