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Article

A set of free cross-platform authoring programs for flexible web-based CALL exercises

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Abstract

The Mango Suite is a set of three freely downloadable cross-platform authoring programs for flexible network-based CALL exercises. They are Adobe Air applications, so they can be used on Windows, Macintosh, or Linux computers, provided the freely-available Adobe Air has been installed on the computer. The exercises which the programs generate are all Adobe Flash based.

The three programs are: (1) Mango-multi, which constructs multiple-choice exercises with an optional sound and/or image; (2) Mango-match, which is for word/phrase matching exercises, and has an added feature intended to promote memorization, whereby an item must be matched correctly not once but an optional consecutive number of times; (3) Mango-gap, which produces seamless gap filling exercises, where the gaps can be as small as desired, down to the level of individual letters, and correction feedback is similarly detailed. Sounds may also be inserted at any desired points within the text, so that it is suitable for listening or dictation exercises.

Each exercise generated by any of the programs is produced in the form of a folder containing all of the necessary files for immediate upload and deployment   (except that if sound files are used in a Mango-gap exercise, they must be copied to the folder manually). The html file in which the flash exercise is embedded may be edited in any way to suit the user, and an xml file controlling the appearance of the exercise itself may be edited through a wysiwyg interface in the authoring program. The programs aim

to combine ease of use with features not available in other authoring programs, to provide a useful teaching and research tool.

Keywords: CALL exercise, vocabulary learning, matching exercise, text reconstruction, cloze, multiple choice.

1. Introduction

The Mango Suite is a set of three free cross-platform authoring programs for flexible network-based CALL exercises. They were developed as Adobe Air applications by the author, using Adobe Flex, so they can be used on computers running Windows, Macintosh, or Linux operating systems, provided Adobe Air has been installed on the computer. Adobe Air is available for free download from http://www.adobe.com. The exercises themselves are all Adobe Flash based.

The three programs are: (1) Mango-multi, which constructs multiple-choice exercises with an optional sound and/or image; (2) Mango-match, which is for word/phrase matching exercises, and has an added feature intended to promote memorization; (3) Mango-gap, which produces seamless gap filling exercises, where the gaps can be as small as desired, down to the level of individual letters, and correction feedback is similarly detailed. Sounds may also be inserted at any desired points within the text.

Each exercise generated by any of the programs is in the form of a folder containing all of the necessary files for immediate upload and deployment (except that if sound files are used in a Mango-gap exercise, they must be copied to the folder manually). The programs aim to combine ease of use with features not available in other authoring programs, to provide a useful teaching and research tool. Next, each program will be described in turn in more detail.

2. Operation of the 3 programs

2.1. Mango-multi

Fig. 1 shows the interface of the Mango-multi authoring program at the stage where the first item in a multi-choice quiz is ready to be added. The three uniform boxes around the middle of the window can each be a placeholder for a sound, an image or a chunk of text. The user can drag an image file (jpg, png, or gif) or a sound file (mp3 only) from any location on their computer into any of the boxes. The name of the file will appear in the box, and any previous item in that box will be displaced. As seen in Fig. 1, if the item is an image, a thumbnail view of it appears beside the box, and if it is a sound, a Play button appears so that it can be tested. Text can be inserted into a box by pasting, dragging selected text from a window of another program, or typing in directly. Dragging in the icon of a text file will not work. When the exercise is generated, the sound, image, and text will appear in the same vertical order as they were entered. Fig. 2 shows the resultant question from the input items shown in Fig. 1. Of course, to generate a question it is only necessary to have at least one item of any type in one box.
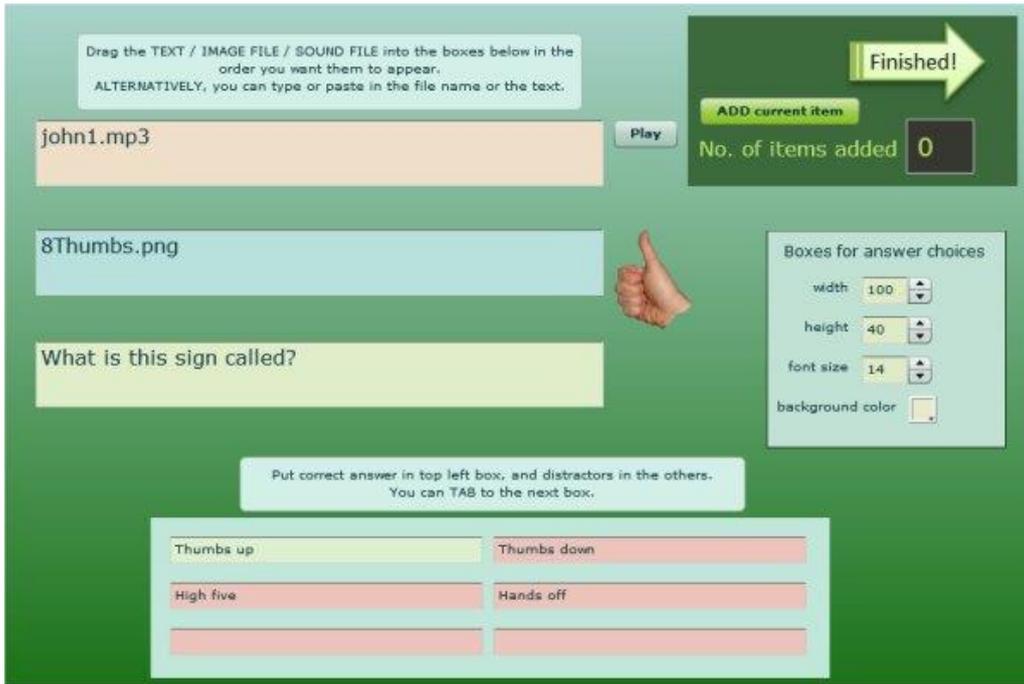
Figure 1. Interface of the Mango-multi authoring program.

Six other boxes accommodate the correct answer (top left box – green) and up to five distractors (the other five boxes – pink), which may also be pasted, typed, or dragged in. Any number of questions may be added to an exercise. Background color and the dimensions and font size of the answer boxes are freely adjustable. When the desired questions have been entered, the Finished! button brings up the exercise naming dialog, from which the exercise folder, ready for network deployment, is generated by one button click. As seen in Fig. 2, sounds are represented by a triangular Play button, and can be paused or repeated. The vertical green/red bar on the left is an analog indicator of the user's score. A bubble, which is initially in the middle, moves up or down for a correct or wrong answer respectively. The distance moved is inversely proportional to the number of questions in the exercise, so that a perfect score will bring the bubble to the top of the green bar. In Fig. 2, the first question of 2 has been answered correctly, so the bubble is at the halfway point on the green bar.
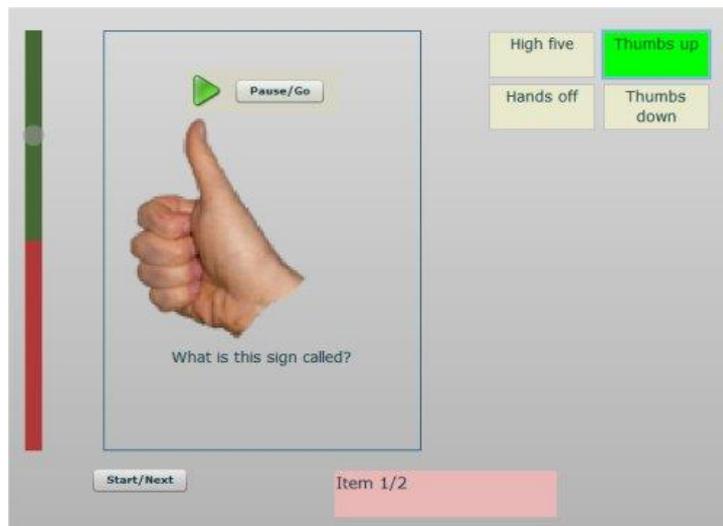

Figure 2. Resultant question in the browser from the input shown in Fig. 1.

Thus, Mango-multi affords considerable flexibility and ease in the construction of online multi-choice quizzes. Also, just as sound, image, or text may be omitted from any question, the question element itself can be omitted if desired by simply leaving the answer and distractor boxes blank. This could be useful, for instance, as a convenient way for introducing a set of new vocabulary items, each with a corresponding sound and/or image.

2.2. Mango-match

Fig. 3 shows the interface of the Mango-match authoring program at the stage where three item pairs – in this case equivalent vocabulary items in Japanese and English – have been added (the lower three pairs of boxes) and one more pair is ready to be added by clicking the Add button (the pair of boxes at the top). When all the required item pairs have been added, the Finished button brings up the exercise naming dialog, from which the exercise folder may be generated. The NEW button clears all data, in preparation for making another exercise.

Figure 3. Interface of the Mango-match authoring program.

Another interface element of interest is "Number of required consecutive times" at the bottom, which is set to 2 in the example shown. This will now be explained in terms of the operation of the exercise – refer to Fig. 4, which shows a small partially-completed example. Initially, all the English items are on the left-hand side. The user drags one of these items onto a Japanese item in the box in the middle. If the items correspond, the English item lines up to the right of the Japanese one, and takes on a colored glow. If the items do not correspond, the English item returns to the left-hand side, and the left-hand items rearrange their vertical order randomly in order to avoid any list effect whereby the user remembers the position of a matching item rather than the item itself. Each time an English item is dragged onto a Japanese item, if it corresponds it lines up and takes on a glow. But if it doesn't correspond, it returns to the left, and there is a random vertical rearrangement of the English items. However, it is not only the mistaken item which returns to the left, but also any items which have not been correctly placed for a specified consecutive number of times (which can be set to one, in which case items never move once placed correctly). This is to help ensure that the user has memorized items that were initially lined up just by trial and error. Once an item has been lined up the required consecutive number of times (two in this case, as seen in Fig. 3), the color of its glow changes, and it no longer returns to the right when a mistake is made. In this way, trial and error allows the user to find the meaning of unknown items, but memorization of new items is required to achieve smooth completion of the exercise.

Figure 4. Small, partially completed example of a Mango-match exercise.

Selecting the "appearance" tab of the Mango-match authoring program interface (Fig. 3) brings up the interface shown in Fig. 5, which allows the author to adjust the font size and colors used in the resulting exercise. The preview immediately reflects any changes made. Clicking the Finished button will make the current design the new default for subsequent exercises (a previous scheme may be preserved by taking a copy of a file named design.xml before updating the scheme).
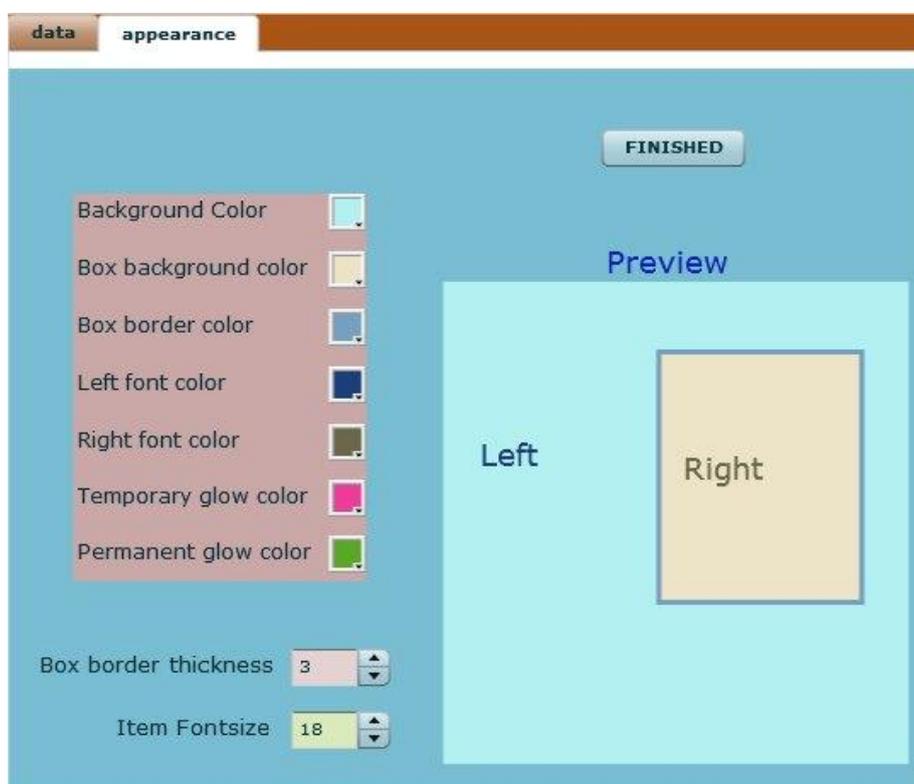

Figure 5. "Appearance" interface of the Mango-match authoring program.

Thus, Mango-match allows online vocabulary matching exercises to be constructed quickly and flexibly. It can, of course, be used to make any kind of matching exercise where the items involved are words or short phrases, such as matching words with their definitions, or questions with responses.

2.3. Mango-gap

Fig. 6 shows the interface of the Mango-gap authoring program at the stage where the example exercise shown in Fig. 7 will be generated on clicking the Finished! button. The user types or pastes text into the large box. Due to the fact that HTML formatting is used, multiple or leading spaces are not permitted, so it is suggested that characters

other than space (e.g., period, hyphen, or underscore) be used if the user wants to indent or horizontally space the text.
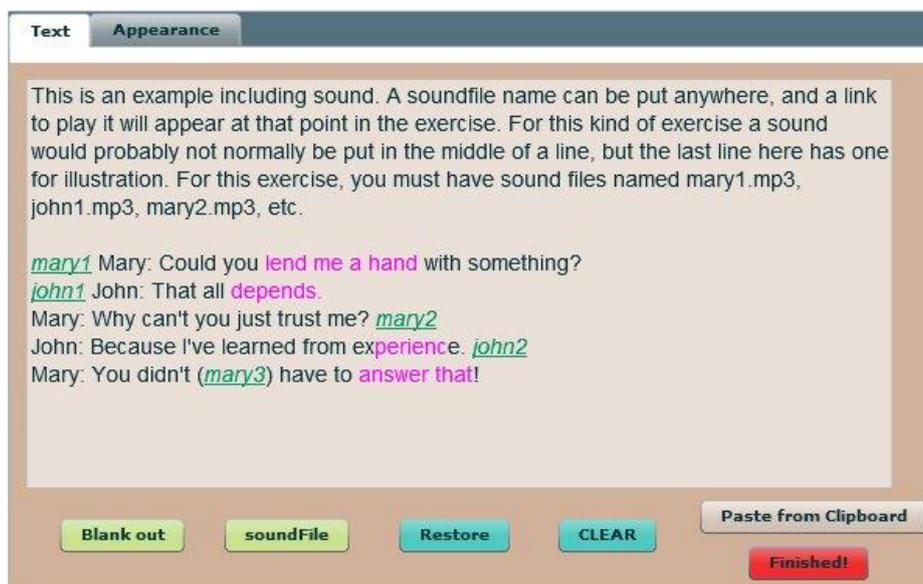

Figure 6. Interface of the Mango-gap authoring program.

Text which is to be replaced in the exercise by an "unknown" character, e.g., asterisk in the Fig. 7 example, is selected and the Blank out button clicked. The selected letters then become pink. If sound is needed in the exercise, the names of mp3 files (without the .mp3 extension) for which playback links will appear must be included at the points where the links are required. These names are selected and the soundFile button clicked, which changes them to green italic underlined text. For the example exercise to work properly, mp3 sound files named mary1.mp3, john1.mp3, mary2.mp3, etc., must be copied into the exercise folder before upload. When a playback link is clicked, the corresponding mp3 file will be played. While it is playing, a Pause/Go button becomes visible, which allows the user to pause and continue playback.
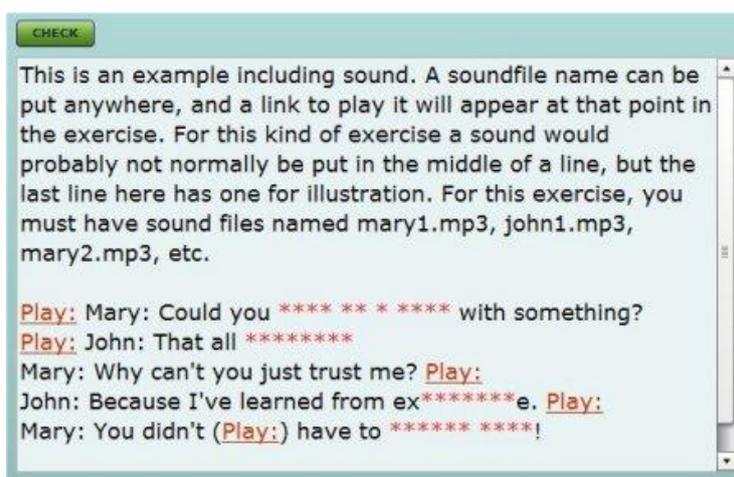

Figure 7. Resultant exercise in the browser from the input shown in Fig. 6.

The object of the exercise, whether or not it includes sound, is to correctly fill in the blanked out characters. These characters may be freely typed over, and the typed in text will assume a color which signifies that it has been typed by the user, but not yet checked. This, and other text colors and design elements, can be set by the exercise maker using the Appearance interface of the authoring program (Fig. 8) similarly to the

way described above for the Mango-match program. The CHECK button may be clicked at any stage, which will result in newly-entered characters becoming either, for example, green or red, depending on whether they are correct or incorrect.
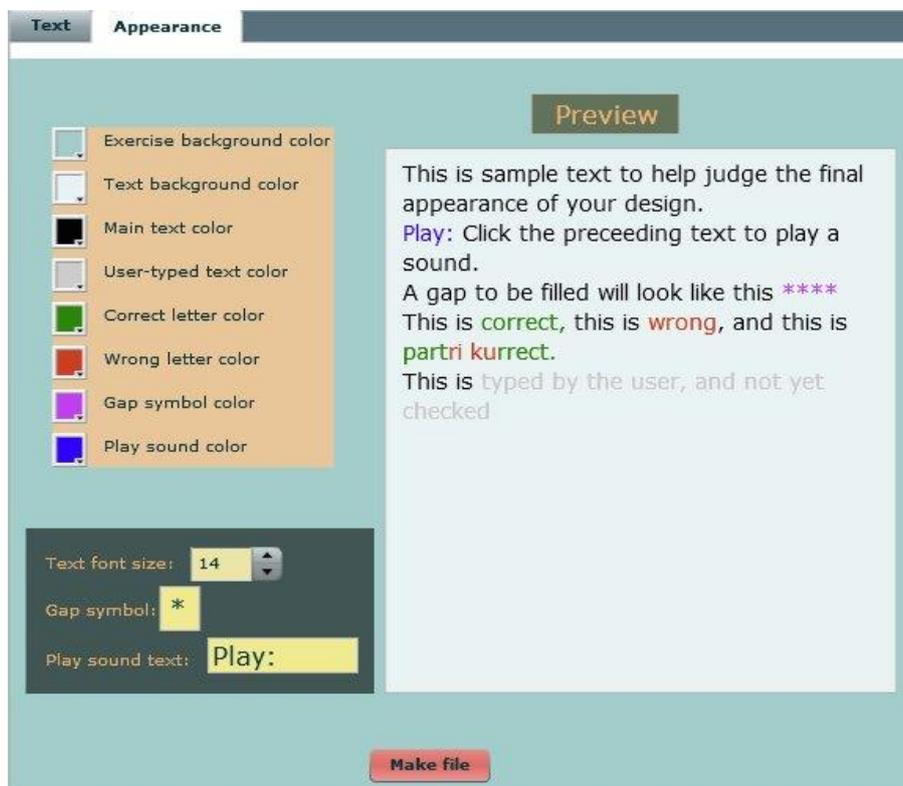

Figure 8. "Appearance" interface of the Mango-gap authoring program.

Clicking at any point within the exercise text moves the cursor to the next position beyond the clicked point where it is possible to type. This may be a position where nothing has yet been typed, or one where the typed character has not yet been checked, or has been checked and found incorrect. This allows the user to move conveniently to the next position requiring input, without needing to move the cursor to a precise point. There is no need to erase incorrect characters; they may be typed over. The cursor may also be moved within the text by using the arrow keys.

Clicking the "Play" link will play the corresponding sound. A "Pause/Go" button appears during playback so that the user can pause and continue playback. In a real exercise of the type shown in Fig. 7, placement of the "Play" links would probably be more uniform, but they are shown in various positions to illustrate that this can be done if required. Also, in this exercise there is one sound file corresponding to each line of the conversation, but of course this is not a requirement, and much longer (or shorter) sound files may be used if desired. Thus, Mango-gap enables a wide variety of gap-filling exercises, with or without sound, to be constructed simply.

3. Download and deployment

Sample exercises can be seen and tried out, and each of the three programs can be downloaded freely from http://www.mylesobrien.com/mango-suite as a zip file. The resultant folder, named mango-multi, mango-match, or mango-gap, as appropriate, should be placed in the documents folder of the user's computer. Each folder contains an Adobe Air file to install the program, and a folder named uploadFiles which contains the necessary template files for copying to the exercise folders. When a new, e.g., Mango-gap, exercise is made, a folder with the same name as the exercise name chosen by the user will appear in the mango-gap folder. It contains a file named

index.html in which the exercise will be embedded, so the URL to access the exercise may end with the folder name; it is not necessary to append the default html filename index.html. The folder may be uploaded as is, or the user can modify the very plain default index.html file in any desired way to add links, images, instructions, etc. Or, to make a wider-ranging change, the default index.html file itself, contained in the uploadFiles folder, may be modified to make a new template. This, coupled with the ability to modify the colors, font sizes, etc., of the Flash exercise itself, allows the user considerable flexibility in design. Each time the Flash exercise design is changed, the new design becomes the default from then on. The design information is in the file design.xml, and various versions can be renamed and kept on standby for later deployment if desired.

4. Discussion

4.1. Mango-multi

Multiple-choice tests are now so widespread in all fields of education that countless ways of generating them are available for both printed and computerized tests. However, it was felt that a very easy way to generate online tests, incorporating optional sounds and images, could be useful. Mango-multi provides this, in that sound files and image files on the test maker's computer need only be dragged into the appropriate boxes to produce a question in the corresponding format. The test itself includes very clear feedback of the correct choice, to optimize the effects of testing (Roediger & Marsh, 2005; Butler & Roediger, 2008). Also, as mentioned in 2.1 above, the question element of the exercise may also be omitted to yield a flexible way of presenting combinations of text, sound and image for, e.g., introducing new vocabulary items (Kim & Gilman, 2008).

4.2. Mango-match

Mango-match is primarily intended as a way of facilitating the memorization of new vocabulary items. Direct vocabulary study may have been unfashionable, even positively discouraged, for a long period since the second language acquisition model of Krashen (1981) became predominant, but there have always been those who insist that incidental learning, though perhaps the most effective, is neither sufficient nor efficient for vocabulary learning. Folse (2004) strongly states the case for explicit vocabulary learning in his systematic dismissal of the eight "myths" he lists, which he claims embody the argument of the opposition. Ensuring that the learner engages in "deep processing" when learning a new word certainly requires much more elaborate preparation of study materials (Horst, Cobb and Nicolae, 2005), which could become quite unwieldy if, e.g., the learner wants to acquire a large vocabulary of specialized technical terms. So, research into direct vocabulary learning has been continued undauntedly by some researchers (e.g., Ma & Kelly, 2006; Kim & Gilman, 2008; Nakata, 2008; Godwin-Jones, 2010).

Mango-match introduces a new twist to item matching as a way of learning vocabulary, in its feature whereby an item must be correctly matched consecutively for a set number of times before it becomes immune to automatically returning to the other side the next time any matching mistake is made. This makes it practically impossible for someone to match all the items unthinkingly, though the correct match for an unknown item may still be discovered by trial and error. However, the item is not "safe" until the learner memorizes it, so that it can be placed correctly again for the required number of times. There is a sort of "forced" memorization in the short term. This is intended to aid long-term memorization of items by ensuring that all of them are, to some extent, "known" by the learner when the exercise is completed. Rigorous research has yet to be done to test the effectiveness of this conjecture, or to determine the optimum number of required consecutive placements. In informal trials with Japanese students in which they matched English words to Japanese ones, it was suggested that 3 times is more effective than twice, which is in turn more effective than the trivial once (where pure trial and error can easily complete the exercise) in tests both immediately after doing

the exercise, and two weeks later. However, even if this were to be demonstrated rigorously, the increase in effectiveness would have to be weighed against the longer time needed to complete the exercise as the number of placements required increases. How later repetition (spaced learning) could be most effectively blended to ensure long-term memorization might be an interesting study. Mango-match itself provides a kind of compressed spaced learning environment, as the "unsafe" items must be placed again after each collapse, but these "micro-spaces" may be too short to lead to any significant beneficial effect.

It must also be noted that the memorization involved here is "recognition" rather than "recall", and there can be substantial differences in the mental processes involved (Yun, Miller, Baek, Jung and Ko, 2008). However, by using the exercise, learners will be encouraged to activate and try to enhance whatever learning strategies they use.

4.3. Mango-gap

Mango-gap is in the tradition of text reconstruction exercises (Hewer, 2011) dating back to the classic Storyboard program first published in 1982 by Wida Software. It differs from cloze generators such as Clozehorse (http://simonsplace.mine.nu/~simonac/clozehorse2/index.html) and Cloze Generator (http://www.oit.ac.jp/ip/~kamiya/mwb/mwb.html) in that it is character-based rather than word-based, and also has no connection to any vocabulary list for annotation of word difficulty. More ambitious research has even aimed at intelligent automation of question generation for cloze and open cloze. (Goto, Kojiri, Watanabe, Iwata and Yamada, 2010; Pino, Heilman and Eskenaz, 2008) but Mango-gap requires manual selection of gaps. On the other hand, it allows easy construction of network-ready exercises which are easy to fill in (due to the automatic movement of the cursor to the next position requiring input beyond the point where the text is clicked) and provide character-by-character feedback. The ability to add sound at any desired points within the text allows easy and flexible construction of dictation or listening exercises where not just words, but selected letters within words, may be allowed to remain in order to precisely adjust the assistance given to the learner.

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Reflective practice

The Use of Digital Storytelling for ESP in a Technical English Course for Aerospace Engineers

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Abstract

Digital Storytelling is a powerful pedagogical tool for both students and educators, which started to be used for teaching and learning purposes a few years ago, becoming more and more popular over time. The use of digital storytelling in non-specific language learning contexts has been widely explored, as shown in the literature. However, its use in technical-scientific contexts of English for Specific Purposes (ESP) has not been so widely studied. This paper explores a project of digital storytelling for ESP carried out at the Universitat Politècnica de València, in Spain. The methodology was divided into