

## On Using Short Response Quizzes in a Fully Differentiated Environment

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### Abstract

The thirty-one students in eighth grade Social Studies in this study are in a fully-differentiated classroom environment. They were given a set of ten questions on at the start of the unit on the 1920s. These questions were developed from the NYS Social Studies Core Curriculum and were divided into manageable pieces (usually two questions) for each of five quizzes. There were a variety of sources from which students could get answers to the questions. Students took short response quizzes on a flexible schedule. At the end of the unit, students took a multiple-choice examination consisting of mostly questions drawn from old New York State standardized tests on the 1920s. The short response quizzing method adequately prepared students for their examination even though the examination was in multiple-choice format. Students will meet the State standards under the short response quiz conditions illustrated in this unit.

### Research

A review of research on studying identifies two broad categories of variables associated with studying, what they term *state variables* and *processing variables*. “The *state variables* are those related to the status of the student and the to-be-studied material at the time of studying. Important state variables include knowledge of the criterion task, knowledge of the content in the to-be-studied material, and motivation.” (Anderson). Anderson and Armbruster conclude that the more students know about exactly what will be tested, the better they perform on tests. They also conclude that students perform generally better on all types of tests when they expect, and therefore prepare as if for, essay and completion exams. Students instructed in this way tend to learn more of the broad, important ideas. In fact, students preparing for multiple-choice tests tend to learn more ideas of lesser importance.

### This Study

By “fully-differentiated” is meant that a large number of the variables related to acquiring, processing, learning and demonstrating content knowledge are differentiated. The initial reason for switching to this system (distributing questions in advance that could be answered from any source) was to make it possible to use multiple textbooks that were on different reading levels within the classroom. Previously, I was using the textbook author’s pre-made quizzes for chapter sections. Since different texts address slightly different topics, this was no longer a workable solution.

The short response questions were derived from the NYS Social Studies Core curriculum. The questions were structured such that they encouraged analysis. They were then divided into sections of two questions which would constitute the quizzes. (See appendix for questionnaire and sample quiz.)

Students could find the answers from any one of or combination of the following sources: two teacher presentations delivered in two sessions during the weeks the class addressed this topic, teacher-made videos online, any one of three textbooks at three reading levels (grade four, middle school, and high school), audio versions of the textbook, and/or in cooperative learning teams with other students.

During “working periods”, students work at their pace to find the information, rehearse it for short-term recall, and take the appropriate quiz. Though there is a schedule posted of when quizzes should be done, the schedule is flexible. No outside class study is expected. Approximately half-way through the period we worked on this topic, a student asked if everyone could take the quiz one question at a time. I agreed (there was an increase in class average on quizzes, from 86 to 90, after this option was allowed).

The class average on quizzes for this unit was 88 (Only 6% of a possible 160 quizzes for all students were incomplete, a high rate of completion. For this study, incomplete quizzes were disregarded, not assigned zero score). This quiz average is eight points higher than the normal class average of 80 for quizzes (from a study done in January 2010 of four months of quizzes for this class). There are two principle differences in quiz format: 1) the questions are now known in advance and 2) the quizzes are all short response.

Students were trained in the rubric used to assess their short response quizzes and had prior experience with the system in the previous unit on World War I. The rubric was teacher-designed (see sample quiz attached).

Among the *possible* conclusions to draw from the increase in quiz average are that 1) the students learned more overall; 2) the grading rubric was more lenient than the old style quizzes; 3) the quizzes reflect higher scores because students were learning less information at a time (by taking quizzes “on installment” one question at a time). The students were highly focused in their processing of information, since now they had specific targets for learning. Previously, they were responsible for extracting the important elements to prepare for the quiz blindly.

If it were true that students were learning more overall, then the exam score would be high. An “exam” in this context is a monthly test in short answer format that assesses all content since the previous exam. The class average on this exam was 82. The average on the last three exams, one of which was a midterm covering material since the start of grade seven, was 75. Excluding the midterm (which was entirely multiple-choice), 71 was the average on the last two exams. This is an increase of 11 points over “normal” for this class.

The grading rubric has an element of subjectivity that cannot be avoided in non-objective testing. It has not yet been applied to student papers by other teachers to see if others would get the same results. That the class average on the quizzes for this topic is eight points higher than normal may suggest a weakness in the rubric: perhaps it is not sufficiently stringent. The correlation between average on the quizzes and average on the exam is low, a mere 0.50. However, the mitigating factor here is that the quizzes are intentionally measures of relatively short-term recall, which would naturally be better than scores on exams which cover a larger amount of material. (Long-term recall is intended to be achieved by the quizzes in conjunction with other classroom activities which repeat information and make connections.)

## **Of Interest**

### *Quizzing on Installment*

The division of the ten questions on the 1920s into “manageable” units was fairly arbitrary on my part. It was only an estimate of what I thought was approximately enough to constitute a “quiz”. Given this, the

student's request to take one question at a time seemed reasonable. Quiz answers in this context are paragraph-long ordeals for which students rehearsed. People with more limited short-term memory capacities could have the opportunity here to take information in smaller chunks. Perhaps this will increase their overall retention of material on a long-term basis.

#### *Possible positive effects of short response quizzing on writing skills*

Essay writing is an important part of the Social Studies curriculum and this is reflected in the degree to which writing is weighted in the scoring of the State tests. I would hypothesize that a regular regime of writing coherent paragraphs, as opposed to multiple-choice and fill-in exercises, could potentially make better essay writers.

#### *Doing it all with almost no homework*

Grade level has a heavy influence on the effectiveness of homework (Cooper). Cooper indicates that "junior high students also benefit from homework but only about half as much [as high school students]". I think what must be borne in mind regarding the research on homework is that the beneficial effects of homework are for those who actually complete it and in the spirit intended. In the differentiated environment I apply in grades seven through nine at this date, homework is at a minimum and may even be differentiated for certain pupils who, for example, may have fallen behind. In-class study has proven to be very effective (Cooper), especially for students who often perform poorly because they will not do homework.

#### *Classroom Atmosphere*

The favorable classroom atmosphere that I have enjoyed I attribute largely to the differentiated method and so would seem outside the scope of this study. The "working days", which are punctuated by "presentation days" and during which the focus is preparation for these quizzes, operate with fairly minimal pestering on my part to get students working. One of the possible reasons for my admittedly subjective perception that on-task behavior is enhanced could be that the quiz questions are known in advance. Students have a focus for their activity that is mostly within their ability and multiple means of carrying out the task. Further, the fact that they can proceed at their own pace means there is never a situation in which the work is "done". "Finished with topic 25? Go on to 26." The availability of choices in how to obtain the information further enhances the atmosphere.

#### **Conclusions**

##### *Will students meet the standards under the short response quiz conditions of this unit?*

The short answer is yes and the results are very satisfactory. The exam was composed of mostly questions from previous administrations of the NYS Intermediate Social Studies Test. This seems to be the best measure available to determine the degree to which students are learning what the State wants them to learn. Despite the low correlation between the class average on quizzes and class average on the text, which I attribute to the intentional short-term memory aspect of the quiz, I conclude that students are meeting the standards in this method at least as well as, perhaps better than, on the previous quizzing system. I would favor this system even if the interpretation of the results is only "as good" for the following reasons:

- It nearly eliminates homework (I regard this as a good thing for this age group).
- It promotes on-task behavior during the classroom working times.
- It permits an arrangement where I can offer texts on a variety of reading levels.
- It potentially promotes long term retention of content by permitting some flexibility in the amount of material one learns at a time.
- It potentially promotes writing skills by providing continual practice.
- It makes studying efficient for students because they know precisely what is expected and focus their full attention there.

My own experience would seem to confirm the conclusions of Anderson and Armbruster. When students prepare for assessments that involve composing written responses and when the questions are revealed in advance, they perform better overall, not only on those measures but as well on multiple-choice tests of the same material. Anderson and Armbruster's observation that when students prepare for a multiple-choice test they tend to learn more information of low importance is born out in my experience. It is easily observable from the textbook publisher-made multiple-choice tests, when information of little importance is worth the same credit as ideas of high importance.

This quizzing method has an additional important advantage. Textbook publishers do not follow the State curriculum precisely. They include information that may sometimes be more detailed than necessary and which therefore takes more time. By using the State curriculum as the principle guide to what I will teach, instead of the textbook author's program, I can use my time more efficiently. Given the ambitious nature of the New York State Social Studies curriculum, it is important that I be as thrifty with my time as possible in order to cover it all.

## **Bibliography**

Anderson, Thomas H. and Armbruster, Bonnie B. "Studying." Pearson, P. David. Handbook of Reading Research. New York: Longman Inc., 1984. 657-679.

Cooper, Harris. "Synthesis of Research on Homework." Educational Leadership November 1989: 85-91.

## TOPIC #25 Quiz Questions: The Roaring Twenties

### QUIZ 25-A

1. Explain TWO economic, social, and political effects of Prohibition.
2. Compare and contrast the presidential administrations of Harding, Coolidge, and Hoover.

### QUIZ 25-B

3. Explain THREE foreign policy actions the United States took during the 1920s. *(Some possibilities: General policy of noninvolvement in European affairs; the League of Nations controversy; World Court; Naval disarmament 1924; Efforts for peace; Kellogg- Briand Pact, 1928; peace treaty with Germany 1921; etc.)*
4. Relate the pros and cons of the tariff issue in the 1920s.

### QUIZ 25-C

5. Give THREE proofs that there was an increase in intolerance and xenophobia amongst Americans during the 1920s. *(Some possibilities: immigration policy, KKK membership, eugenics movement, Sacco and Vanzetti trial, etc.)*
6. Explain THREE causes and THREE effects of an increase in the standard of living in the United States through the 1920s.

### QUIZ 25-D

7. Describe THREE social or economic problems that were developing in the 1920s *(Except the rise in racism and prejudice referred to in question 5. Some possibilities: Low farm prices; High black unemployment; Millions of poor; New trends conflicted with tradition such as the "Scopes Monkey Trial"; Environmental balance was jeopardized).*
8. What was the Harlem renaissance?

### QUIZ 25-E

9. Describe FOUR examples of new ideas about the use of leisure time emerging in the 1920s. *(Some possibilities: Impact of the automobile; Organized sports; Search for heroes and heroines; Motion pictures; Popular literature; Fads and fashion; Changes in social behavior ;)*
10. Explain TWO causes and TWO effects of the 1929 Stock Market crash.

**SAMPLE QUIZ**

**GRADE**

**25-A**

5		4	3		2		
<b>100</b>	<b>94</b>	<b>85</b>	<b>76</b>	<b>65</b>	<b>50</b>	<b>40</b>	<b>0</b>
- accurate and complete understanding of the question. - enough supporting details OR few details well explained -evidence of higher level thinking		- few minor inaccuracies, omissions, or irrelevancies - some supporting details - evidence of higher level thinking	- most important element(s) present - Minor inaccuracies, omissions, or irrelevancies - Very general – lacks detail OR the few details are unexplored - some higher level thinking evident	- some important element(s) present - Minor inaccuracies, omissions, or irrelevancies - Very general – lacks detail - May include irrelevancies - no higher level thinking evident	- roughly half of the response is accurate - limited supporting details - inaccuracies, omissions, or irrelevancies present - no higher level thinking	- at least one important element is present with some supporting detail. - inaccuracies, omissions, or irrelevancies dominate the response	No credit

Word Bank

- Normalcy
- Isolationism
- Bootlegging
- Mafia
- Organized crime
- Laissez-faire
- Kellog-Briand
- Smoot-Hawley

1. Explain TWO economic, social, and political effects of Prohibition.


2. Compare and contrast the presidential administrations of Harding, Coolidge, and Hoover.


<b>Name</b>	<b>25-A</b>	<b>25-B</b>	<b>25-C</b>	<b>25-D</b>	<b>25-E</b>	<b>Qu Avg</b>	<b>Exam</b>	<b>Correl:</b>
Student 1	85	76	65	94	76	79.2	56	<b>0.50</b>
Student 2	85			100		92.5	74	
Student 3	85	85	94	100	85	89.8	81	
Student 4	40	50	76	85	76	65.4	78	
Student 5							96	
Student 6	100	100	100	100	85	97	96	
Student 7	76	94	94	85	65	82.8	59	
Student 8	85		94	76	94	87.25	78	
Student 9	76	76	50	85	94	76.2	44	
Student 10	85	85	76	94	100	88	81	
Student 11	85	94	85	100	100	92.8	89	
Student 12	65		85	76	76	75.5	85	
Student 13	100	100	94	94	100	97.6	88	
Student 14	100	100	100	100	100	100	96	
Student 15	100	100	100	100	100	100	89	
Student 16	100	100	100	100	100	100	96	
Student 17	100	50				75	74	
Student 18	85	65	100	100	76	85.2	59	
Student 19	85	65	85	94	94	84.6	77	
Student 20	76	95	76	85	76	81.6	85	
Student 21	65	85	65	85	76	75.2	74	
Student 22	85	65				75	96	
Student 23	94	100	85	100	100	95.8	78	
Student 24	76	85	76	76		78.25	81	
Student 25	85	94	100	100	94	94.6	81	
Student 26	76	100	100	94		92.5	81	
Student 27	85	94	85	100	100	92.8	89	
Student 28	100	85	85	100	100	94	96	
Student 29	85	100	85	100	85	91	96	
Student 30	85	94	85	94	94	90.4	89	
Student 31	100	100	100	100	100	100	91	
<b>AVG</b>	<b>85</b>	<b>87</b>	<b>87</b>	<b>93</b>	<b>90</b>	<b>88</b>	<b>82</b>	
stdv	13.27555	15.53738	13.00592	8.328808	11.09685	9.394352	13.10011	