

Designing Written Assessments

Jennifer Katona

Walden University

Dr. Celeste Fenton

EIDT 6511: Assessments in Online Environments

November 25, 2012

## Designing Written Assessments

When designing written assessments, both technological considerations and alignment to the objective itself need to be examined. The development, design, delivery, and analysis of assessments are greatly impacted by modern technology. An important consideration in the design of assessment questions is matching the type of question to the objective being measured. Some objectives are more suited for written assessments. Furthermore, technology assists with providing meaningful feedback to students in regards to their learning progress. Immediate feedback is also available with many question types when given electronically. This feedback can be customized to provide students with more clarity than just saying “your answer is incorrect”.

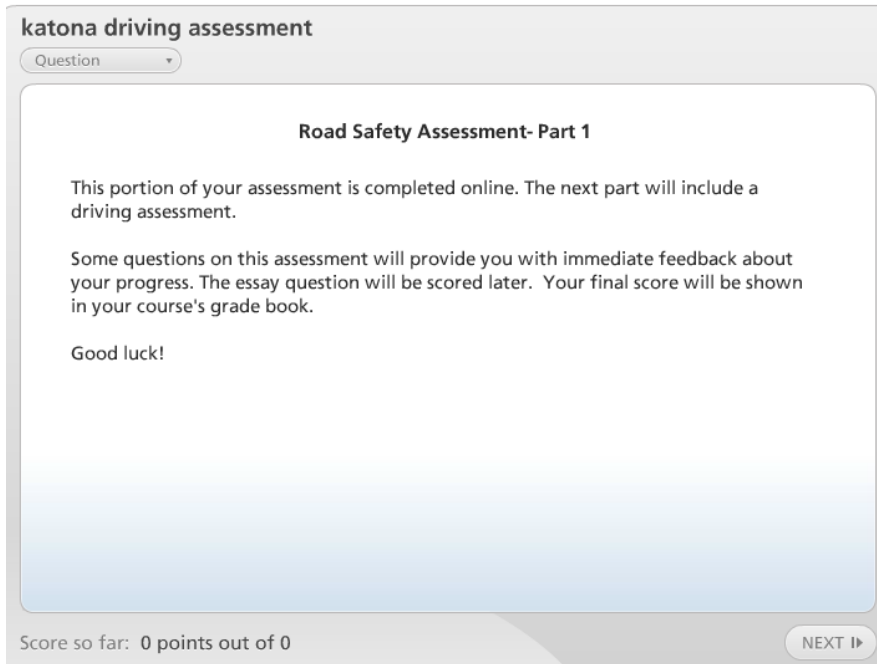
### **Objectives for Written Assessment**

“Learning assessments provide instructors with concrete clues about learner’s achievement of learning objectives” ([Sewell, Frith, & Colvin](#), 2010, p. 304). In the driving course, students will be taking a written assessment that will demonstrate their proficiency in how to operate a motor vehicle. For an assessment to be effective, the type of assessment selected needs to match the learning objective (Tilghman, 2011). The following objectives will be assessed:

1. Identify the components of an automobile dashboard with at least 80% accuracy.
2. Identify common road signs with at least 90% accuracy.
3. Describe the function of each dashboard component with at least 80% accuracy.
4. Illustrate proper use of turn signals that meets the legal limits.
5. Explain the road safety check process, meeting the criteria for a minimum score of 3 out of 4 on the Discussion rubric.

### Written Assessment Items

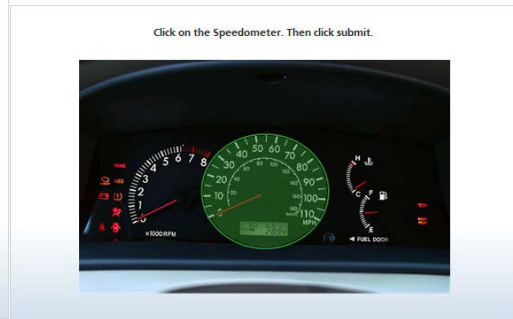
#### Introduction Page:



#### Question 1-6:

These questions had students click on the correct location of a dashboard to indicate their knowledge of the location of headlights, turn signals, tachometer, speedometer, fuel gauge, and temperature gauge. Students were given feedback saying their answer was correct if they clicked on the correct location. If students did not click on the correct location, the feedback given stated “That is incorrect. You did not select the correct location of (the item being identified was listed here)”. These were scored as one point each. Correct locations are highlighted in green.





**Question 7:**


This was matching common warning signals that are shown on a dashboard with their appropriate function or meaning. Students had the opportunity to try this question one more time if one or more of their answers were incorrect. If the answer was incorrect, students were told “You have identified one or more symbols with an incorrect function”. There were five points

awarded to this question as students needed to match all five warning lights with their symbols.


**katona driving assessment**

Question 7 of 12 Point Value: 5


The following symbols are shown on your dashboard. Match the symbol with its function by dragging the function to touch the correct symbol.




When the engine coolant is running low, this symbol will appear on the dashboard.




Low fuel indicator will remain lit when the vehicle is running low on fuel.



When the engine oil is low, this warning light will appear.



The airbag symbol will remain lit up if the airbags are not working properly.



The check engine light will remain on if there is a potential problem with your engine.

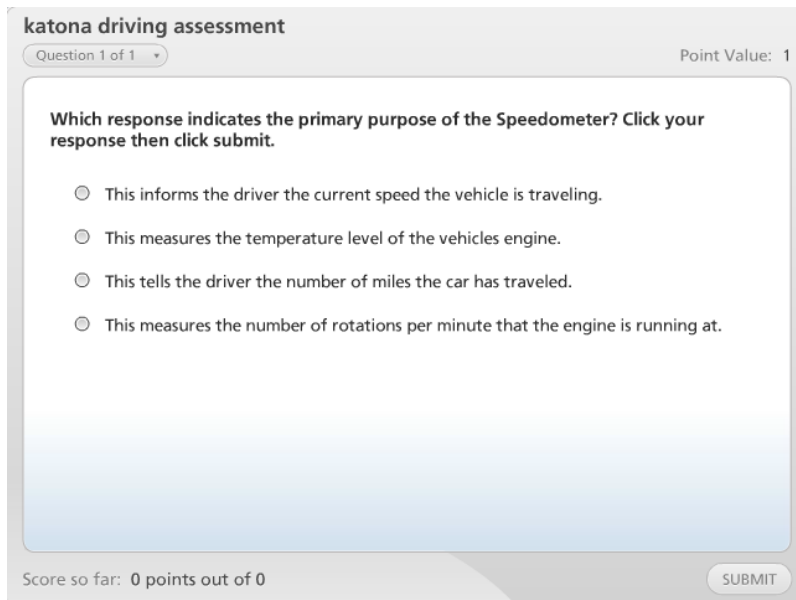
Score so far: 6 points out of 6 SUBMIT

Correct	Choice
low fuel indicator	Low fuel indicator will remain lit when the vehicle is running low on fuel.
The check engine light	The check engine light will remain on if there is a potential problem with your engine.
Engine coolant	When the engine coolant is running low, this symbol will appear on the dashboard.
airbag symbol	The airbag symbol will remain lit up if the airbags are not working properly.
engine oil	When the engine oil is low, this warning light will appear.

**Question 8:**

This multiple choice question assessed the student’s understanding of the function of the speedometer. This question was worth one point. An incorrect response stated, “You have selected the wrong answer. The speedometer informs the driver what speed the vehicle is

traveling.” The correct answer is “This informs the driver the current speed the vehicle is traveling.”



The screenshot shows a quiz interface titled "katona driving assessment". At the top left, it says "Question 1 of 1" and at the top right, "Point Value: 1". The main question text is: "Which response indicates the primary purpose of the Speedometer? Click your response then click submit." Below the question are four radio button options:

- This informs the driver the current speed the vehicle is traveling.
- This measures the temperature level of the vehicles engine.
- This tells the driver the number of miles the car has traveled.
- This measures the number of rotations per minute that the engine is running at.


At the bottom left, it says "Score so far: 0 points out of 0" and at the bottom right, there is a "SUBMIT" button.

### Question 9:

A multiple choice question was given to assess if the student understands the meaning of a no left turn sign. This question was scored for one point. Distractors were included in the answer options. Articulate® Quizmaker randomizes the answer responses from one test to another. This makes it more difficult for a student to merely tell another student the correct answer choice. Feedback for the incorrect response included “Your answer is incorrect. Drivers are not permitted to make a left turn when this sign is posted.” The correct answer is “If this sign is present, the driver may not make a left turn.” This question is worth one point. Only one attempt may be taken to answer this question.

**katona driving assessment**

Question 8 of 12 Point Value: 1

Which answer best describes the meaning of this symbol: 

- If this sign is present, the driver must yield to on-coming traffic before making a left turn.
- If this sign is present, the driver may only make a left turn when there is no traffic.
- If this sign is present, the driver may only make a left turn if there is no traffic light.
- If this sign is present, the driver may not make a left turn.

Score so far: 11 points out of 11 SUBMIT






**Question10:**

This question matched common road signs to their purpose or meaning. Students were given two attempts to answer this question correctly. This question was also worth five points. Students had two opportunities to correctly match the signs with their function. Feedback for incorrect answers stated, “You have incorrectly matched one or more highway signs with their purpose.” The second picture depicts the correct answers.






**katona driving assessment**

Question 9 of 12 Point Value: 5

Match these common road signs to its purpose. Drag the purpose of the road sign to its corresponding sign. When you have matched all signs with their purpose, click submit.

	This sign communicates to the driver that this is a school crossing location.
	The steep hill sign cautions drivers to slow down as a steep hill is approaching.
	This sign is warning the driver that no U-turns are allowed.
	This sign is warning the driver that the road is slippery when wet.
	The railroad crossing sign communicates to the driver that trains cross the road.

Score so far: 12 points out of 12 SUBMIT

Correct	Choice
slippery when wet 	This sign is warning the driver that the road is slippery when wet.
no U-turn 	This sign is warning the driver that no U-turns are allowed.
steep hill 	The steep hill sign cautions drivers to slow down as a steep hill is approaching.
railroad crossing 	The railroad crossing sign communicates to the driver that trains cross the road.
school crossing 	This sign communicates to the driver that this is a school crossing location.

**Question 11:**

This question had students select all the correct answers for conducting a road safety checklist. Students were given two opportunities to take this question. Feedback for incorrect answers said “One or more of your answer choices are incorrect”. This was worth seven points.

**katona driving assessment**

Question 10 of 12 Point Value: 7

Click all of the correct responses that are a part of the pre-driving road check safety process. Once you have clicked all your responses then click submit.

- Look to see that all warning light indicators have turned off.
- Listen to the radio.
- Visually look for tires that appear lower than the others indicating a possible leak.
- Talk on your cell phone.
- Adjust mirrors to see the road clearer.
- Use the rearview mirror to put on more lipstick.
- Check your fuel level.
- Ensure all lights are working properly.

Score so far: 17 points out of 17 SUBMIT



Correct	Choice
X	Ensure the safety belt is operational.
X	Look to see that all warning light indicators have turned off.
X	Check your fuel level.
	Listen to the radio.
	Use the rearview mirror to put on more lipstick.
X	Adjust your seat position.
X	Adjust mirrors to see the road clearer.
X	Visually look for tires that appear lower than the others indicating a possible leak.
	Talk on your cell phone.
X	Ensure all lights are working properly.


**Question 12:**

This question posed a scenario for students to correctly illustrate the use of a turn signal within the legal limit. A picture was given with the question to aid in student’s understanding of the scenario. This question was scored for one point. Only one attempt to correctly answer this question was given. Students have the opportunity to enlarge the picture by clicking on the magnifying glass. Feedback for incorrect responses said, “You have marked an incorrect response. Drivers should use the turn signal to warn other drivers that they are approaching a turn about 100 feet prior to the turn.” This answer option does meet the legal limits for using a turn signal.

**katona driving assessment**

Question 11 of 12 Point Value: 1

When should a driver turn on their turn signal to warn other drivers that they will be turning? Select the correct response below then click submit. Click on the magnify glass to enlarge the picture.



- As indicated in the picture (arrow A), a driver should signal other drivers about 3-4 seconds or 100 feet prior to turning.
- As indicated in the picture (arrow B), a driver should signal other drivers about 1-2 seconds or 30 feet prior to turning.
- As indicated in the picture (arrow C), a driver should use the turn signal during the turn.

Score so far: 24 points out of 24 SUBMIT

**Question 13:**

This question was an essay question designed to assess student's understanding of the road safety. A rubric was attached to the question. This allowed students to compare their answer to the rubric prior to submitting the question. Feedback for this question was "Your instructor will grade this question based on the rubric. This rubric will be posted in your course's grade book." The point value for this is eight points and calculated with the aid of the rubric.

**katona driving assessment**

Question 12 of 12 ▾ Point Value: 0

Explain the importance of road safety. Include two supporting examples to clarify your reasoning. Your response should be 1-2 paragraphs. You may magnify the rubric to view how this response will be assessed.

Exceeds Standard 4	Meets Standard 3	Below Standard 2	Well-Below Standard 1
<p>Describes the purpose of road safety</p> <p>Description is accurate.</p> <p>Description includes 2 appropriate supporting examples.</p> <p>Examples clearly convey the importance of road safety.</p>	<p>Description is accurate.</p> <p>Description includes 2 appropriate supporting examples.</p>	<p>Description may include some inaccurate examples.</p> <p>Description includes 1 appropriate supporting example.</p>	<p>Description may be accurate, but missing supporting detail.</p> <p>The description is inaccurate.</p>
<p>Writing Conventions</p> <p>Follows grammar and spelling rules.</p>	<p>May contain 2 to 4 total errors in grammar and/or spelling, but does not impede the readers understanding of each sentence.</p>	<p>May contain 5 or more errors in grammar and/or spelling but does not impede the overall understanding of the response.</p>	<p>Errors in grammar and/or spelling impede the readers understanding of the response.</p>

Score so far: 25 points out of 25 SUBMIT

Category	Exceeds Standard 4	Meets Standard 3	Below Standard 2	Well-Below Standard 1
Describes the purpose of road safety	<p>Description is accurate.</p> <p>Description includes 2 appropriate supporting examples.</p> <p>Examples clearly convey the importance of road safety.</p>	<p>Description is accurate.</p> <p>Description includes 2 appropriate supporting examples.</p>	<p>Description may include some inaccurate examples.</p> <p>Description includes 1 appropriate supporting example.</p>	<p>Description may be accurate, but missing supporting detail.</p> <p>The description is inaccurate.</p>
Writing Conventions	<p>Follows grammar and spelling rules.</p>	<p>May contain 2 to 4 total errors in grammar and/or spelling, but does not impede the readers understanding of each sentence.</p>	<p>May contain 5 or more errors in grammar and/or spelling but does not impede the overall understanding of the response.</p>	<p>Errors in grammar and/or spelling impede the readers understanding of the response.</p>

A zero response means no answer was given to this question.

A correct response may include examples about how various road safety checks prevented a situation from occurring. For example, by noticing a tire needed more air, I was able to prevent my vehicles tire from blowing out on the highway.

The concluding slide was the same for both tests that appear to be passing and those that appear to not be passing. The slide simply stated “You have finished the writing portion of your driving assessment. Your instructor will post your score in the grade book”.

### **Rationale for Selection of Assessment Items**

These assessment questions were designed using Articulate® Quizmaker. This program allowed questions to be delivered in multiple formats including fixed-response items (multiple choice and matching questions) and constructed-response (essay questions) to fully analyze a student’s understanding of the instructional topics (Oosterhof, Conrad, & Ely, 2008). The fixed-response items included were the matching of the dashboard symbols to their meaning. This question type also included matching the purpose of road signs to their meaning. Distractors within multiple choice items were included to assess student’s ability to accurately identify the correct answer rather than choosing the correct answer from poor answer responses. A multiple-choice item was created to assess student’s understanding of when to use a turn signal. Constructed-response questions included assessing student’s understanding of the road safety process.

“The fundamental role of assessment is to provide meaningful feedback for improving student learning, instructional practice, and educational options” (Tilghman, 2011, p. 32). The fixed-response items included feedback about the question. This feedback provides students an opportunity to learn from their errors (Runyon & Von Holzen, 2005). Those questions provided instant feedback. Constructed-response question provided students with a rubric. Rubrics

should be used with problem-solving questions to clarify the standards needed to be achieved for each level of mastery. The rubric included with the essay question clearly establishes each level of performance (Suskie, 2009). Students are able to use the rubric as a guide to direct them to the important components of the question ([Oliver, Yeo, & Tucker, 2012](#)). Assessment results allow the instructor to review misconceptions or common errors with students.

“Modern technology provides powerful ways to deliver assessment but does not change the fundamentals that are essential to effective assessment” (Oosterhof, Conrad, & Ely, 2008, p. 12). The driving assessment has been designed to match the learning objective with the appropriate question type. Multiple question types have been included to assess student’s understanding of the objectives. Assessments should be viewed as a cycle that includes identifying instructional objectives, analyzing assessment data, discussing common misconceptions or errors, and reflection (Buzzetto-More & Alade, 2006).

## References

- Buzetto-More, N., & Alade, A. J. (2006). Best practices in e-assessment. *Journal of Information Technology Education, 5*, 251-269. Education Research Complete database.
- Oliver, B., Yeo, S., & Tucker, B. (2012). Using eVALUate to improve student learning: Providing feedback for student learning. Retrieved from <http://evaluate.curtin.edu.au/local/docs/5providing-feedback-for-student-learning.pdf>
- Oosterhof, A., Conrad, R.-M., & Ely, D. P. (2008). *Assessing learners online*. Upper Saddle River, NJ: Pearson.
- Runyon, D. & Von Holzen, R. (2005). Assessment in online courses: Practical examples. In the Annual Conference on Distance Teaching and Learning. University of Wisconsin, WI.
- Sewell, J. P., Frith, K. H., & Colvin, M. M. (2010). Online assessment strategies: A primer. *MERLOT Journal of Online Learning and Teaching, 6*(1), 1-9. Retrieved from [http://jolt.merlot.org/vol6no1/sewell\\_0310.pdf](http://jolt.merlot.org/vol6no1/sewell_0310.pdf)
- Suskie, L. (2009). *Assessing student learning: A common sense guide* (2nd ed.). San Francisco, CA: Jossey-Bass.
- Tilghman, S. (2011). Designing and developing of online course assessments. *Review of Higher Education & Self-Learning, 3*(9), 31-34.