

# A Study of a Reading-Note Taking Task as Interim Examination Improvement Strategy

---

David Jones

Statistical Analysis: Jeff Cutting

May 2013

## Overview

“Interim examination” refers to a regularly occurring examination measuring all course content since the start of the course. They are given at regular intervals as a progress monitoring method. They should be highly reliable indicators of achievement in the course (such as being highly predictive of performance on a standardized test) and teachers ought to be able to use the data to make decisions about instruction. A point worth emphasizing about the interim examination is that it is a test that spirals: each successive examination tests the content knowledge of the preceding tests and what had been taught since.

Forty-five students in grade seven through nine social studies at Schroon Lake Central School took the second interim examination in January 2013. Results for some classes were disappointing. An instructional plan was devised to improve student performance by the April interim examination. The most important aspect of this plan was a reading & note taking task. Secondly, there was some increased exposure to domain-specific vocabulary.

The effort appears to have been successful. 17% more students passed the third interim examination from the second. The mean score went up 6%. The probability that the improvement was not due to random chance or other variables is 83%.

## The Note Taking Task

The note taking task that was intended to boost student performance had two components: notes from textbook and notes from lecture. Notes had to be taken in Cornell Note Taking format. Cornell format training has been regularly included in the courses, including training at the start of quarter 3 on using Bloom’s Taxonomy to create higher level questions on the notes. The note taking task is graded as a “high order task” (high order tasks account for 65% of a student’s GPA in the course). Cornell Note Taking is a note taking technique well supported in research<sup>1</sup>. Students have two full class periods to begin the text note taking and then additional working periods when they may opt to do that. They have twelve days to complete the task as this is the time a topic usually runs.

Notes from textbook could come from any of three sources, designated as “below”, “at”, or “above” grade level. Grade level difficulty level was determined using Lexile and gauged by the Common Core State Standards grade level reading expectations. Students self-select for difficulty level in consultation with me. The amount of reading ranged from 8-12 pages.

Students doing the standard curriculum normally have 1-2 persuasive composition quizzes and 2 expository composition quizzes in each topic. The lecture included some information and media presentations intended as background or to reinforce key ideas as well as the direct answer to the composition quizzes. Notes required from lecture were limited to those aspects of the teacher presentation series that answered specific

---

<sup>1</sup> Anderson, T. H., & Armbruster, B. B. (1984). Studying. In P. D. Pearson, Handbook of Reading Research (pp. 657-679). New York: Longman Inc.

Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2005). Classroom Instruction that Works: Research-Based Strategies for Increasing Student Achievement. Upper Saddle River, NJ: Pearson Education, Inc.

quiz questions. A modified lecture notes task is optional for students who are not sufficiently able to take notes. They get a copy of the presentation materials and add notes and create questions as for Cornell notes. The maximum score on this is 76 owing to the reduced workload.

## Student Performance on the Note Taking Tasks

There were two notes tasks in the third quarter. The average score on the notes task was 70, the median 85. Around a quarter failed the notes task each time. Around half of the people who failed the average of the notes tasks failed interim three. The average score on the notes task was bore a moderately high correlation to year-to-date GPA in the course (0.70).

Twenty-seven students responded to a survey in which they were asked how well they like the addition of reading-note taking to their classroom tasks. 75% responded favorably. Prior to this change, assigned reading tasks were few. Save for grade nine, who had one short reading task per week as homework, students could get the information they needed to pass the quizzes elsewhere other than text – including studying the quizzes of students who took the quiz before them. The amount of regular reading in class had become far too limited. My focus on performance on content knowledge quizzes and on writing took me too far afield of reading for a while.

The grading rubric for the note taking task, both for lecture and quiz, has been in use for a long time in my class. When the difficulty of the task was assessed using a z-score standardization procedure against a NYS Global History and Geography Regents examination, the perfect score of 100 was worth a 88.

5		4	3		2	
100	94	85	76	65	55	44
<ul style="list-style-type: none"> <li>Use of space strongly shows hierarchical <b>organization</b> of ideas. Main ideas are distinct from supporting details using symbols and location on the page. Student may use webbing or graphic representations.</li> <li>All <b>information</b> is sufficiently elaborated, including information not displayed in presenter's visual aid.</li> <li>Good <b>questions</b> at various levels cover all of the material for study.</li> <li>There may be evidence that notes have been revised.</li> </ul>		<ul style="list-style-type: none"> <li>Use of space shows organization of ideas, but may be <b>inconsistent</b>.</li> <li>May be minor omissions</li> <li>Some incomplete ideas</li> <li>Good questions at various levels cover <b>most</b> of the material.</li> <li>There is no evidence notes have been revised.</li> </ul>	<ul style="list-style-type: none"> <li>Use of space does not support hierarchical organization of ideas, but some basic effort to organize is evident.</li> <li>Notes appear as lists or blocks of text.</li> <li>Notes may be limited to elements copied from presenter's visual aid.</li> <li>May be serious omissions</li> <li>Important ideas are not elaborated enough.</li> <li>Questions / abstract are weak or insufficient.</li> </ul>		<ul style="list-style-type: none"> <li>Notes appear as lists or blocks of text. No obvious organization.</li> <li>Notes may be limited to elements copied from presenter's visual aid.</li> <li>Serious omissions, may be inaccuracies.</li> <li>Few or no questions</li> <li>There is enough information recorded to award up to half credit, but one could not pass a test from these notes.</li> <li>May not be in Cornell format.</li> </ul>	

The modified lecture notes rubric has a reduced maximum score owing to the reduced workload.

5		4	3		2	
100	94	85	76	65	55	44
<p><i>This score would be available if</i></p> <ul style="list-style-type: none"> <li>... the student recorded the notes, created questions and abstracts</li> <li>... there were no omissions</li> <li>... the use of space showed hierarchical organization of ideas</li> <li>... all information had been sufficiently elaborated</li> <li>... the notes went beyond just copying from presenter's visual</li> </ul>		<p><i>This score would be available if</i></p> <ul style="list-style-type: none"> <li>... the student recorded the notes, created questions and abstracts</li> <li>... there were some minor omissions.</li> <li>... the use of space showed organization of ideas, but may have been inconsistent.</li> </ul>	<ul style="list-style-type: none"> <li>Information is included that is not displayed in presenter's visual aid.</li> <li>Concepts are elaborated.</li> <li>All terms are defined, all presenter's questions answered.</li> <li>Good questions at various levels cover all of the material for study.</li> <li>An abstract of each page is included.</li> <li>The notes have been revised.</li> </ul>		<ul style="list-style-type: none"> <li>A very limited amount of information has been added to the presenter's visual aid.</li> <li>Not all terms are defined, not all presenter's questions answered.</li> <li>Student-generated questions are limited in level and/or scope.</li> <li>Page-by-page abstracts may be limited or inconsistent.</li> </ul>	

## Statistical Analysis

N=	45
Mean, interim 2	73
Mean, interim 3	76
StDev, interim 2	16.3
StDev, interim 3	14.5
T-Score	0.97
P-Value	0.17
Probability that improvement was due to random chance	17%
Probability that improvement was due to the notes task	83%

See appendix for raw data.

## Conclusion

With a very high level of certainty, the improvement in the number of students passing the interim examination observed from January to April was caused by the introduction of this reading-note-taking task.

## Appendix: Data

	Student	1st note taking score	2nd note taking score	Interim 2	AVG note taking tasks	interim 3 score	YTD qtr 3 score	Change, Interim 1 to Interim 2	Percent Change
Grade 7	Student 1	100	100	77	100	83	89	12	7.79%
	Student 2	100	100	80	100	80	91	11	0.00%
	Student 3	25	0	66	12.5	63	61	-5	-4.55%
	Student 4	100	94	93	97	98	95	2	5.38%
	Student 5	85	94	66	89.5	67	82	16	1.52%
	Student 6	65	65	66	65	61	67	1	-7.58%
	Student 7	0	55	50	27.5	43	61	11	-14.00%
	Student 8	100	100	95	100	87	98	3	-8.42%
	Student 9	55	0	82	27.5	80	69	-13	-2.44%
	Student 10		94	98	94	89	93	-5	-9.18%
	Student 11	45	44	70	44.5	61	69	-1	-12.86%
	Student 12	100	100	98	100	89	99	1	-9.18%
	Student 13	100	100	95	100	96	96	1	1.05%
Grade 8	Student 14	0	85	91	42.5	93	73	-18	2.20%
	Student 15	94	100	67	97	72	81	14	7.46%
	Student 16	100	100	87	100	93	94	7	6.90%
	Student 17	0	76	42	38	74	73	31	76.19%
	Student 18	65	76	64	70.5	80	80	16	25.00%
	Student 19	94	94	80	94	96	88	8	20.00%
	Student 20	65	65	98	65	96	84	-14	-2.04%
	Student 21	100	100	87	100	89	93	6	2.30%
	Student 22	100	100	93	100	96	92	-1	3.23%
	Student 23	85	85	62	85	70	68	6	12.90%
Student	85	100	84	92.5	83	89	5	-1.19%	

	24								
	Student 25	55	45	53	50	61	64	11	15.09%
	Student 26	0	0	91	0	91	77	-14	0.00%
	Student 27	85	85	60	85	85	81	21	41.67%
	Student 28	0	65	51	32.5	76	67	16	49.02%
	Student 29	55	65	44	60	43	60	16	-2.27%
Grade 9	Student 30	94		78	94	80	88	10	2.56%
	Student 31	0	55	70	27.5	76	79	9	8.57%
	Student 32	100	100	75	100	76	93	18	1.33%
	Student 33	94	100	78	97	85	94	16	8.97%
	Student 34	76	55	59	65.5	67	65	6	13.56%
	Student 35	85	94	90	89.5	85	91	1	-5.56%
	Student 36	65		80	65	78	87	7	-2.50%
	Student 37	76	0	53	38	47	63	10	-11.32%
	Student 38	85	94	54	89.5	59	75	21	9.26%
	Student 39	55	75	63	65	72	72	9	14.29%
	Student 40	85	0	63	42.5	76	61	-2	20.63%
	Student 41	0	0	88	0	80	79	-9	-9.09%
	Student 42	65	55	60	60	54	63	3	-10.00%
	Student 43	100	85	68	92.5	71	82	14	4.41%
	Student 44	94		85	94	85	89	4	0.00%
	Student 45	85	76	46	80.5	56	67	21	21.74%

**Data for z-score  
standardization  
procedure for Cornell  
Notes Rubric**

<b>Cornell notes</b>
<b>Mean: 88.55</b>
<b>StDev: 17.19</b>

44	100
55	100
55	100
55	100
55	100
65	100
65	100
65	100
76	100
76	100
85	100
85	100
93	100
93	100
93	100
94	100
94	100
94	100
100	100
100	100
100	100
100	100
100	100
100	100
100	100
100	100
100	100
100	100
100	100
100	100