ATEA

Accessibility for Technology-Enhanced Assessments

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Purpose of the ATEA Project

- Make innovative, technology-enhanced assessment items accessible and equitable for students with vision and motor disabilities

- Project activities:
  - Expert Review: spring 2013 and fall 2014
  - Teacher Panels: fall 2013
  - Cognitive Labs: fall 2013
  - Field Tests: spring 2014 in Kansas
  - Item Tryouts: fall 2014

Goals for Creating Accessible Items

- Remove inaccessible actions like dragging and dropping
- Create static alternatives for print and braille test forms
- Maintain content and wording of original TE items
- Use vocabulary that represents cognitive task requirements (choose, compare, sort) rather than physical requirements (click, open, move)
- Maintain construct consistency with original TE items
- Enable computerized accommodations such as screen magnification, text-to-speech audio, and switch support

Labeling (one to one): Drag and Drop

Select the x value that makes each equation true.

$x = -3$	$x = -2$	$x = -4$	$x = -1$

drop correct response here	$x^2 - x - 6 = 0$
drop correct response here	$3x^2 - 12x - 15 = 0$
drop correct response here	$6x^2 - 6x - 72 = 0$
drop correct response here	$6x^2 + 18x - 24 = 0$

Labeling Alternative: Matching

Select the x value that makes each equation true.

$x = -3$	$x^2 - x - 6 = 0$
$x = -2$	$3x^2 - 12x - 15 = 0$
$x = -4$	$6x^2 - 6x - 72 = 0$
$x = -1$	$6x^2 + 18x - 24 = 0$

Labeling Alternative: Matrix

Select the x value that makes each equation true.

	$x = -3$	$x = -2$	$x = -4$	$x = -1$
$x^2 - x - 6 = 0$	○	○	○	○
$3x^2 - 12x - 15 = 0$	○	○	○	○
$6x^2 - 6x - 72 = 0$	○	○	○	○
$6x^2 + 18x - 24 = 0$	○	○	○	○

Labeling (unlimited): Drag and Drop

Compare the fractions below using the correct symbol for each pair of fractions. A symbol may be used more than once.

=	>	<

$\frac{7}{8}$ drop correct response here $\frac{6}{8}$

$\frac{5}{6}$ drop correct response here $\frac{5}{4}$

$\frac{4}{4}$ drop correct response here $\frac{6}{6}$

$\frac{6}{4}$ drop correct response here $\frac{3}{2}$

Labeling Alternative: Matrix

Compare the fractions below using the correct symbol for each pair of fractions. A symbol may be used more than once.

	=	>	<
$\frac{7}{8}$? $\frac{6}{8}$	○	✓	○
$\frac{5}{6}$? $\frac{5}{4}$	○	○	○
$\frac{4}{4}$? $\frac{6}{6}$	○	○	○
$\frac{6}{4}$? $\frac{3}{2}$	○	○	○

Ordering: Drag and Drop

Marni is writing a story for class. The sentences from the story are out of order. Read the sentences and put the sentences in the correct order.

"Of course," exclaimed Claire as she walked over to her coach.

"Thank you," smiled Claire.

"You are doing a wonderful job at gymnastics," said Coach Lydia.

"Claire, may I talk to you for a minute?" Coach Lydia asked.

Ordering Alternative: Matching

Marni is writing a story for class. The sentences from the story are out of order. Read the sentences and put the sentences in the correct order.

1.	"Of course," exclaimed Claire as she walked over to her coach.
2.	"Thank you," smiled Claire.
3.	"You are doing a wonderful job at gymnastics," said Coach Lydia.
4.	"Claire, may I talk to you for a minute?" Coach Lydia asked.

Ordering Alternative: Matrix

Marni is writing a story for class. The sentences from the story are out of order. Read the sentences and put the sentences in the correct order.

	1.	2.	3.	4.
"Of course," exclaimed Claire as she walked over to her coach.	○	○	○	○
"Thank you," smiled Claire.	○	○	○	○
"You are doing a wonderful job at gymnastics," said Coach Lydia.	○	○	○	○
"Claire, may I talk to you for a minute?" Coach Lydia asked.	○	○	○	○

Categorization: Drag and Drop

Will is rewriting a report about going to the zoo. He needs to use facts instead of opinions. Read the sentences from the report and sort each sentence to show whether it is a fact or an opinion.

Sentences

There are over 300 animals at the zoo.

The zoo is the best place to go for bird-watching.

People can ride a train to tour the zoo.

Riding the train is a fun activity for everyone.

Fact

Opinion

Categorization Alternative: Matrix Online

Will is rewriting a report about going to the zoo. He needs to use facts instead of opinions. Read the sentences from the report and sort each sentence to show whether it is a fact or an opinion.

Sentences	Fact	Opinion
There are over 300 animals at the zoo.	◯	◯
The zoo is the best place to go for bird-watching.	◯	◯
People can ride a train to tour the zoo.	◯	◯
Riding the train is a fun activity for everyone.	◯	◯

Categorization Alternative: Matrix for Print

Will is rewriting a report about going to the zoo. He needs to use facts instead of opinions. Read the sentences from the report and sort each sentence to show whether it is a fact or an opinion.

Sentences	Fact	Opinion
There are over 300 animals at the zoo.	◯	◯
The zoo is the best place to go for bird-watching.	◯	◯
People can ride a train to tour the zoo.	◯	◯
Riding the train is a fun activity for everyone.	◯	◯

Categorization Alternative: Matrix for Braille

Will is rewriting a report about going to the zoo. He needs to use facts instead of opinions. Read the sentences from the report and sort each sentence to show whether it is a fact or an opinion.
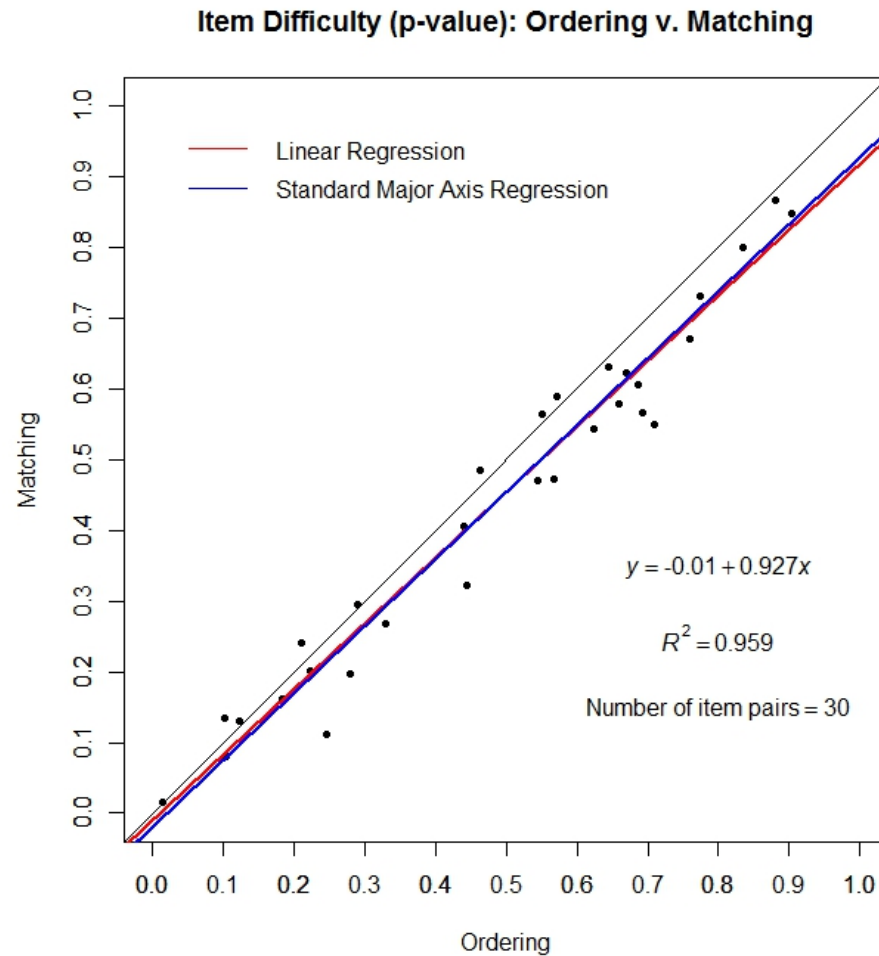
Sentences	Fact	Opinion
1. There are over 300 animals at the zoo.	A	B
2. The zoo is the best place to go for bird-watching.	A	B
3. People can ride a train to tour the zoo.	A	B
4. Riding the train is a fun activity for everyone.	A	B

Item Pair Comparisons: Ordering with Matching

Item Difficulty (p-value): Ordering v. Matching

$y = -0.01 + 0.927x$

$R^2 = 0.959$

Number of item pairs = 30

Item Pair Comparisons: Other Types with Matrix

Item Difficulty (p): Other Item Types vs. Matrix

$y = -0.009 + 0.952x$

$R^2 = 0.945$

Number of item pairs = 17

Legend: Linear Regression, Standard Major Axis Regression

Axes: Matrix (y-axis), Other Item Types (x-axis)