

# EASILY CREATING PROGRAMMED LESSONS WITH MICROSOFT POWERPOINT AND ADOBE PRESENTER

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**Abstract:** Programmed learning is a modern learning method with advantages of the individualization and controlling learning process of students. In this method, lessons are divided into small steps referred as frames. After learning the information of one frame, students have to answer associated questions and go to the next frame in positive case or return back to the current frame or go to additional resources in negative case. Although programmed learning has some advantages, it is not widely used due to the difficulties in editing the lessons with self-assessment tests. This paper aims at presenting a technique allowing to easily create programmed lessons using Microsoft PowerPoint and Adobe Presenter.

**Key words:** programmed learning, programmed lesson, modern learning method, Adobe Presenter

## 1. PROGRAMMED LEARNING METHOD

Programmed Learning or Programmed Instruction is a learning methodology first proposed by B. F. Skinner in 1958 [1]. The main purpose of this method relates to the management of students learning processes under controlled conditions. The key elements of programmed learning are: 1) presenting lesson in small frames so that some following questions can be used to test the understand of each frame, 2) automatically navigating learning process upon the result of testing, and 3) immediately giving to students feedback thanks to the evaluation of tests.

Programmed learning lessons can be organized in two forms: linear and branched. In linear form students step-by-step pass all frames, and each frame has to be finished before going to the next one. Therefore, the learning processes are quite common for all students. Figure 1 presents the principles of linear programmed lessons in which “Y” and “N” characters refer to the pass and the fail cases respectively.

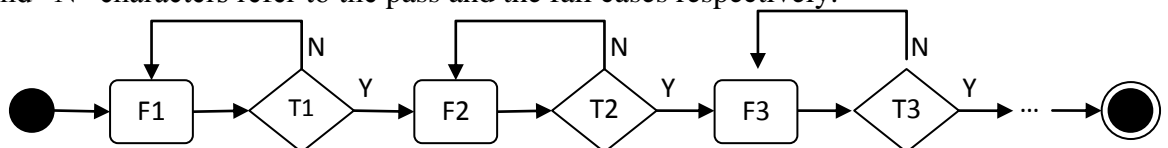


Figure 1. Linear programmed lessons

In branched form, programmed lessons individualize students learning processes. In the fail cases at a test, students have to return back to one of previous frames, or go to additional supporting documents (additional frames). Thus, the learning processes can

be different among students since they depend on their learning abilities and background knowledge. Figure 2 presents the form of branched programmed lessons.

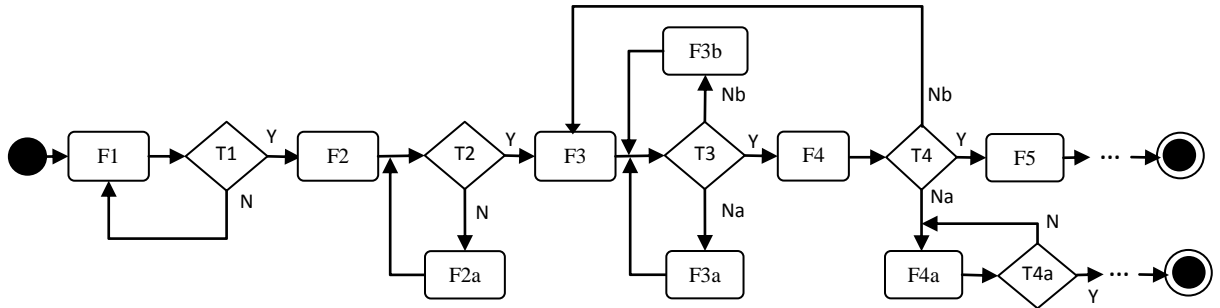


Figure 2. Branched programmed lessons

Based on the number of branches, tests can be categorized into two groups which are named *simple branched* and *complex branched* in this paper. The first one refers to the tests having two branches associated to the pass case and the fail case. For example, the tests T1, T2 in Figure 2. Branched programmed lessons and all tests in linear lessons are simple branched. The second group refers to the tests having more than two branches such as the T3 and the T4 in Figure 2Figure 3.

Due to the requirement of self-assessment tests, programmed learning method was not widely used in the past. Special teaching machines [1] had limited abilities; therefore they were usually used in language teaching. The situation changed with the appearance and the popularity of computers which support the two important elements for programmed lessons: 1) allows to present lessons with multimedia, and 2) provides strong abilities for editing and processing the tests [2]. Within these supports, programmed learning method has developed quickly and has been integrated into e-Learning courses.

## 2. CREATING PROGRAMMED LESSONS WITH MICROSOFT POWERPOINT AND ADOBE PRESENTER

### 2.1. The requirements of creating programmed lessons

In order to create programmed lessons, teachers face up to two difficult requirements: the organization of lessons, and the technique to present their contents. The former relates to the teaching theories and will not be discussed in this paper. The later in its turn has two own main requirements: 1) to present information in the frames, and 2) to present and to process the tests at the end of each frame. Due to the first one, to increase the ability of the presenting and to decrease the necessary of teachers during the learning process, it is better to show information in frames in many types such as text and multimedia objects. Teachers can combine the consist information that are visually shown in frames with the details given by audios and videos. The second one, the requirement of presenting and processing the tests, relates to the tools supporting to create and to evaluate them. It also requires the ability to navigate the learning process upon test results.

Nowadays, with the strong abilities of presenting and processing many types of information, computers are widely used to edit and execute programmed lessons. Webpages or Flash movies are some ideal tools in both the sides of presenting information with multimedia and processing the test [2]. Unfortunately, these tools require some advanced capabilities of using software and programming that are not common for all teachers. To resolve this difficulty, there are some software especially developed for editing electronic lessons such as Adobe Captiva [3], LectureMAKER [4] and Violet [5]. These software provide very strong features to easily create lessons, tests. They also give features to navigate the learning process based on test results. However, the high cost of these products leads to their low availability and as a consequence, they are not widely used in education.

## **2.2. Microsoft PowerPoint as a tool for creating programmed lessons**

PowerPoint is not aimed at using for electronic lessons but in reality it is widely used in teaching. This software is designed for editing presentations in all domains, from marketing to idea presenting. However, as a component of Microsoft Office, it exists on almost Windows computers that take more than 90 percent of computers on the world. Thus, there are a lots of electronic lessons created in form of PowerPoint presentations and almost teachers are familiar with this software. As a tool for programmed lessons, PowerPoint has the following advantages to present the frames:

- It is very easy to learn and to use. PowerPoint is very friendly. Learning to use it is easy and does not requires much time. Furthermore, many functions are similar between different components of Microsoft Office, so if a user is familiar with Microsoft Word and Microsoft Excel, he or she can quickly learn PowerPoint.
- It supports many types of data. All popular types of data can be inserted into PowerPoint slides: text, static and dynamic picture, video, Flash object, etc.
- It supports users to directly record narration audios and many other functions to customize presentations.
- It supports strong animation functions to create attracted presentations. These functions can also serve to create animation objects.
- It supports strong navigation tools in slide-show mode. It also allows to use hyperlinks to navigate into specific positions in the current presentation or into external objects.

However, PowerPoint do not have effect tools to create and evaluate the tests. There are not any special visual objects for this purpose. Users can only create the tests in simple forms (normally in form of true/false or multiple choice) and use limited available tools to make their simple evaluations. This task also demands time, effort and some advanced capabilities of users. Although the Visual Basic for Application language proposes the abilities to write the code for evaluating the tests and for navigating the learning process [7] but this language is quite difficult for most of teachers. This explains why there are not many high quality tests edited directly in PowerPoint and why other support tools are necessary. By another reason related with the quick

development of e-Learning, an external tool is also necessary to convert PowerPoint lessons into the forms that are compatible with Learning Management Systems (LMSs).

### 2.3. Adobe Presenter as a PowerPoint supporting tool for creating programmed lessons

Adobe Presenter is not an independent software for editing presentations in general and for editing programmed lessons in particular. Beside some minor tools can be used independent such as the video and screen capturer, the video editor, the main purpose of Adobe Presenter is for supporting other presentation software (only PowerPoint at the moment) in form of add-in features. Figure 3 presents the tool ribbon added into PowerPoint after installing Presenter version 7.0.



Figure 3. *Adobe Presenter add-in tools for Microsoft PowerPoint*

As showed in Figure 3, the Presenter tool ribbon supporting for PowerPoint consists of the following groups:

1. Presentation: tools for previewing, publishing and packaging presentation. Presentations can be converted into Flash movie form to use in local PC, or to publish on an Adobe Connect Server. They can also be compressed to a zip file in order to publish on the LMSs supporting SCORM standard, such as Moodle servers;
2. Audio: tools for recording, importing, synchronizing and editing audios;
3. Video: tools for capturing, importing and editing videos;
4. Flash: tools for inserting Flash movies. Since the difficulty of inserting Flash movies into PowerPoint slides, these tools are really useful;
5. Quiz: tools for adding, importing and managing quizzes. They are the most value supports to create e-Learning in general and to create programmed lessons in particular. Details of these tools are presented later;
6. Application: tools for managing slides of presentations, and for the setup of presentations.

As mentioned above, the Quiz group consists of the most useful tools to create programmed lessons on the PowerPoint platform. A quiz created by Presenter can contain many questions in various forms, located in one or more slides. There are also many options for organizing, evaluating and processing student learning process upon quiz results. All of them help users to easily and quickly create the tests for programmed lessons. Figure 4 presents the dialog box when users run the Add Quiz tool.

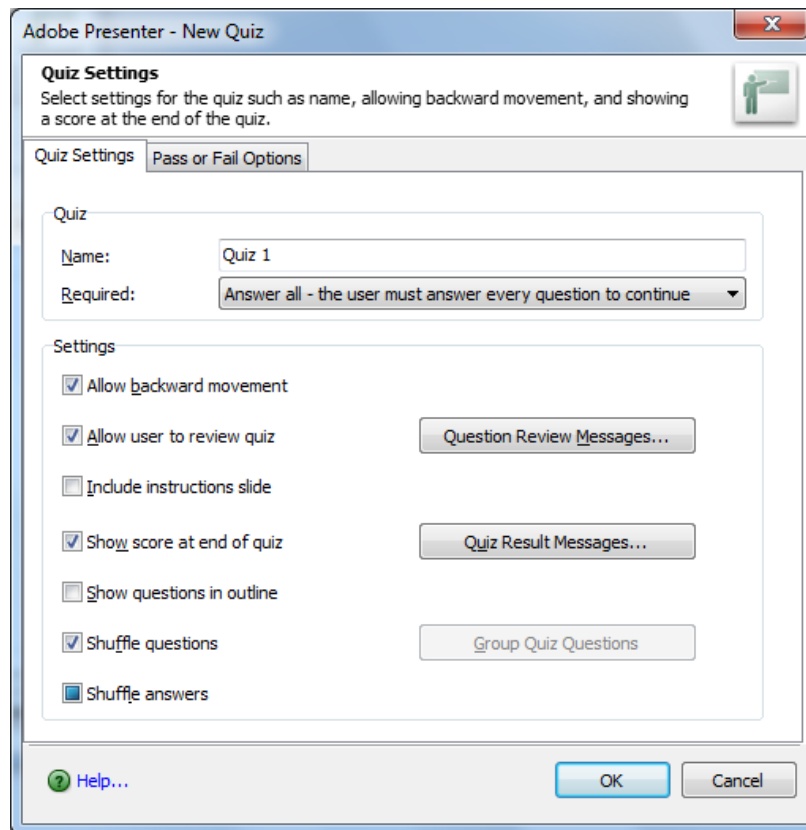


Figure 4. Adobe Presenter Add Quiz dialog box

As shown in Figure 4, Presenter supports several options to create strong and flexible tests. A test can be mandatory or not, its result is automatically evaluated and displayed, the questions and answers of multi-choice or matching questions can be automatically shuffled...

Specially, the Pass or Fail Options of a test allow teachers to organize the navigation of programmed lessons upon the quiz results, as seen in Figure 5. This is the most useful support of Presenter for PowerPoint, in the view point of creating programmed lessons. In the both pass and fail cases, there are many options to navigate the learning progress: go to the next or another slide, or open an external resource. The number of attempts for a test can also be fixed. Note that, since there are only two directions for the both cases Pass and Fail, teachers can only organize programmed lessons *in linear form* and *in simple branched form*. However, as each question of a quiz is located in a separate slide and there are similar navigation options for each question, teachers can organize the learning process upon the result of each answer. By this way, a complex branched test can be implemented by many simple branched test in most cases.

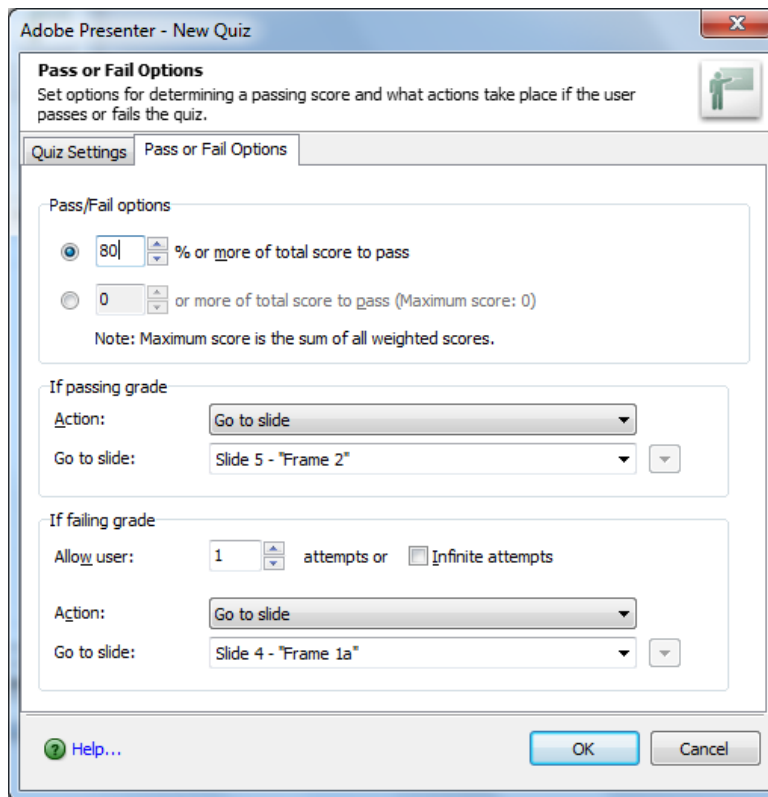


Figure 5. Adobe Presenter Pass or Fail dialog box

After declaring the general information of a quiz, teachers create its questions. As seen in Figure 6, Adobe Presenter supports all popular types of questions: multiple choices, true/false, fill-in-the-blank, short answer, matching and rating scale. Many other available options help teachers to easily and quickly create questions and to exactly and flexibly specify the rules of their evaluations. In fact, it contains all the best techniques to automatically evaluate the answers.

#### 2.4. The process of creating a programmed lesson using Microsoft PowerPoint and Adobe Presenter

With the support of Presenter, the task of creating programmed lessons becomes very easy. The suggested procedure for creating a programmed lesson is stated as below:

- **Step 1.** Design a general schema for the lesson that contains the frames for information, each frame is followed by a test. Carefully design the navigation upon the test results. Note that Presenter only supports simple branched navigation, so a complex branched case have to be divided into several simple branched cases if possible.
- **Step 2.** Create the designed frames using PowerPoint, each frame can spread in some slides.

- **Step 3.** Insert the test for each frame using Presenter with the help of the general navigation schema.
- **Step 4.** Publish the lesson into a local location using Presenter publish tool. The presentation will be converted into a Flash movie.
- **Step 5.** Test the lesson and turn back to one of above steps if necessary. Note that the tests (quizzes) do not correctly execute in the PowerPoint slide-show view mode. They have to be converted into Flash movie before used.
- **Step 6.** Publish the lesson into a LMS server or package it into a single file to easily distribute to users.

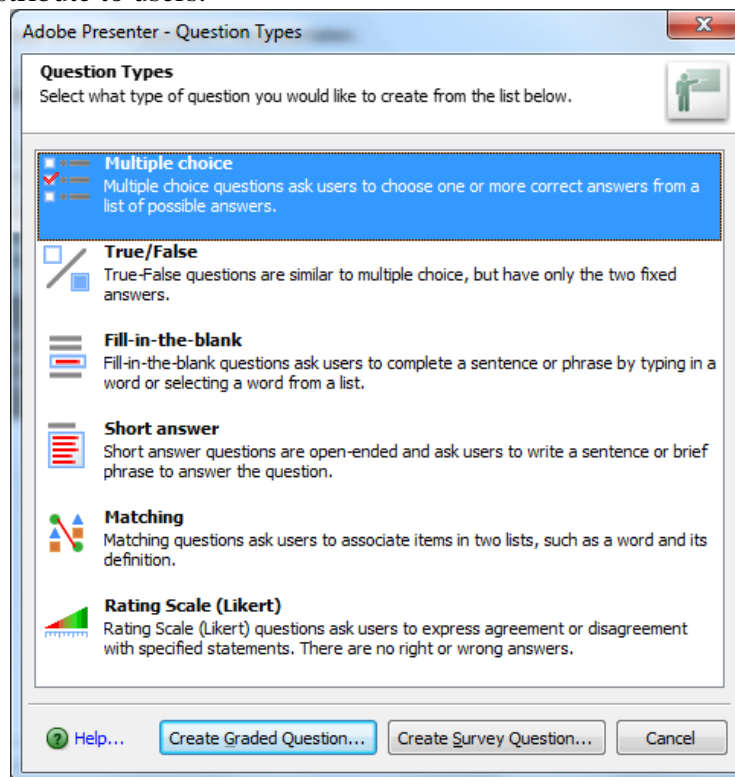


Figure 6. *Adobe Presenter Add question dialog box*

As presented above, all works in this procedure to create a programmed lesson can be made by using visual tools of PowerPoint and Presenter. There is no line of code and therefore no programming ability – the most difficult requirements for most teachers – are needed. This makes this procedure become a very easy way and can be used by all teachers who are familiar with PowerPoint. Furthermore, with both the availability of PowerPoint and the low cost of Presenter (while comparing with other special tools for editing e-Learning lessons), this technique has big advantages to be widely applied.

There is a small tip related to the location of slides while implementing the navigation after the tests: using slide names instead of slide numbers. Because slide numbers can be changed when users insert or delete slides so using them in the references is not

consistent. Thus, using slide names, which are specified by the text in the title region of each slide, is the better choice.

### 3. CONCLUSION

PowerPoint is continuously used by most of teachers even the missing of specific tools for creating and processing the tests – an important components of e-Learning lessons in general and of programmed learning lessons in special. The combination of the availability of PowerPoint and the strongly support of Presenter in creating and processing the test is a good solution in both the ease of use and the low cost. Within this solution, teachers can easily create programmed lessons without any line of code. The lessons created by these tools are ready to be published into LMSs supporting SCORM standard. Therefore, teachers can easily overcome the biggest technical difficulties of programmed learning method and, as a consequence, facilitate the widely using of this interesting learning method.

### REFERENCES

- [1] B.F. Skinner (1958). *Teaching machines*, Science, 128, 969-977, 1958.
- [2] Ha Viet Hai (2004). Từ phương pháp dạy học chương trình hóa đến phương pháp học chương trình hóa, *Journal of Science, Hue University*, Vol. 22, 2004.
- [3] *Adobe Captiva overview*, <http://www.adobe.com/sea/products/captivate.html>, available in October, 2013.
- [4] *LectureMAKER overview*, <http://www.lecturemaker.co.kr/>, available in October, 2013.
- [5] *Giới thiệu phần mềm Violet*, <http://bachkim.vn/phan-mem-violet>, available in October, 2013.
- [6] *Adobe Presenter Overview*, <http://www.adobe.com/sea/products/presenter.html>, available in October, 2013.
- [7] David M. Markovitz (2012). *Powerful PowerPoint for Educators: Using Visual Basic for Applications to Make PowerPoint Interactive*, 2nd edition, Libraries Unlimited Inc., May 2012.

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