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Assessment Analysis and Critique
Empire of Mali: Third Grade
CRIN 550
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I administered the Empire of Mali: Comprehension Check (Attachment A) as a formative assessment on the fourth day of our five-day Mali unit. All third grade classes at Matoaka use a common summative assessment for end-of-unit tests. Therefore, I used the assessment created in my William and Mary Assessments class as a formative assessment and during the Mali unit's review lesson. This assessment served as a graded assignment and was weighted equivalent to graded homework and a reading passage assignment. It reflected the intended learning outcomes that were then assessed in the common summative assessment.

The students in my third grade class are accustomed to assessments that include up to twenty questions. They are using classroom assessments as part of their preparation for their upcoming SOL exams and therefore have extensive experience and comfort with the multiple-choice format of this assessment. In contrast, the supply response items were highly unusual for my students and posed the greatest difficulties for them. As detailed below, I ultimately opted not to include either of the supply response questions in deference to my cooperating teacher's concerns about how parents would view the grading of these items.

I modified the original assessment prepared for class. At the suggestion of my cooperating teacher, Item 7 was altered to delete the former SOL term of "economic interdependence" to focus on the new SOL term "specialization" that is being emphasized in our classroom's social studies units. This exact select-response item had been used in the previous Ancient Greece and Ancient Rome units. Item 10 was added to elicit explicit identification of Mali's location in West Africa. I also added item #11 as a means to determine student learning about how Timbuktu's location on the Niger River and between the salt and gold mines resulted in the city's rise as Mali's most important trading center. Finally, I altered both my instruction and assessment of maps during my Mali unit and focused on coordinate grids and

legends rather than map scale. I superimposed a grid on my original map and developed questions that required students to use their knowledge of cardinal directions, map legends, and the coordinate grid to answer the assessment questions.

Table of Specifications

Content	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Early West African empire of Mali: ○ oral tradition (storytelling)		X study 1 (100%) 12 (70%)				
Early West African empire of Mali: ○ government (kings)		X study 2 (100%)				
Early West African empire of Mali: ○ economic development (trade)		X study 4, 6, 8, 13 (100%) 3, 7 (78%)				
Map skills	X develop locate 10 (100%) 14 (83%)	X describe explain 5 (100%) 11 (17%) 15, 16 (91%) 17 (70%)				
How producers in the West African empire of Mali used natural resources, human resources, and capital resources in the production of goods and services		X explain 5, 6, 8 (100%), 7 (78%) 9 (65%)				
Informational and data analysis	X gather **		X classify **	X interpret 17 (70%)	X draw conclusions ** X make generalizations **	

** Assessed in separate analysis and comparison of graphs and charts documenting economic, demographic, and geographic information of China, Egypt, Greece, Rome, and Mali.

Breakdown of Questions and Incorrect Answers

Incorrect answer

	Question	Supply Response	a	b	c	d	Number of students answering incorrectly
1	Our information about ancient Mali comes mostly from:						
2	Mali was ruled by:						
3	In ancient Mali, salt was NOT:				5		5
4	In ancient Mali, salt was used to:						
5	Which of the following was a physical characteristic of ancient Mali?						
6	What was NOT an economic specialization of the empire of Mali?						
7	Specialization encourages		3	2			5
8	What made the empire of Mali so wealthy?						
9	The Empire of Mali's three human characteristics were	unanswered = 3 omitted "traders" = 5					8
10	Mali is located:						
11	List two reasons why Timbuktu was an important trading city in Mali.	THROWN OUT					19
12	In the empire of Mali, a griot was an important person. Describe (1) the job of a griot, (2) why this job was necessary, (3) and the contributions griots made to the modern world.						7
13	The city of Timbuktu is located in which grid?						
14	What mines are located in grid C2?	"Taghaza" = 4					4
15	What mines are located south of Timbuktu?	"gold" =1 "Niger" =1					2
16	What mines are located north of Timbuktu?	"salt" =1 "Taghaza" =1					2
17	On the map, Timbuktu is shown to be:	unanswered =1	4	1	1		7

Reflection on Validity and Reliability

Random error was minimized during the assessment. The quiz was administered during the first period of school after a morning homework routine, announcements, and daily sharing of news had transitioned students into the rhythm of their instructional day. In general, fatigue and hunger are mentioned less during this period of the day than later in the morning or after lunch.

Reliability can be improved in this assessment by changing the presentation of items 14 to 16 to emphasize the word “mines.” While most students read the question carefully and understood the information being requested, 6 of the 8 incorrect answers on these three items were of place names (city or river) rather than a type of mine. By bolding, italicizing, or capitalizing the word “mines,” the items would be strengthened and would therefore be a better reflection of the students’ true understanding of a map legend and cardinal directions.

In hindsight, this assessment had high predictive validity of their summative assessment scores. Student performance on the final summative assessment for the Mali unit was strong. Nine students achieved perfect scores and those student with the lowest scores performed less well with scores in the high seventies.

When grading this assessment, I became immediately aware of the supply-response questions’ reliability and validity in reflecting student knowledge. In general, as our students prepare for the upcoming select-response SOL exams, supply response questions are not a focus in our classroom. In structuring classwork as well as homework and assessments, my cooperating teacher has emphasized the need to create questions in SOL format. My students’ limited experience with supply response questions was manifested in their difficulty with items 9, 11, and 12, the only three supply-response questions on the assessment. On item 9, two of the three students who left the question blank wrote notes saying that no answers were provided. Items 11 and 12 posed an even greater challenge. Most students provided the exact wording of the study guide rather than synthesizing this information and using additional and extensive classroom discussion to formulate their responses. My cooperating teacher and I discussed the

merits of including these items in the final grade. She was particularly concerned about parent response given the fact that I was soliciting information beyond that information detailed in the study guide. Although class instruction had focused repeatedly on the desired supply response items, she felt that it would be problematic to withhold points from a student who had used the study guide language even if these responses were tangential to the question. For example, item 11's query about **why** Timbuktu was an important trading city elicited student responses derived from the study guide that "Timbuktu was the most important trading center in Mali" and that it "had a famous university with a large library with ancient Greek and Roman books." Only four students, all among the highest achievers in the class, reflected knowledge discussed in class that was not in the study guide. As one student wrote, "Timbuktu was located near the Niger River which made it easier to trade. It was between the gold mines and the salt mines so the traders met there." In ultimately eliminating this question, no student grades were changed significantly and potentially difficult parent interactions were avoided.

Student performance was better for item 12, the question about griots. The third element of the question was not detailed on the study guide but had been discussed in class and was also featured in a SOL-format written "comprehension check" assessment earlier in the unit. Because written support existed for this element of the question, my cooperating teacher was more supportive of my retaining this item despite its lack of explicit delineation in the study guide. Seven students lost partial credit on this part of the supply-response item.

Having eliminated one of the three supply-response items, I believe this assessment was a valid and reliable assessment of student learning about ancient Mali. As seen in the above table of specifications, this assessment demonstrates sound construct validity, or "face validity", because it is aligned to the Virginia Standards of Learning on Mali not only in breadth of content but also in terms of the different cognitive levels demanded by the standards. The individual questions on the assessment specifically address the essential knowledge each Virginia third grader is expected to know about Mali and also represent an appropriate sampling among these discrete intended learning outcomes. This broad

and systematic sampling is sound evidence of content validity and is thus a reinforcement of the assessment's construct validity as well as its predictive validity in terms of how students will perform on the Mali questions on the SOL exam.

Student Aggregate Performance:

Considering overall student performance on this formative assessment, I believe that students were largely successful in meeting the unit's learning objectives. As discussed above, I discarded two of the three supply response items for the final recorded student scores. The student performance scores in the chart below include both the original scores with the supply-response items as well as the final scores after the two supply response items were discarded. Both adjusted and unadjusted scores produced a high mean and median thus reflecting a corresponding strong level of overall student learning of the Mali unit. In looking at the raw scores, nineteen of the twenty-three students scored above 80 percent.

Distribution of Scores

Number of Students	Unadjusted Scores	Adjusted Scores*
1	97	100
1	95	98
5	91	98
1	90	93
1	89	96
1	89	91
1	88	91
4	85	92
2	83	85
1	82	85
2	78	85
1	85	85
1	76	78
1	52	54
23 Total	85.2 Mean	90 Mean
	85 Median	91 Median
	91 Mode	98 Mode

* Two supply response questions eliminated from final scores due to overall low scoring rate.

Student Individual Performance

Four students in my classroom consistently perform at a level below that of their peers across all content areas. While none of these four students have either an IEP or 504 plan, all four have received some level of RTI from the school's Student Support and Enrichment Specialist. Two are pulled for RTI every day. The other two students leave class twice a week for focused reading comprehension intervention with the Student Support and Enrichment Specialist. For the purposes of this analysis, I am focusing on the assessment results of this latter pair.

Mary comes from a low SES background and although she has limited academic support at home due to her mother's employment at two different jobs, she is consistent in completing homework that reflects strong effort and attention. Mary was retained in second grade and has difficulty with reading comprehension. She scored 88 percent on this formative assessment (91 adjusted) losing points only on item 14 where she supplied a place name rather than specifying the type of mine and receiving only partial credit on item 12 about griots. Mary correctly answered item 17 that required students to use the map information to analyze what specific information is provided about Timbuktu.

Cory comes from an affluent home and receives extensive academic support from his parents as well as tutors who work with him individually after school twice a week. He is consistent in completing homework that reflects strong effort and attention. Cory scored 52 percent on this formative assessment (54 adjusted) and had difficulty with both select-response and supply-response items. He did not provide an answer to fill-in-the-blank item 9 writing a note that stated "no answers are here" and was likewise stymied by item 17, failing to circle any of the four multiple choice options. In addition, Cory lost points on item 14 when he supplied a place name rather than specifying the type of mine and on items 15 and 16 when he reversed salt and gold for these two items either because he misread the map legend or misunderstood the cardinal directions. He also erred on item 7 for a third consecutive assessment when he answered that specialization encourages "money" rather than "trade." He made this identical mistake in his ancient Greece and Rome assessments and despite one-on-one explanations and discussions about this

item, continues to have difficulty. However, Cory provided one of the best student responses to item 11 writing that Timbuktu was an important trading city in Mali because “It was on the Nile River [sic] and boats could trade on it and salt and gold traders came there with camels because it was in between.” He only lost points due to his citation of the Nile rather than the Niger River.

Mary was clearly engaged in the unit and stated that “my family was from Africa and I need to know this stuff.” She studies only intermittently from her study guide and therefore did not appear confused or bound to the language provided in it for the supply response questions. In fact, both of these students performed better than the class average on the Timbuktu supply response item and had retained much information from the classroom discussion. Cory was stonewalled by the other deviations from our standard select-response format. He did not process my oral directions about the need to answer item 9 by writing in three separate words and was confused by item 17 to the degree that he did not venture a guess and circle any of the four multiple choice options. His performance was markedly below his peers as well as his own standard of low 70s due to his confusion and inflexibility.

Reflection on Instructional Decisions

This assignment certainly heightened my awareness of setting advance expectations with both parents and students about assessment. While I certainly believe in the importance of a study guide, I will communicate that it is a starting point rather than a definite limit for possible inquiry and assessment. I will emphasize that class discussions are of equal importance in student learning and that these discussions may not all be itemized as written bullet points in handouts but are nonetheless valuable. Class discussions are therefore a possible source of inquiry for assessment.

In addition, I believe that writing is an essential skill that must be nurtured in third grade even if it is not assessed until the 5th grade SOL. I would like to incorporate systematic supply-response questions in my third grade assessments. Such assessment would be built upon the ongoing class discussion and reflection that is already present in our room. I feel that students must be able to explain an answer rather than simply circling one of a number of options in multiple-choice format.

Instruction throughout the unit benefited from a strong motivational activity. Every day, students were designated as the same Mali “human characteristic” - a farmer, salt trader, or gold miner. In this activity, for every correct answer they offered during class discussion, students accumulated a corresponding token on their desk (bean for farmer, gold stone for gold miner, or salt packet for salt trader). At the end of the week, they traded products with the goal of achieving balance between food, salt (as a preservative), and money in order to survive. The students were highly engaged during class and were extremely eager to participate in discussions. As a result of this high emotional involvement, I believe that student learning was enhanced thus resulting in strong performance on assessment. I will certainly repeat this fun and successful activity; the students still refer to each other as their Mali roles.

In addition, I will repeat other successful and engaging activities such as the opportunity for students to enact the role of a griot and retell a biography I read to the class. The students donned a scarf as an emblem and told the biography of a Mali mansa (king) without using notes. I also provided students with frequent practice with coordinate maps and legends to advance student learning. Systematic discussions about what we could and could *not* discern from examining various maps provided experience and support for the analysis that allowed students to interpret information similar to item 17 on the assessment.

In general, I feel that my instruction was successful and aligned well with the state standards. In mapping back student performance to the table of specifications, students demonstrated strong knowledge of the different learning objectives. The entire class answered eight of the seventeen items correctly and their overall performance was strong. Students began the week asking “Who is Molly?” and ended the week understanding that Mali was an wealthy West African empire along the Niger River that built its power on the trade of salt and gold. Their progress was phenomenal and we had great fun along the way.

Name: _____ Date: _____ # _____

Empire of Mali: Comprehension Check

1. Our information about ancient Mali comes mostly from:
 - a. books written by Mansa Musa and Sundiata
 - b. oral stories handed down by storytellers
 - c. paintings drawn in desert caves
 - d. letters written by African gold traders

2. Mali was ruled by:
 - a. a representative democracy
 - b. wealthy gold traders
 - c. groups of citizen voters
 - d. rich and powerful kings

3. In ancient Mali, salt was NOT:
 - a. dug from the banks of the Niger River
 - b. an important natural resource
 - c. mined in the desert
 - d. traded for gold

4. In ancient Mali, salt was used to:
 - a. polish gold
 - b. clean water
 - c. preserve food
 - d. make bricks

5. Which of the following was a physical characteristic of ancient Mali?
 - a. mountains
 - b. hills
 - c. deserts
 - d. forests

6. What was **NOT** an economic specialization of the empire of Mali?
 - a. farming
 - b. salt mining
 - c. gold mining
 - d. shipbuilding

7. Specialization encourages _____.
 - a. work
 - b. jobs
 - c. trade
 - d. money

8. What made the empire of Mali so wealthy?
 - a. building
 - b. sailing
 - c. learning
 - d. trading

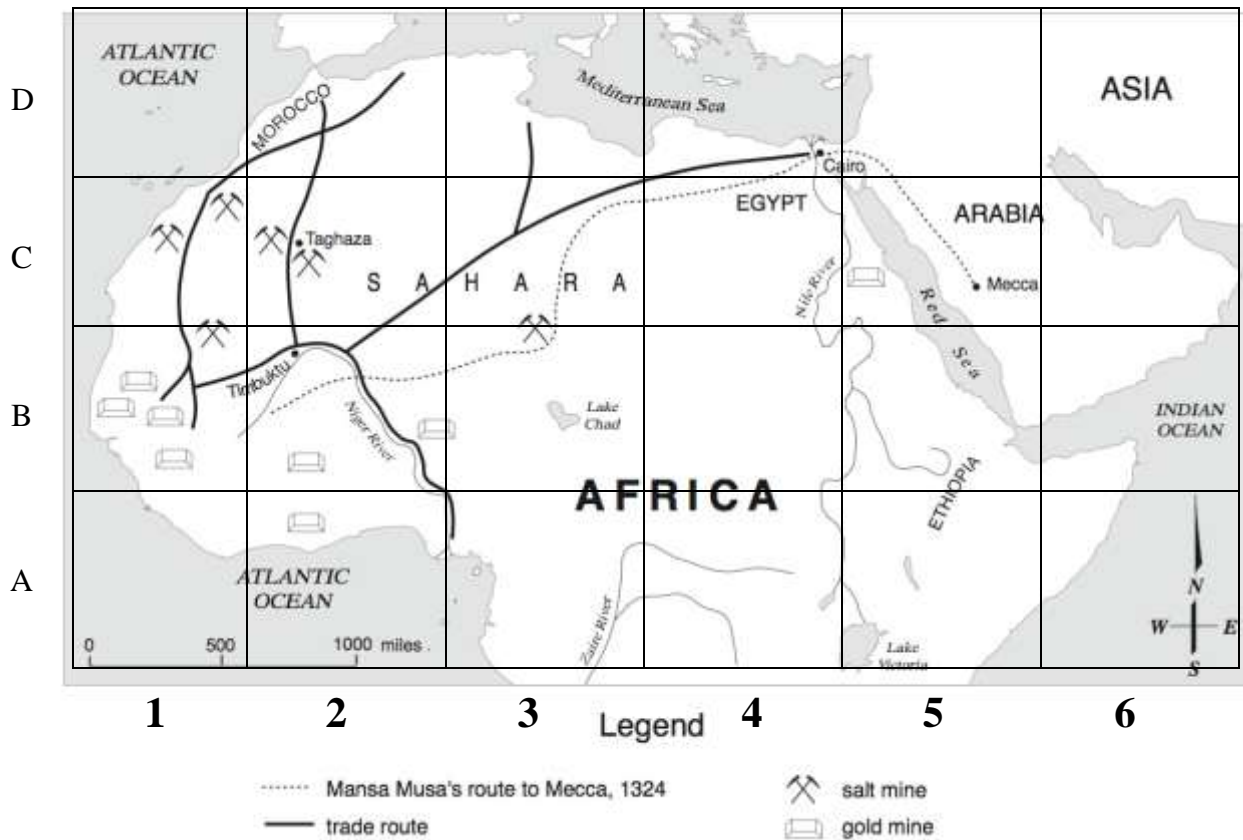
9. The Empire of Mali's three human characteristics were _____,
_____, and _____.

10. Mali is located:
 - a. in southern Europe
 - b. on the Nile River
 - c. in western Africa
 - d. east of Egypt

11. List two reasons why Timbuktu was an important trading city in Mali.

12. In the empire of Mali, a griot was an important person. Describe (1) the job of a griot, (2) why this job was necessary, (3) and the contributions griots made to the modern world.

Timbuktu: A Center for Trade



Use the above map to answer the questions

13. The city of Timbuktu is located in which grid? _____ (letter + number)
14. What mines are located in grid C2? _____
15. What mines are located **south** of Timbuktu? _____
16. What mines are located **north** of Timbuktu? _____
17. On the map, Timbuktu is shown to be:
 - a. a city with a university and libraries
 - b. a farming center in ancient Mali
 - c. a stop on Mansa Musa's route to Mecca
 - d. a trading city on the Niger River