by Tim Fahlberg, Adjunct Professor of Mathematics,
Northwest College, Tim.Fahlberg@CoolSchoolTools.com

Creating Dynamic Social Studies Questions
If you have been following my column over the past year and half, you know that ExamView is a great tool to create dynamic questions for math and science. However, its capabilities extend beyond math and science into social studies, language arts, foreign languages, and many others subject areas. This month we'll explore how to create dynamic social studies questions.

Getting Started
I encourage you to read and study the *ExamView My Way* article in the April 2003 newsletter. This article provides a primer for understanding dynamic questions. If you want to learn how to create dynamic math questions, check out the *Dynamic Corner* article in the September 2003 newsletter.

Before you begin, click here to download the following question bank (Dynamic Corner-Part III.bnk) *Windows* or (Dynamic Corner-Part III) *Macintosh*. The bank includes the sample questions. (Remember that you will need ExamView 4.0 or a more recent version.)

Example 1: Identify the President
As you can see, this multiple choice question shown below includes the question and a rationale. The rationale is an explanation of how to determine the correct answer. You can present this information to students during an online test or study guide at that 'teachable' moment. You can provide a little help or step-by-step instructions -it's up to you.

Who served as president of the United States ... (Question #1)

Who served as president of the United States ... --"Variables

Who served as president of the United States ... -- Algorithm Definitions

A Closer Look at the Algorithm Definitions
Below is an explanation of the algorithms used in this question. The names you use for the algorithm definitions (or variables) are not critical as long as you do not use function names. As for the functions (e.g., list, range, choose, etc.), you can get a detailed description by reviewing the online Help information in the program.

Notes: [1] To view the variables, first double-click a question. Then choose the Algorithm Definitions option from the Edit menu. Double-click any variable to view the entire description. For example, select RationaleList to see the following: **list("President Lincoln was elected to two terms of office. The war began and ended during his administration.","Andrew Johnson became president after Lincoln was assassinated following the Civil War.","This war with Great Britian began when Jefferson was president and ended when Madison was president.").** [2] To simplify the algorithms, the number of possible alternatives was limited to three for demonstration purposes.

- **WhichEvent, EventList, TheEvent** are variables used to generate a random event from a list of three events.
- **CorrectList, Correct** are variables used to generate the correct aswer to the question.
- **R1List, R1, R2List, R2, R3List, R3** are variables used to generate the three distracters (wrong answers) when the multiple choice version of this bimodal question is used.
- **RationaleList, Rationale** are variables used to generate and display the rationale for the correct answer depending upon which random event was chosen.

- **SCRAMBLE = TRUE** is a special variable that causes the program to randomly scramble the answer choices each time you recalculate a question.

Example 2: Identifying Foundational Documents
As you review the algorithms for this question, you will see that the *choose* function is used extensively. The algorithms identify what information appears in the table, identifies the correct answer choice, and sets the correct rationale.

Highlight the question and choose to recalculate it using the calculator found on the toolbar. Notice how the "?" appears in the table to indicate the missing document. You could use this model for other similar kinds of questions.

Choose a document to complete the table. (Question #2)

Question

Choose a document to complete the table.

Foundational Documents		
Document	**Written/Signed by**	**Date/Place**
?	English nobles/King John I	1215 Runnymede, England
English Bill of Rights	Parliament/William and Mary	1689 London, England
Declaration of Independence	Thomas Jefferson/delegates	1776 Philadelphia, PA

a.	Magna Carta	c.	Petition of Right
b.	Olive Branch Petition	d.	Constitution

Rationale

Signed by King John I in 1215, this document provided basic rights to freemen.

Choose a document to complete the table. -- Algorithm Definitions

WhichDoc	rand(3)
Correct	choose(WhichDoc,"Magna Carta","English Bill of Rights","Declaration (
Doc1	if(WhichDoc=1,"?","Magna Carta")
Doc2	if(WhichDoc=2,"?","English Bill of Rights")
Doc3	if(WhichDoc=3,"?","Declaration of Independence")
RationalePart1	choose(WhichDoc,"Signed by King John I in 1215, this document prov
RationalePart2	choose(WhichDoc,"","for taxes and outlawed cruel and unusual punis
SCRAMBLE	TRUE

A Closer Look at the Algorithm Definitions
To make this question different from question #1 you could use an "if" statement for **Doc1, Doc2,** and **Doc3.** For example,

Doc1 could be defined	If(WhichDoc=1,"?","Magna Carta")
Doc2 could be defined	If(WhichDoc=2,"?","English Bill of Rights")
Doc3 could be defined	If(WhichDoc=3,"?","Declaration of Independence")

The first parameter of the **If** statement is the condition. If the condition is true, the second parameter is assigned to the variable. If the condition is false the third parameter is assigned to the variable. In the case of **Doc1**, if **WhichDoc** is equal to **1** then **Doc1** would be equal to **?**. If **WhichDoc** is equal to **2** or **3, Doc1** is equal to **Magna Carta.**

Example 3: Completing a Time line
This question demonstrates how you can turn a static time line into a dynamic one by using an algorithm to display a particular image. When you "recalculate" the question, you will see how the time line and the choices change.

Complete the time line (Question #3)

Complete the time line.

| February 1861 | June 1862 | January 1863 |
| The Confederacy is formed | Congress abolishes slavery in the territories | **?** |

| November 1860 | April 1861 | August 1862 |
| Lincoln is elected president | Fort Sumter is attacked | The Union begins to enlist African American soldiers |

a.	Jefferson Davis becomes president of the Confederacy.
b.	The thirteenth amendment is ratified.
c.	Lincoln issues Emancipation Proclamation.
d.	Lincoln is elected to second term.

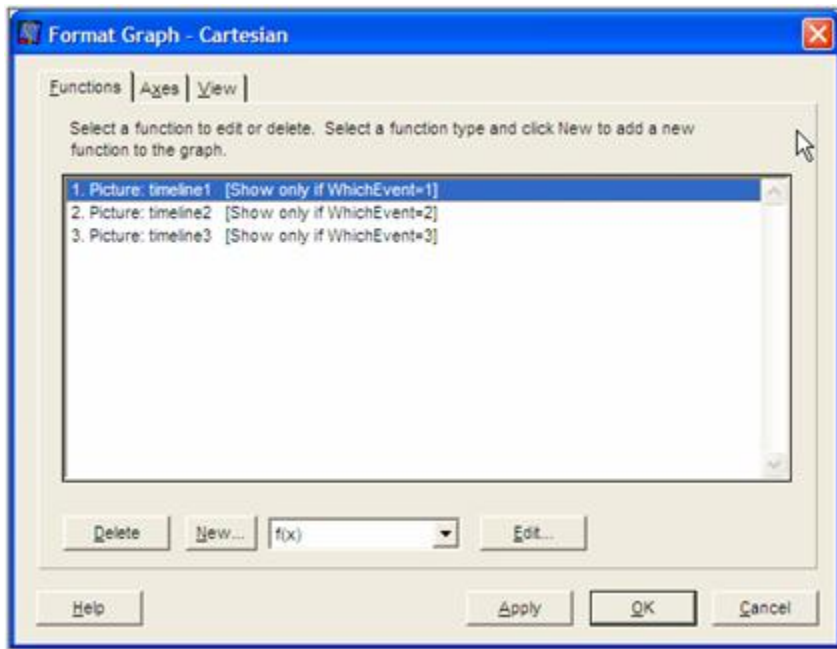*Complete the time line – Setting up the display of the time line*
If you were to create a static question using a time line, you would most likely using a drawing program such as Paint to create a picture of the time line and then simply insert it into an ExamView question. To make this question dynamic, imagine that you had a stack of three images-each with a different version of the time line. Based on a variable whose value in this case could be 1, 2, or 3 you would show the corresponding time line and the appropriate choices.

Let's take a close look at this question…
To build a dynamic question of this type, you would need to do the following:
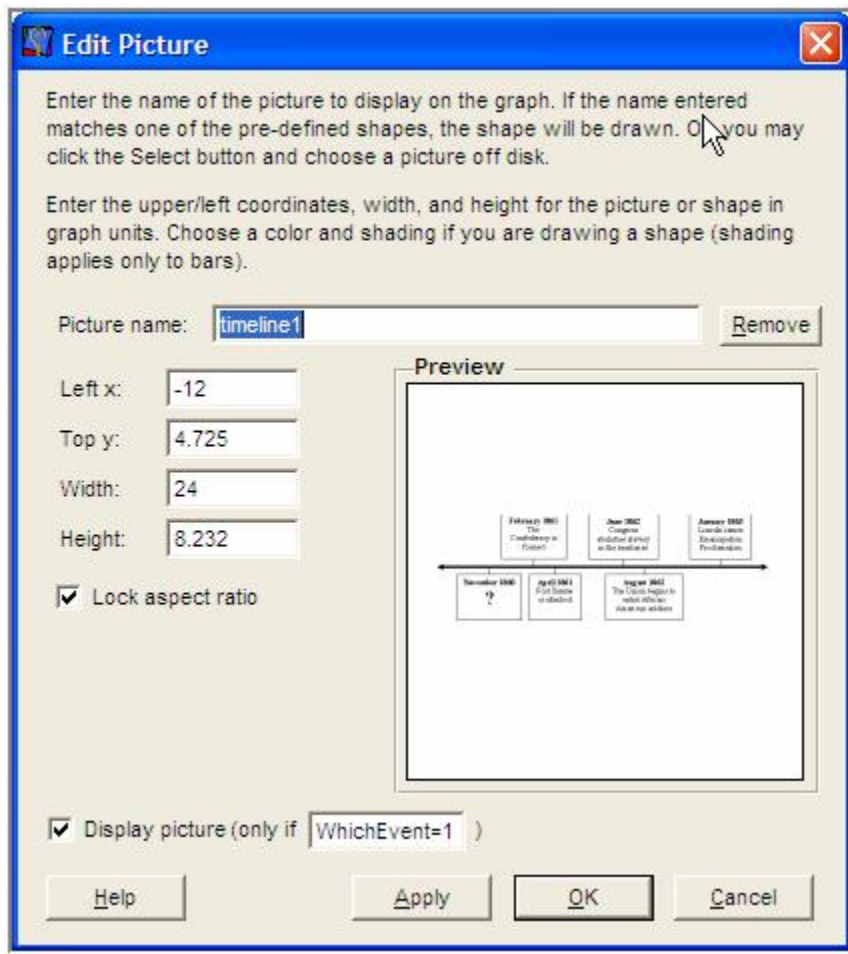
- Create separate images; in this case three time lines.
- Choose to create a new question and choose **Insert> Graph> Cartesian.**

If you double-click the image in this question, you will see the Format Graph window with the three functions as shown below. Notice that there are three time lines (timeline1, timeline2, and timeline3). Timline 1 will be shown only if the *WhichEvent* variable is equal to 1.

Format Graph - Cartesian

Functions | Axes | View

Select a function to edit or delete. Select a function type and click New to add a new function to the graph.

1. Picture: timeline1 [Show only if WhichEvent=1]
2. Picture: timeline2 [Show only if WhichEvent=2]
3. Picture: timeline3 [Show only if WhichEvent=3]

Delete   New... | f(x) ▾ | Edit...

Help   Apply   OK   Cancel

- Select the **Picture** option from the drop down menu and click **New.**
- Using the Select button browse to find a picture. Name the picture using any name except a variable or function name. Change the Width and Height to size the image. Change the Left x and Top y to alter the location of the image.
- You may wish to identify when the image should appear by placing a condition in the "Display picture (only if" window.

As shown below, timeline1 is set to appear when the *WhichEvent* variable is equal to 1.

Complete the time line –Algorithm Definitions

- **WhichEvent, EventList** are variables used to generate a random event from a list of three events. Notice that the variable
- **Correct** is a variable used to generate the correct answer for this question.
- **R1, R2, R3** are variables used to generate the three distracters (wrong answers).
- **Rationale** is a variable used to generate and display the rationale based on the time line shown.
- **isunique(Correct, R1, R2, R3)** is a condition that makes sure that none of the four multiple choice answers are the same. You should design your questions to use as few conditions as possible. It makes the software appear to run faster.

- **SCRAMBLE = TRUE** is a special variable that causes the program to randomly scramble the answer choices each time you recalculate a question.

As you can see, this question combines standard algorithms and variables with a stack of images. You can use this combination to create lots of interesting dynamic questions. For example, you could have a "stack" of images with the pictures of presidents and have your students identify the president. Or you could include a stack of states or countries.

Note: Probably the most challenging aspect of this program is displaying appropriate distracters. Try creating a similar dynamic question as a completion (fill-in-the-blank) or short answer question. You will need only two variables (e.g., WhichEvent and Correct).

Conclusion
I sincerely hope this article inspires you to consider writing your own dynamic ExamView questions. As you have learned, the dynamic capabilities built into ExamView can be used in areas other than math or science. The possibilities are only limited by your imagination.

On a final note, I also encourage you to share your work with other teachers to help them save time preparing effective assessments.

Tim Fahlberg *(Tim.Fahlberg@CoolSchoolTools.com)*
Adjunct Professor of Mathematics
Northwest College