

Counting on History

A sample of an educational mentalism effect by Alan Fisher

This is a sample of an effect that was developed for use (primarily) in a classroom setting for students. But it can play well for any group with American history as part of their culture (civic clubs, Scouts, military, law enforcement, government, etc.). For larger groups you may want to have the 11 x 17 inch chart enlarged for easier viewing. Whatever chart you use, make sure it's printed on heavy cardstock and laminated. It can then be placed on an easel or, using non-stick tape (like painter's tape), secured to a blackboard or wall (if you happen to be performing directly in front of one).

In your presentation, discuss the importance of the Constitution of the United States and the significance of the first part, known as the Preamble. A few simple Google searches will give you plenty of background information for developing your script. Read the Preamble right off the chart as part of your presentation (there have not been any modifications made to the words of the Preamble for this effect). Select one volunteer to help you prove you can 'count' on history by literally playing a counting game with the words of the Preamble. Start by making a prediction of how you believe the game will end. Write your prediction on a piece of paper, fold the paper, and give it to an adult or person of importance to the group to hold without opening. Explain the basic rules of the game:

1. The volunteer selects any word from the first line on the chart as their starting position.
2. However many letters are in that word is the number of words they count as they move through the text. To make it easier, the number of letters in each word is printed directly under that word.
3. They are to repeat this process on whatever word they land on next.
4. Continue doing this through the chart until they hit a word that has more letters in it than are left in the Preamble. That's the word they stop on, thus ending the game.

Have the volunteer put a finger on the word they've chosen as their starting point. To make it easier for the audience to see and follow the action you may want to have a pointer that you give the volunteer to use. There are small, collapsible models available from many stores. Or you can buy a half inch dowel rod from any hobby / craft store and sand one end to a blunt point. Paint that end black and it will look exactly like the wooden pointers used by most school teachers. Have the audience help the volunteer count their way through the chart. Once they've gone as far as they can stress to the audience that the volunteer had their choice of what word to start on for the game and that you made a prediction of the outcome before they selected their starting word. Restate the word they ended on as you have your prediction read out loud. You will have successfully predicted the correct word.

The method used in the effect is The Kruskal Count which was developed by Martin Kruskal, a Princeton mathematician and physicist. He demonstrated you could take a freely shuffled deck of cards and deal them out, face up, on a table (usually a pattern of 9 per row for 5 rows and then the remaining 7 cards in the 6th row). As he was dealing the cards and explaining the rules of counting to the volunteer Kruskal would secretly do his own counting starting with the first card (Aces count as 1, number cards are their value, and face or court cards count as 5). The volunteer would select any one of the first 10 cards as their starting point. Kruskal would turn away from the table, writing down the card he ended on as his prediction. Surprisingly, it would match the volunteer's end card over 95% of the time (and quite often it would be the last card). Mathematically it is related to Coupling Models for Markov Chains. John Pollard uses it in Cryptography for finding the Discrete Logarithm and breaking encryption codes. Instead of a deck of cards he uses a Cyclic Group. Instead of counting the number of the card he uses a Hash Function for the step size. He called his Algorithm "The Lambda Method for Catching Kangaroos". This principle was first applied by Martin Gardner to magic effects. Building on Gardner's work I created a program to analyze sections of documents or speeches to determine how far into the text you could start and always end on the same word. As Gardner demonstrated, using static text removed the variable of randomness from the equation and resulted in 100% accuracy of the prediction. I've done this with historic documents, famous speeches, and passages from the Bible.

For the Preamble to the Constitution, the volunteer can actually select any of the first 14 words (up to "perfect") as their start point. But it's easier to just tell them to pick any word they want from the first sentence on the chart. If you also let them choose from words on the second sentence, but only some words, they'll either suspect something is up or outright question the limitation. Better safe than sorry. Following these instructions, the volunteer will always end on the second to last word of the Preamble: **OF**.