



Pearson

Potential Impacts of Time Constraints on Students

Presentation to the
Illinois Technical Advisory
Committee

28 February 2020



Purpose and Background

- Purpose
 - Obtain TAC guidance on ensuring adequate delivery time for mathematics units
- Background: Spring 2019 administration
 - Concerns from the field indicated that some students may not have had sufficient time to complete some of the mathematics units
 - Pearson analyzed overall time spent on the mathematics units by performance level¹
 - For some units, the 90-95th percentiles for time were close to or above the time allowed
 - Additional analyses were requested

¹See *1b. Spring 2019 Flagship and ABO Unit Testing Time.pdf*

Additional Analyses

- Additional analyses requested by state leads included:
 - Descriptive statistics for item time (mean, median, 75th, 80th, 85th, 90th, and 95th percentile)
 - Filtering extreme responses using the NT10 method
 - Omit rates throughout the test
 - Comparing students at the 90-95th percentile for overall time spent on a unit to students in other percentile ranges (0-75th, 76th-87th, 88th-92nd, 93rd-99th percentile). Comparisons included demographic characteristics, scale score performance, omit rates and time spent on items.
 - Evaluate item time based on the number of score points
- Additional analyses led to additional questions from the TAC

Additional TAC Questions

- Additional questions from the Illinois TAC included:
 - To what extent is a students' time percentile group classification stable over units?
 - To what extent are the students that do not finish (e.g., omitting the last few items) the same across units?
 - What are the distributions of student performance relative to students' response time characteristics?
 - What does the distribution of student performance look like within each time percentile group (with respect to scaled score distribution and representation of each performance level)?
 - What are the demographic characteristics of students in the highest timing percentile group?

Identifying Students Who Are Potentially Impacted By Time Constraints: Previous Approach

How can the amount of time spent on a unit be used to indicate students who are potentially impacted by time constraints?

- Previously, evaluating the amount of time on a unit was based on a normative approach within each unit.
- Students were rank ordered based on total time on the unit.
- Analyses compared students based on the percentile groups:
 - 0-75th
 - 76th-87th
 - 88th-92nd
 - 93rd-100th (Highest Time Percentile Group)
- A limitation to this approach is the inability to take into account student response behaviors.

Identifying Students Who Are Potentially Impacted By Time Constraints: Updated Approach

What kinds of testing behaviors may identify students who are potentially impacted by time constraints?

- Students that use the majority of the allotted time for a unit
- Students omitting an item anywhere in the unit
- Students responding quickly (very short response times) to items at the end of a unit

Identifying Students who are Potentially Time-Impacted: Operational Definition

What item response metrics correspond to testing behaviors exhibited by potentially time-impacted students?

- Students that use the majority of the allotted time for a unit
 - Use all available time or all but one minute
- Students omitting an item anywhere in the unit
 - Omitting at least one item in a unit
- Students responding quickly (very short response times) to items at the end of a unit
 - Item response times that are less than 10% of the mean item time (NT10) in one or more of the last three items in a unit

Potentially Time-Impacted Indicator

Potentially Time-Impacted indicator identifies students who:

- Use all time available within a unit (or all but one minute);
AND
- Show evidence of not having had enough time by
 - Omitting one or more responses; or
 - Responding quickly to items towards end of unit (<10% of the mean item time)

Evaluating the Impact of Potential Time Constraints

Two definitions for students who may have been impacted by time constraints are implemented to respond to the additional TAC questions.

1. Highest Percentile Group identifies students who:

- are in the 93-100th percentile in terms of total time spent on the unit.

2. Potentially Time-Impacted indicator identifies students who:

- Use all time available within a unit (or all but one minute);
AND
- Show evidence of not having had enough time by
 - Omitting one or more responses; or
 - Responding quickly to items towards end of unit (<10% of the mean item time)

Topics for New Analyses

- Stability: To what extent are the following stable across units?
 - Time percentile group classification (0-75th, 76th-87th, 88th-92nd, 93rd-100th)
 - Potentially time-impacted status
 - Not finishing a unit (omit within last three items)
- Performance: What are the distributions of the following, by time-percentile group and potentially time-impacted status?
 - Performance levels
 - Scaled scores
- Demographics: What percent of students in the following categories are in each time percentile group or potentially time-impacted?
 - Race/ethnicity categories
 - Economic Disadvantage Status
 - Students with Disabilities
 - English Language Learners

Stability of Response Time Classifications Over Units

For Time Percentile Groups, Potentially
Time-Impacted Status, and Not Finishing

Consistency of Time Percentile Group Classifications: Paired Comparisons

- Comparing any two units for any grade: Between 65% and 68% of students are in the lowest time group (0–75th percentile) for both units
- Around 2–3% of students are in the highest time group (93–100th percentile) for both units
- Around 2–5% of students are in the highest time group for one unit and the lowest time group for the other

Time Percentile Group Paired Unit Comparisons: MAT03²

MAT03 (N=79,918)		Time percentile group in second unit			
		0–75	76–87	88–92	93–100
	Time percentile group in first unit				
Unit 1 v. Unit 2	0–75	66.1%	6.7%	1.8%	1.5%
	76–87	5.7%	2.8%	1.8%	1.7%
	88–92	1.9%	1.2%	0.7%	1.2%
	93–100	2.3%	1.4%	0.7%	2.5%
Unit 1 v. Unit 3	0–75	65.2%	7.0%	2.2%	1.6%
	76–87	6.0%	2.6%	1.4%	2.1%
	88–92	2.2%	1.0%	0.6%	1.2%
	93–100	2.7%	1.4%	0.8%	2.1%
Unit 2 v. Unit 3	0–75	67.4%	6.0%	1.4%	1.1%
	76–87	5.6%	3.5%	1.6%	1.3%
	88–92	1.4%	1.2%	1.0%	1.4%
	93–100	1.6%	1.3%	1.0%	3.1%

²Results for other grades provided in Supplemental Analyses.

Consistency of Time Percentile Group Classifications: Summaries

- Between 62% and 63% of students are in the same time percentile group for all three units
- Another 19–20% are in the same group for two units, and an adjacent group for the third unit (e.g., 0–75 for two units and 76–87 for third unit)
- Around 7–8% of students are in different percentile timing groups for all three units

Time Percentile Group Consistency

Mathematics Grades 3-8		Same timing group for all units	Two units the same, one in adjacent timing group	Two units the same, one in non-adjacent timing group	Different timing group for all three units
MAT03 (N=79,918)	Count	50,115	15,725	7,872	6,206
	Percent	62.7%	19.7%	9.9%	7.8%
MAT04 (N=82,450)	Count	52,669	16,142	7,521	6,118
	Percent	63.9%	19.6%	9.1%	7.4%
MAT05 (N=89,063)	Count	56,100	17,141	9,025	6,797
	Percent	63.0%	19.2%	10.1%	7.6%
MAT06 (N=94,452)	Count	59,884	18,446	9,080	7,042
	Percent	63.4%	19.5%	9.6%	7.5%
MAT07 (N=95,010)	Count	60,836	18,903	8,340	6,931
	Percent	64.0%	19.9%	8.8%	7.3%
MAT08 (N=96,241)	Count	60,851	18,490	9,199	7,701
	Percent	63.2%	19.2%	9.6%	8.0%

Consistency of Potentially Time-Impacted Students and Highest Time Percentile Group

- Potentially time-impacted:
 - The majority of students who are potentially time-impacted are only impacted on one unit
 - Less than 3% of students per grade are potentially time-impacted on more than one unit
 - Less than 0.6% of students per grade are potentially time-impacted on all three units
- Highest time percentile group (93-100th):
 - Includes the top 7% of students for time in each unit
 - Of which 14–15% are in this group for at least one unit, with the majority only in the group for one unit
 - Less than 2% of students per grade are in the highest time percentile group for all units

Consistency of Potentially Time-Impacted and Highest Time Percentile Group

Mathematics Grades 3-8		Potentially Time-Impacted			93–100 Percentile Group		
		Any 1 Unit	Any 2 Units	All 3 Units	Any 1 Unit	Any 2 Units	All 3 Units
MAT03 (N=79,918)	Count	4,851	981	289	7,564	2,907	1,078
	Percent	6.1%	1.2%	0.4%	9.5%	3.6%	1.3%
MAT04 (N=82,450)	Count	4,316	893	225	7,552	2,782	1,322
	Percent	5.2%	1.1%	0.3%	9.2%	3.4%	1.6%
MAT05 (N=89,063)	Count	6,468	1,852	525	8,235	3,053	1,353
	Percent	7.3%	2.1%	0.6%	9.2%	3.4%	1.5%
MAT06 (N=94,452)	Count	5,231	1,413	470	8,797	3,111	1,565
	Percent	5.5%	1.5%	0.5%	9.3%	3.3%	1.7%
MAT07 (N=95,010)	Count	3,571	846	249	8,547	3,291	1,583
	Percent	3.8%	0.9%	0.3%	9.0%	3.5%	1.7%
MAT08 (N=96,241)	Count	5,684	1,526	330	9,319	3,472	1,295
	Percent	5.9%	1.6%	0.3%	9.7%	3.6%	1.3%

Potentially Time-Impacted By Unit

- Grades 3–5:
 - Around 5–7% of students are potentially time-impacted on Unit 1
 - Generally around 1–2% impacted on other units
- Grades 6–8:
 - Generally around 1–4% of students potentially time-impacted per unit
 - No consistent pattern as to which unit has more potentially time-impacted students

Potentially Time-Impacted By Unit

Mathematics Grades 3-8		Unit 1	Unit 2	Unit 3
MAT03 (N=79,918)	<i>Count</i>	4,859	1,743	1,078
	Percent	6.1%	2.2%	1.3%
MAT04 (N=82,450)	<i>Count</i>	4,092	860	1,825
	Percent	5.0%	1.0%	2.2%
MAT05 (N=89,063)	<i>Count</i>	6,404	3,755	1,588
	Percent	7.2%	4.2%	1.8%
MAT06 (N=94,452)	<i>Count</i>	3,436	2,259	3,772
	Percent	3.6%	2.4%	4.0%
MAT07 (N=95,010)	<i>Count</i>	2,554	2,375	1,081
	Percent	2.7%	2.5%	1.1%
MAT08 (N=96,241)	<i>Count</i>	996	5,514	3,216
	Percent	1.0%	5.7%	3.3%

Not Finishing: Students With Omits Within Last Three Items

- The majority of students with omits within the last three items had them for only one unit
- Less than 5% of students per grade had omits within the last three items of more than one unit
- Except for MAT08, omits within the last three items were more common on Unit 1

Omits Anywhere in the Unit

Mathematics 3-8		Any 1 Unit	Any 2 Units	All 3 Units	Unit 1	Unit 2	Unit 3
MAT03 (N=79,918)	Count	7,119	1,937	773	6,554	3,903	2,855
	Percent	8.9%	2.4%	1.0%	8.2%	4.9%	3.6%
MAT04 (N=82,450)	Count	5,982	1,423	555	5,672	1,476	3,345
	Percent	7.3%	1.7%	0.7%	6.9%	1.8%	4.1%
MAT05 (N=89,063)	Count	7,786	2,567	1,145	8,065	5,351	2,939
	Percent	8.7%	2.9%	1.3%	9.1%	6.0%	3.3%
MAT06 (N=94,452)	Count	7,764	2,377	1,222	6,759	3,804	5,621
	Percent	8.2%	2.5%	1.3%	7.2%	4.0%	6.0%
MAT07 (N=95,010)	Count	6,127	1,808	860	4,938	4,453	2,932
	Percent	6.4%	1.9%	0.9%	5.2%	4.7%	3.1%
MAT08 (N=96,241)	Count	8,174	3,525	1,080	2,472	9,240	6,752
	Percent	8.5%	3.7%	1.1%	2.6%	9.6%	7.0%

Omits Within Last Three Items

Mathematics 3-8		Any 1 Unit	Any 2 Units	All 3 Units	Unit 1	Unit 2	Unit 3
MAT03 (N=79,918)	Count	6,070	1,374	350	5,066	2,991	1,811
	Percent	7.6%	1.7%	0.4%	6.3%	3.7%	2.3%
MAT04 (N=82,450)	Count	4,709	805	236	4,365	908	1,754
	Percent	5.7%	1.0%	0.3%	5.3%	1.1%	2.1%
MAT05 (N=89,063)	Count	6,375	1,770	339	5,322	4,673	937
	Percent	7.2%	2.0%	0.4%	6.0%	5.2%	1.1%
MAT06 (N=94,452)	Count	6,430	1,492	513	5,164	2,299	3,490
	Percent	6.8%	1.6%	0.5%	5.5%	2.4%	3.7%
MAT07 (N=95,010)	Count	5,420	1,214	281	4,101	3,586	1,004
	Percent	5.7%	1.3%	0.3%	4.3%	3.8%	1.1%
MAT08 (N=96,241)	Count	7,314	2,261	344	868	7,362	4,638
	Percent	7.6%	2.3%	0.4%	0.9%	7.6%	4.8%

Demographics of Students By Response Time Classifications

Rates of Potentially Time-Impacted and
Highest Time Percentile Group Within
Various Demographic Categories

Rates of Potentially Time-Impacted and Highest Time Percentile Group By Ethnicity

- Highest Time Percentile Group
 - Hispanic students have highest rates per unit (9–11% for grades 3–5, 10–13% for grades 6–8)
 - Grades 3–5: Asian/Pacific Islander students have lowest rates per unit (4–6%)
 - Grades 6–8: White students have lowest rates per unit (4–6%)
- Potentially Time Impacted students
 - Same relative patterns

Rates of Potentially Time-Impacted and Highest Time Group By Ethnicity

MAT03		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All students (N=79,918)	Count	5,514	5,546	5,552	4,859	1,743	1,078
	Percent	6.9%	6.9%	6.9%	6.1%	2.2%	1.3%
White (N=48,500)	Count	3,065	3,220	3,182	2,729	1,000	566
	Percent	6.3%	6.6%	6.6%	5.6%	2.1%	1.2%
Hispanic (N=11,997)	Count	1,297	1,182	1,184	1,012	372	244
	Percent	10.8%	9.9%	9.9%	8.4%	3.1%	2.0%
Black (N=10,480)	Count	666	620	722	703	218	185
	Percent	6.4%	5.9%	6.9%	6.7%	2.1%	1.8%
Asian/Pacific Islander (N=4,671)	Count	192	219	188	139	54	17
	Percent	4.1%	4.7%	4.0%	3.0%	1.2%	0.4%
Other race/Race not indicated (N=4,270)	Count	294	305	276	276	99	66
	Percent	6.9%	7.1%	6.5%	6.5%	2.3%	1.5%

Rates of Potentially Time-Impacted and Highest Time Group By Ethnicity

MAT04		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All students (N=82,450)	Count	5,666	5,704	5,712	4,092	860	1,825
	Percent	6.9%	6.9%	6.9%	5.0%	1.0%	2.2%
White (N=49,961)	Count	2,961	3,030	3,041	2,194	408	953
	Percent	5.9%	6.1%	6.1%	4.4%	0.8%	1.9%
Hispanic (N=12,782)	Count	1,366	1,323	1,381	919	215	441
	Percent	10.7%	10.4%	10.8%	7.2%	1.7%	3.5%
Black (N=10,500)	Count	837	878	825	635	179	294
	Percent	8.0%	8.4%	7.9%	6.0%	1.7%	2.8%
Asian/Pacific Islander (N=4,927)	Count	229	213	210	147	27	42
	Percent	4.6%	4.3%	4.3%	3.0%	0.5%	0.9%
Other race/Race not indicated (N=4,280)	Count	273	260	255	197	31	95
	Percent	6.4%	6.1%	6.0%	4.6%	0.7%	2.2%

Rates of Potentially Time-Impacted and Highest Time Group By Ethnicity

MAT05		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All students (N=89,063)	Count	6,118	6,126	6,156	6,404	3,755	1,588
	Percent	6.9%	6.9%	6.9%	7.2%	4.2%	1.8%
White (N=52,546)	Count	3,070	3,109	3,092	3,080	1,885	702
	Percent	5.8%	5.9%	5.9%	5.9%	3.6%	1.3%
Hispanic (N=15,571)	Count	1,734	1,725	1,695	1,701	1,033	504
	Percent	11.1%	11.1%	10.9%	10.9%	6.6%	3.2%
Black (N=11,114)	Count	760	711	784	965	498	268
	Percent	6.8%	6.4%	7.1%	8.7%	4.5%	2.4%
Asian/Pacific Islander (N=5,403)	Count	279	320	287	317	164	38
	Percent	5.2%	5.9%	5.3%	5.9%	3.0%	0.7%
Other race/Race not indicated (N=4,429)	Count	275	261	298	341	175	76
	Percent	6.2%	5.9%	6.7%	7.7%	4.0%	1.7%

Rates of Potentially Time-Impacted and Highest Time Group By Ethnicity

MAT06		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All students (N=94,452)	Count	6,573	6,567	6,574	3,436	2,259	3,772
	Percent	7.0%	7.0%	7.0%	3.6%	2.4%	4.0%
White (N=53,826)	Count	2,507	3,146	3,075	1,222	945	1,638
	Percent	4.7%	5.8%	5.7%	2.3%	1.8%	3.0%
Hispanic (N=19,183)	Count	2,466	1,899	1,948	1,292	732	1,176
	Percent	12.9%	9.9%	10.2%	6.7%	3.8%	6.1%
Black (N=11,521)	Count	1,065	892	845	647	387	604
	Percent	9.2%	7.7%	7.3%	5.6%	3.4%	5.2%
Asian/Pacific Islander (N=5,530)	Count	281	366	447	119	93	179
	Percent	5.1%	6.6%	8.1%	2.2%	1.7%	3.2%
Other race/Race not indicated (N=4,392)	Count	254	264	259	156	102	175
	Percent	5.8%	6.0%	5.9%	3.6%	2.3%	4.0%

Rates of Potentially Time-Impacted and Highest Time Group By Ethnicity

MAT07		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All students (N=95,010)	Count	6,621	6,635	6,622	2,554	2,375	1,081
	Percent	7.0%	7.0%	7.0%	2.7%	2.5%	1.1%
White (N=54,406)	Count	2,364	2,752	2,757	744	869	302
	Percent	4.3%	5.1%	5.1%	1.4%	1.6%	0.6%
Hispanic (N=19,863)	Count	2,579	2,105	2,067	1,091	809	426
	Percent	13.0%	10.6%	10.4%	5.5%	4.1%	2.1%
Black (N=11,040)	Count	1,112	1,029	1,027	526	486	258
	Percent	10.1%	9.3%	9.3%	4.8%	4.4%	2.3%
Asian/Pacific Islander (N=5,592)	Count	317	509	501	91	111	54
	Percent	5.7%	9.1%	9.0%	1.6%	2.0%	1.0%
Other race/Race not indicated (N=4,109)	Count	249	240	270	102	100	41
	Percent	6.1%	5.8%	6.6%	2.5%	2.4%	1.0%

Rates of Potentially Time-Impacted and Highest Time Group By Ethnicity

MAT08		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All students (N=96,241)	Count	6,719	6,719	6,710	996	5,514	3,216
	Percent	7.0%	7.0%	7.0%	1.0%	5.7%	3.3%
White (N=55,375)	Count	2,506	2,864	2,868	196	2,019	1,046
	Percent	4.5%	5.2%	5.2%	0.4%	3.6%	1.9%
Hispanic (N=20,285)	Count	2,407	2,066	2,101	449	1,995	1,285
	Percent	11.9%	10.2%	10.4%	2.2%	9.8%	6.3%
Black (N=10,764)	Count	1,244	989	940	283	934	613
	Percent	11.6%	9.2%	8.7%	2.6%	8.7%	5.7%
Asian/Pacific Islander (N=5,825)	Count	365	567	570	32	370	158
	Percent	6.3%	9.7%	9.8%	0.5%	6.4%	2.7%
Other race/Race not indicated (N=3,992)	Count	197	233	231	36	196	114
	Percent	4.9%	5.8%	5.8%	0.9%	4.9%	2.9%

Rates of Potentially Time-Impacted and Highest Time Percentile Group By Other Demographic Categories

- Highest Time Percentile Group
 - English Learners generally have higher rates per unit (9–13%)
 - Economically Disadvantaged students have slightly elevated rates per unit (7–10%)
 - Students with Disabilities have rates similar to overall
- Potentially Time Impacted students
 - English Learners have similar rates to overall
 - Economically Disadvantaged have slightly higher rates than overall
 - Students with Disabilities have slightly lower rates

Rates of Potentially Time-Impacted and Highest Time Group By Demographics

MAT03		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All demographics (N=79,918)	Count	5,514	5,546	5,552	4,859	1,743	1,078
	Percent	6.9%	6.9%	6.9%	6.1%	2.2%	1.3%
Economic Disadvantage (N=31,456)	Count	2,494	2,338	2,540	2,213	815	546
	Percent	7.9%	7.4%	8.1%	7.0%	2.6%	1.7%
Students with Disabilities (N=4,787)	Count	361	307	318	265	87	52
	Percent	7.5%	6.4%	6.6%	5.5%	1.8%	1.1%
English Learners (N=4,114)	Count	510	365	392	227	76	65
	Percent	12.4%	8.9%	9.5%	5.5%	1.8%	1.6%

Rates of Potentially Time-Impacted and Highest Time Group By Demographics

MAT04		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All demographics (N=82,450)	Count	5,666	5,704	5,712	4,092	860	1,825
	Percent	6.9%	6.9%	6.9%	5.0%	1.0%	2.2%
Economic Disadvantage (N=32,643)	Count	2,678	2,714	2,696	1,883	462	885
	Percent	8.2%	8.3%	8.3%	5.8%	1.4%	2.7%
Students with Disabilities (N=4,180)	Count	282	285	278	172	34	89
	Percent	6.7%	6.8%	6.7%	4.1%	0.8%	2.1%
English Learners (N=3,890)	Count	467	360	413	208	34	77
	Percent	12.0%	9.3%	10.6%	5.3%	0.9%	2.0%

Rates of Potentially Time-Impacted and Highest Time Group By Demographics

MAT05		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All demographics (N=89,063)	Count	6,118	6,126	6,156	6,404	3,755	1,588
	Percent	6.9%	6.9%	6.9%	7.2%	4.2%	1.8%
Economic Disadvantage (N=36,290)	Count	2,799	2,736	2,969	2,968	1,681	839
	Percent	7.7%	7.5%	8.2%	8.2%	4.6%	2.3%
Students with Disabilities (N=3,889)	Count	302	279	268	194	114	57
	Percent	7.8%	7.2%	6.9%	5.0%	2.9%	1.5%
English Learners (N=2,957)	Count	372	345	328	223	106	76
	Percent	12.6%	11.7%	11.1%	7.5%	3.6%	2.6%

Rates of Potentially Time-Impacted and Highest Time Group By Demographics

MAT06		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All demographics (N=94,452)	Count	6,573	6,567	6,574	3,436	2,259	3,772
	Percent	7.0%	7.0%	7.0%	3.6%	2.4%	4.0%
Economic Disadvantage (N=39,506)	Count	3,653	3,135	3,015	1,955	1,183	1,887
	Percent	9.2%	7.9%	7.6%	4.9%	3.0%	4.8%
Students with Disabilities (N=3,536)	Count	242	237	251	78	49	97
	Percent	6.8%	6.7%	7.1%	2.2%	1.4%	2.7%
English Learners (N=2,003)	Count	220	118	140	74	32	71
	Percent	11.0%	5.9%	7.0%	3.7%	1.6%	3.5%

Rates of Potentially Time-Impacted and Highest Time Group By Demographics

MAT07		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All demographics (N=95,010)	Count	6,621	6,635	6,622	2,554	2,375	1,081
	Percent	7.0%	7.0%	7.0%	2.7%	2.5%	1.1%
Economic Disadvantage (N=38,653)	Count	3,719	3,208	3,247	1,569	1,300	679
	Percent	9.6%	8.3%	8.4%	4.1%	3.4%	1.8%
Students with Disabilities (N=3,249)	Count	235	224	209	37	58	24
	Percent	7.2%	6.9%	6.4%	1.1%	1.8%	0.7%
English Learners (N=1,474)	Count	171	128	119	67	37	23
	Percent	11.6%	8.7%	8.1%	4.5%	2.5%	1.6%

Rates of Potentially Time-Impacted and Highest Time Group By Demographics

MAT08		In the Highest Time Percentile Group			Potentially Time Impacted		
		Unit			Unit		
		1	2	3	1	2	3
All demographics (N=96,241)	Count	6,719	6,719	6,710	996	5,514	3,216
	Percent	7.0%	7.0%	7.0%	1.0%	5.7%	3.3%
Economic Disadvantage (N=38,269)	Count	3,705	3,165	3,186	665	2,927	1,877
	Percent	9.7%	8.3%	8.3%	1.7%	7.6%	4.9%
Students with Disabilities (N=3,310)	Count	221	227	192	24	80	46
	Percent	6.7%	6.9%	5.8%	0.7%	2.4%	1.4%
English Learners (N=1,374)	Count	166	126	130	19	77	49
	Percent	12.1%	9.2%	9.5%	1.4%	5.6%	3.6%

Distributions of Performance By Response Time Classifications

Scale Score and Performance Level
Distributions by Time Percentile Group and
Impactedness Status

Distribution of Performance Levels

- For grades 3–5, it was generally true that students in the three higher time percentile groups were less likely to be in the lowest performance level (Level 1), while students in the highest time percentile group (93–100) were also less likely to be at the highest performance level (Level 5)
- For grades 6–8, students in the highest time percentile group in the first unit were generally less likely to be in the highest performance level, while those in the highest time percentile group for the other two units were generally more likely to be in the highest performance level
- Potentially Time Impacted students were generally less likely to be in higher performance levels (Levels 4 & 5)

Performance Levels: By Time Group

MAT03			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	7,252	13,107	20,043	31,538	7,978	79,918
		Percent	9.1%	16.4%	25.1%	39.5%	10.0%	100.0%
Unit 1	0–75	Count	5,976	9,775	14,384	23,984	6,678	60,797
		Percent	9.8%	16.1%	23.7%	39.4%	11.0%	100.0%
	76–87	Count	662	1,615	2,767	3,844	735	9,623
		Percent	6.9%	16.8%	28.8%	39.9%	7.6%	100.0%
	88–92	Count	253	720	1,191	1,567	253	3,984
		Percent	6.4%	18.1%	29.9%	39.3%	6.4%	100.0%
	93–100	Count	361	997	1,701	2,143	312	5,514
		Percent	6.5%	18.1%	30.8%	38.9%	5.7%	100.0%
	0–75	Count	6,084	10,085	14,985	23,597	6,028	60,779
		Percent	10.0%	16.6%	24.7%	38.8%	9.9%	100.0%
Unit 2	76–87	Count	574	1,449	2,498	4,010	1,061	9,592
		Percent	6.0%	15.1%	26.0%	41.8%	11.1%	100.0%
	88–92	Count	254	624	1,000	1,713	410	4,001
		Percent	6.3%	15.6%	25.0%	42.8%	10.2%	100.0%
	93–100	Count	340	949	1,560	2,218	479	5,546
		Percent	6.1%	17.1%	28.1%	40.0%	8.6%	100.0%

Performance Levels: By Time Group

MAT03			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	7,252	13,107	20,043	31,538	7,978	79,918
		Percent	9.1%	16.4%	25.1%	39.5%	10.0%	100.0%
Unit 3	0–75	Count	5,843	9,845	14,954	23,925	6,212	60,779
		Percent	9.6%	16.2%	24.6%	39.4%	10.2%	100.0%
	76–87	Count	676	1,529	2,503	3,945	945	9,598
		Percent	7.0%	15.9%	26.1%	41.1%	9.8%	100.0%
	88–92	Count	287	662	1,077	1,574	389	3,989
		Percent	7.2%	16.6%	27.0%	39.5%	9.8%	100.0%
	93–100	Count	446	1,071	1,509	2,094	432	5,552
		Percent	8.0%	19.3%	27.2%	37.7%	7.8%	100.0%

Performance Levels: By Time Group

MAT04			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	7,711	14,434	25,045	31,702	3,558	82,450
		Percent	9.4%	17.5%	30.4%	38.4%	4.3%	100.0%
Unit 1	0–75	Count	6,138	11,075	18,692	24,039	2,794	62,738
		Percent	9.8%	17.7%	29.8%	38.3%	4.5%	100.0%
	76–87	Count	717	1,635	3,143	3,997	411	9,903
		Percent	7.2%	16.5%	31.7%	40.4%	4.2%	100.0%
	88–92	Count	318	688	1,332	1,634	171	4,143
		Percent	7.7%	16.6%	32.2%	39.4%	4.1%	100.0%
	93–100	Count	538	1,036	1,878	2,032	182	5,666
		Percent	9.5%	18.3%	33.1%	35.9%	3.2%	100.0%
	0–75	Count	6,190	11,070	18,707	24,062	2,702	62,731
		Percent	9.9%	17.6%	29.8%	38.4%	4.3%	100.0%
Unit 2	76–87	Count	708	1,650	3,143	3,948	453	9,902
		Percent	7.2%	16.7%	31.7%	39.9%	4.6%	100.0%
	88–92	Count	287	670	1,330	1,640	186	4,113
		Percent	7.0%	16.3%	32.3%	39.9%	4.5%	100.0%
	93–100	Count	526	1,044	1,865	2,052	217	5,704
		Percent	9.2%	18.3%	32.7%	36.0%	3.8%	100.0%

Performance Levels: By Time Group

MAT04			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	7,711	14,434	25,045	31,702	3,558	82,450
		Percent	9.4%	17.5%	30.4%	38.4%	4.3%	100.0%
Unit 3	0–75	Count	6,314	11,138	18,424	24,082	2,763	62,721
		Percent	10.1%	17.8%	29.4%	38.4%	4.4%	100.0%
	76–87	Count	670	1,604	3,200	4,014	399	9,887
		Percent	6.8%	16.2%	32.4%	40.6%	4.0%	100.0%
	88–92	Count	274	663	1,408	1,580	205	4,130
		Percent	6.6%	16.1%	34.1%	38.3%	5.0%	100.0%
	93–100	Count	453	1,029	2,013	2,026	191	5,712
		Percent	7.9%	18.0%	35.2%	35.5%	3.3%	100.0%

Performance Levels: By Time Group

MAT05			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	7,131	21,781	25,996	28,278	5,877	89,063
		Percent	8.0%	24.5%	29.2%	31.8%	6.6%	100.0%
Unit 1	0–75	Count	6,056	17,663	19,458	20,292	4,337	67,806
		Percent	8.9%	26.0%	28.7%	29.9%	6.4%	100.0%
	76–87	Count	495	2,031	3,223	4,109	818	10,676
		Percent	4.6%	19.0%	30.2%	38.5%	7.7%	100.0%
	88–92	Count	200	824	1,383	1,718	338	4,463
		Percent	4.5%	18.5%	31.0%	38.5%	7.6%	100.0%
	93–100	Count	380	1,263	1,932	2,159	384	6,118
		Percent	6.2%	20.6%	31.6%	35.3%	6.3%	100.0%
	0–75	Count	6,177	17,871	19,415	20,013	4,299	67,775
		Percent	9.1%	26.4%	28.6%	29.5%	6.3%	100.0%
Unit 2	76–87	Count	476	1,952	3,211	4,199	867	10,705
		Percent	4.4%	18.2%	30.0%	39.2%	8.1%	100.0%
	88–92	Count	189	775	1,421	1,755	317	4,457
		Percent	4.2%	17.4%	31.9%	39.4%	7.1%	100.0%
	93–100	Count	289	1,183	1,949	2,311	394	6,126
		Percent	4.7%	19.3%	31.8%	37.7%	6.4%	100.0%

Performance Levels: By Time Group

MAT05			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	7,131	21,781	25,996	28,278	5,877	89,063
		Percent	8.0%	24.5%	29.2%	31.8%	6.6%	100.0%
Unit 3	0–75	Count	5,735	16,972	19,477	21,040	4,549	67,773
		Percent	8.5%	25.0%	28.7%	31.0%	6.7%	100.0%
	76–87	Count	635	2,366	3,213	3,764	712	10,690
		Percent	5.9%	22.1%	30.1%	35.2%	6.7%	100.0%
	88–92	Count	290	1,001	1,360	1,514	279	4,444
		Percent	6.5%	22.5%	30.6%	34.1%	6.3%	100.0%
	93–100	Count	471	1,442	1,946	1,960	337	6,156
		Percent	7.7%	23.4%	31.6%	31.8%	5.5%	100.0%

Performance Levels: By Time Group

MAT06			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	9,166	25,911	29,715	25,640	4,020	94,452
		Percent	9.7%	27.4%	31.5%	27.1%	4.3%	100.0%
Unit 1	0–75	Count	7,284	20,004	22,205	19,198	3,125	71,816
		Percent	10.1%	27.9%	30.9%	26.7%	4.4%	100.0%
	76–87	Count	784	2,688	3,740	3,547	583	11,342
		Percent	6.9%	23.7%	33.0%	31.3%	5.1%	100.0%
	88–92	Count	416	1,288	1,537	1,319	161	4,721
		Percent	8.8%	27.3%	32.6%	27.9%	3.4%	100.0%
	93–100	Count	682	1,931	2,233	1,576	151	6,573
		Percent	10.4%	29.4%	34.0%	24.0%	2.3%	100.0%
	0–75	Count	7,938	21,332	22,187	17,538	2,840	71,835
		Percent	11.1%	29.7%	30.9%	24.4%	4.0%	100.0%
Unit 2	76–87	Count	555	2,257	3,794	4,074	638	11,318
		Percent	4.9%	19.9%	33.5%	36.0%	5.6%	100.0%
	88–92	Count	251	928	1,529	1,731	293	4,732
		Percent	5.3%	19.6%	32.3%	36.6%	6.2%	100.0%
	93–100	Count	422	1,394	2,205	2,297	249	6,567
		Percent	6.4%	21.2%	33.6%	35.0%	3.8%	100.0%

Performance Levels: By Time Group

MAT06		Performance Level					All Levels	
		1	2	3	4	5		
All students		Count	9,166	25,911	29,715	25,640	4,020	94,452
		Percent	9.7%	27.4%	31.5%	27.1%	4.3%	100.0%
Unit 3	0–75	Count	7,958	21,381	22,388	17,372	2,717	71,816
		Percent	11.1%	29.8%	31.2%	24.2%	3.8%	100.0%
	76–87	Count	558	2,222	3,678	4,158	722	11,338
		Percent	4.9%	19.6%	32.4%	36.7%	6.4%	100.0%
	88–92	Count	264	908	1,553	1,717	282	4,724
		Percent	5.6%	19.2%	32.9%	36.3%	6.0%	100.0%
	93–100	Count	386	1,400	2,096	2,393	299	6,574
		Percent	5.9%	21.3%	31.9%	36.4%	4.5%	100.0%

Performance Levels: By Time Group

MAT07			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	5,368	22,019	32,989	29,098	5,536	95,010
		Percent	5.6%	23.2%	34.7%	30.6%	5.8%	100.0%
Unit 1	0–75	Count	4,383	17,107	24,147	21,959	4,621	72,217
		Percent	6.1%	23.7%	33.4%	30.4%	6.4%	100.0%
	76–87	Count	422	2,157	4,356	3,904	573	11,412
		Percent	3.7%	18.9%	38.2%	34.2%	5.0%	100.0%
	88–92	Count	197	1,056	1,875	1,451	181	4,760
		Percent	4.1%	22.2%	39.4%	30.5%	3.8%	100.0%
	93–100	Count	366	1,699	2,611	1,784	161	6,621
		Percent	5.5%	25.7%	39.4%	26.9%	2.4%	100.0%
	0–75	Count	4,642	18,170	25,539	20,508	3,363	72,222
		Percent	6.4%	25.2%	35.4%	28.4%	4.7%	100.0%
Unit 2	76–87	Count	298	1,825	3,694	4,450	1,124	11,391
		Percent	2.6%	16.0%	32.4%	39.1%	9.9%	100.0%
	88–92	Count	150	756	1,527	1,821	508	4,762
		Percent	3.1%	15.9%	32.1%	38.2%	10.7%	100.0%
	93–100	Count	278	1,268	2,229	2,319	541	6,635
		Percent	4.2%	19.1%	33.6%	35.0%	8.2%	100.0%

Performance Levels: By Time Group

MAT07			Performance Level					All Levels
			1	2	3	4	5	
All students		Count	5,368	22,019	32,989	29,098	5,536	95,010
		Percent	5.6%	23.2%	34.7%	30.6%	5.8%	100.0%
Unit 3	0–75	Count	4,505	17,863	25,769	20,680	3,430	72,247
		Percent	6.2%	24.7%	35.7%	28.6%	4.7%	100.0%
	76–87	Count	411	2,035	3,657	4,301	986	11,390
		Percent	3.6%	17.9%	32.1%	37.8%	8.7%	100.0%
	88–92	Count	157	830	1,493	1,777	494	4,751
		Percent	3.3%	17.5%	31.4%	37.4%	10.4%	100.0%
	93–100	Count	295	1,291	2,070	2,340	626	6,622
		Percent	4.5%	19.5%	31.3%	35.3%	9.5%	100.0%

Performance Levels: By Time Group

MAT08		Performance Level					All Levels	
		1	2	3	4	5		
All students		Count	17,154	20,272	21,115	32,500	5,200	96,241
		Percent	17.8%	21.1%	21.9%	33.8%	5.4%	100.0%
Unit 1	0–75	Count	13,201	15,267	15,771	24,619	4,299	73,157
		Percent	18.0%	20.9%	21.6%	33.7%	5.9%	100.0%
	76–87	Count	1,809	2,468	2,678	4,132	468	11,555
		Percent	15.7%	21.4%	23.2%	35.8%	4.1%	100.0%
	88–92	Count	765	1,029	1,145	1,663	208	4,810
		Percent	15.9%	21.4%	23.8%	34.6%	4.3%	100.0%
	93–100	Count	1,379	1,508	1,521	2,086	225	6,719
		Percent	20.5%	22.4%	22.6%	31.0%	3.3%	100.0%
Unit 2	0–75	Count	14,914	16,697	16,418	21,938	3,196	73,163
		Percent	20.4%	22.8%	22.4%	30.0%	4.4%	100.0%
	76–87	Count	1,093	1,774	2,318	5,333	1,042	11,560
		Percent	9.5%	15.3%	20.1%	46.1%	9.0%	100.0%
	88–92	Count	427	711	975	2,272	414	4,799
		Percent	8.9%	14.8%	20.3%	47.3%	8.6%	100.0%
	93–100	Count	720	1,090	1,404	2,957	548	6,719
		Percent	10.7%	16.2%	20.9%	44.0%	8.2%	100.0%

Performance Levels: By Time Group

MAT08		Performance Level					All Levels	
		1	2	3	4	5		
All students		Count	17,154	20,272	21,115	32,500	5,200	96,241
		Percent	17.8%	21.1%	21.9%	33.8%	5.4%	100.0%
Unit 3	0–75	Count	15,010	16,876	16,489	21,526	3,259	73,160
		Percent	20.5%	23.1%	22.5%	29.4%	4.5%	100.0%
	76–87	Count	1,086	1,720	2,324	5,414	1,021	11,565
		Percent	9.4%	14.9%	20.1%	46.8%	8.8%	100.0%
	88–92	Count	391	686	950	2,391	388	4,806
		Percent	8.1%	14.3%	19.8%	49.8%	8.1%	100.0%
	93–100	Count	667	990	1,352	3,169	532	6,710
		Percent	9.9%	14.8%	20.1%	47.2%	7.9%	100.0%

Performance Levels: By Impactedness

MAT03		Performance Level					All Levels
		1	2	3	4	5	
All students	Count	7,252	13,107	20,043	31,538	7,978	79,918
	Percent	9.1%	16.4%	25.1%	39.5%	10.0%	100.0%
Potentially time-impacted on Unit 1	Count	524	1,223	1,698	1,359	55	4,859
	Percent	10.8%	25.2%	34.9%	28.0%	1.1%	100.0%
Potentially time-impacted on Unit 2	Count	214	473	583	445	28	1,743
	Percent	12.3%	27.1%	33.4%	25.5%	1.6%	100.0%
Potentially time-impacted on Unit 3	Count	173	341	320	235	9	1,078
	Percent	16.0%	31.6%	29.7%	21.8%	0.8%	100.0%

MAT04		Performance Level					All Levels
		1	2	3	4	5	
All students	Count	7,711	14,434	25,045	31,702	3,558	82,450
	Percent	9.4%	17.5%	30.4%	38.4%	4.3%	100.0%
Potentially time-impacted on Unit 1	Count	476	948	1,532	1,119	17	4,092
	Percent	11.6%	23.2%	37.4%	27.3%	0.4%	100.0%
Potentially time-impacted on Unit 2	Count	165	256	316	120	3	860
	Percent	19.2%	29.8%	36.7%	14.0%	0.3%	100.0%
Potentially time-impacted on Unit 3	Count	226	468	775	352	4	1,825
	Percent	12.4%	25.6%	42.5%	19.3%	0.2%	100.0%

Performance Levels: By Impactedness

MAT05		Performance Level					All Levels
		1	2	3	4	5	
All students	Count	7,131	21,781	25,996	28,278	5,877	89,063
	Percent	8.0%	24.5%	29.2%	31.8%	6.6%	100.0%
Potentially time-impacted on Unit 1	Count	535	1,686	2,285	1,792	106	6,404
	Percent	8.4%	26.3%	35.7%	28.0%	1.7%	100.0%
Potentially time-impacted on Unit 2	Count	273	941	1,439	1,075	27	3,755
	Percent	7.3%	25.1%	38.3%	28.6%	0.7%	100.0%
Potentially time-impacted on Unit 3	Count	240	539	553	250	6	1,588
	Percent	15.1%	33.9%	34.8%	15.7%	0.4%	100.0%

MAT06		Performance Level					All Levels
		1	2	3	4	5	
All students	Count	9,166	25,911	29,715	25,640	4,020	94,452
	Percent	9.7%	27.4%	31.5%	27.1%	4.3%	100.0%
Potentially time-impacted on Unit 1	Count	556	1,195	1,123	547	15	3,436
	Percent	16.2%	34.8%	32.7%	15.9%	0.4%	100.0%
Potentially time-impacted on Unit 2	Count	245	651	802	550	11	2,259
	Percent	10.8%	28.8%	35.5%	24.3%	0.5%	100.0%
Potentially time-impacted on Unit 3	Count	372	1,043	1,308	1,001	48	3,772
	Percent	9.9%	27.7%	34.7%	26.5%	1.3%	100.0%

Performance Levels: By Impactedness

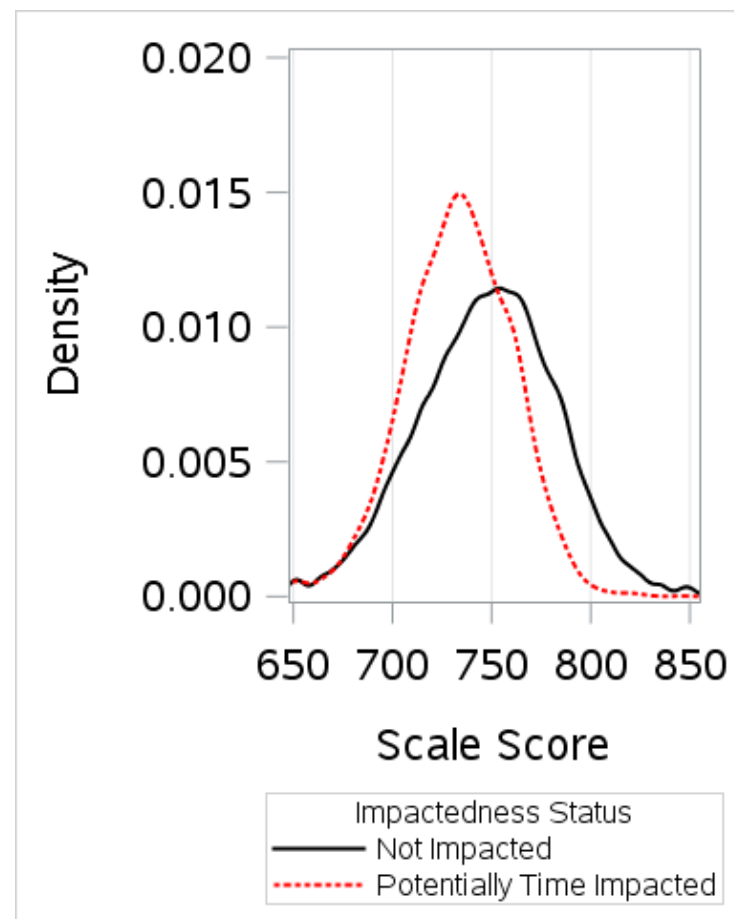
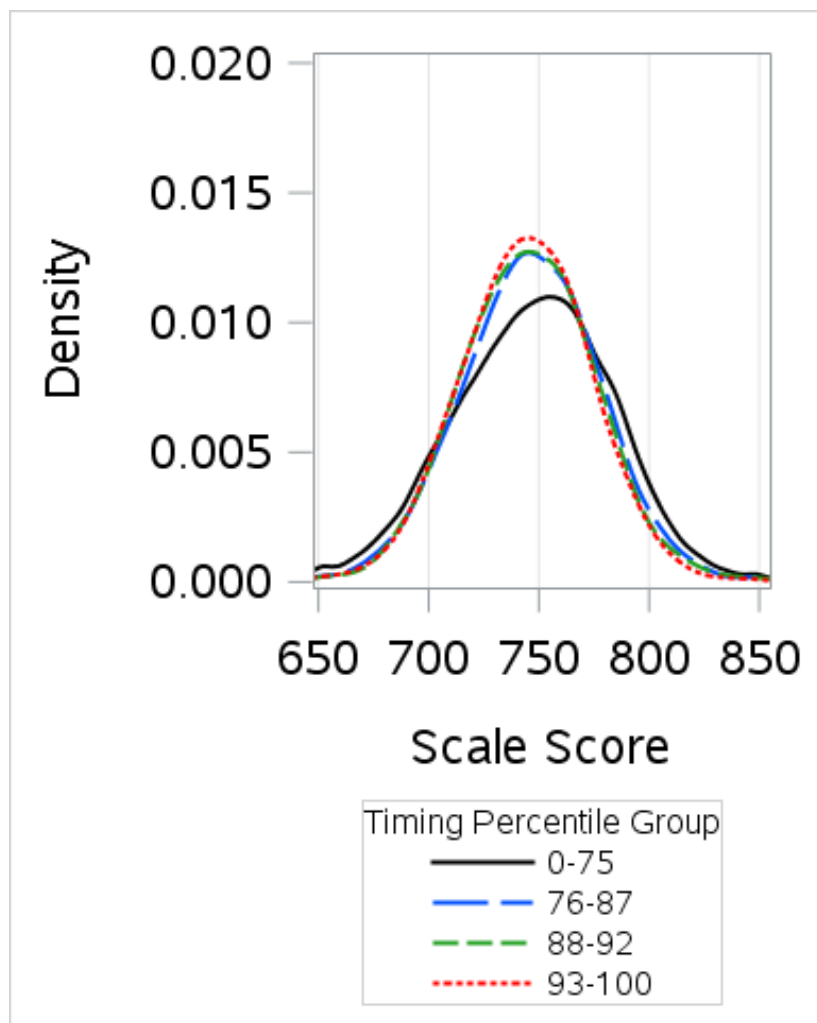
MAT07		Performance Level					All Levels
		1	2	3	4	5	
All students	Count	5,368	22,019	32,989	29,098	5,536	95,010
	Percent	5.6%	23.2%	34.7%	30.6%	5.8%	100.0%
Potentially time-impacted on Unit 1	Count	220	841	1,080	405	8	2,554
	Percent	8.6%	32.9%	42.3%	15.9%	0.3%	100.0%
Potentially time-impacted on Unit 2	Count	156	586	905	674	54	2,375
	Percent	6.6%	24.7%	38.1%	28.4%	2.3%	100.0%
Potentially time-impacted on Unit 3	Count	108	330	392	236	15	1,081
	Percent	10.0%	30.5%	36.3%	21.8%	1.4%	100.0%

MAT08		Performance Level					All Levels
		1	2	3	4	5	
All students	Count	17,154	20,272	21,115	32,500	5,200	96,241
	Percent	17.8%	21.1%	21.9%	33.8%	5.4%	100.0%
Potentially time-impacted on Unit 1	Count	413	268	193	119	3	996
	Percent	41.5%	26.9%	19.4%	11.9%	0.3%	100.0%
Potentially time-impacted on Unit 2	Count	746	1,058	1,323	2,235	152	5,514
	Percent	13.5%	19.2%	24.0%	40.5%	2.8%	100.0%
Potentially time-impacted on Unit 3	Count	550	695	780	1,163	28	3,216
	Percent	17.1%	21.6%	24.3%	36.2%	0.9%	100.0%

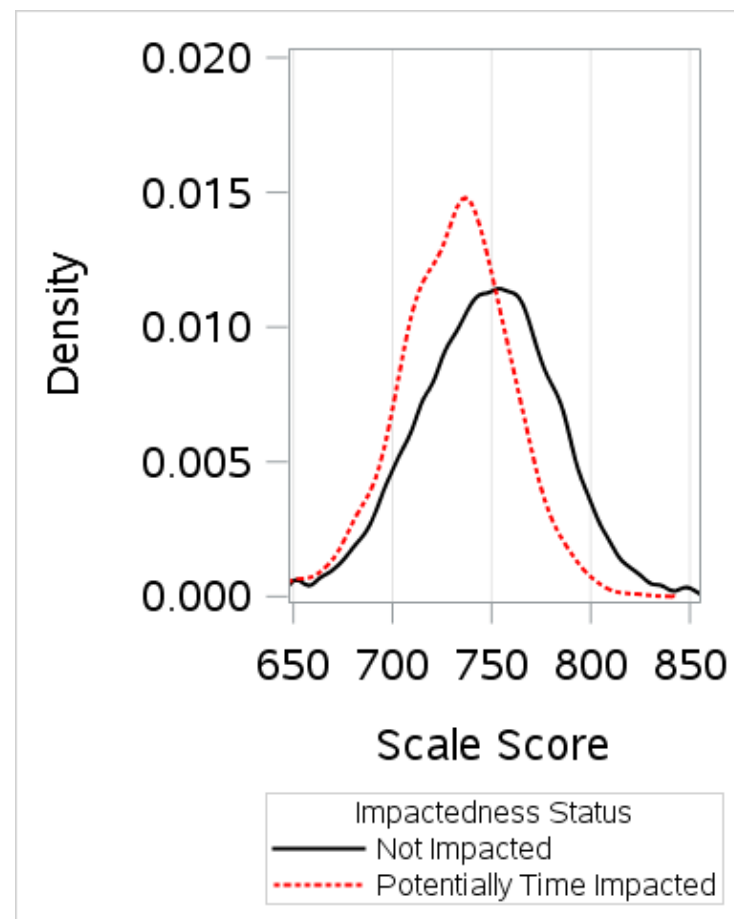
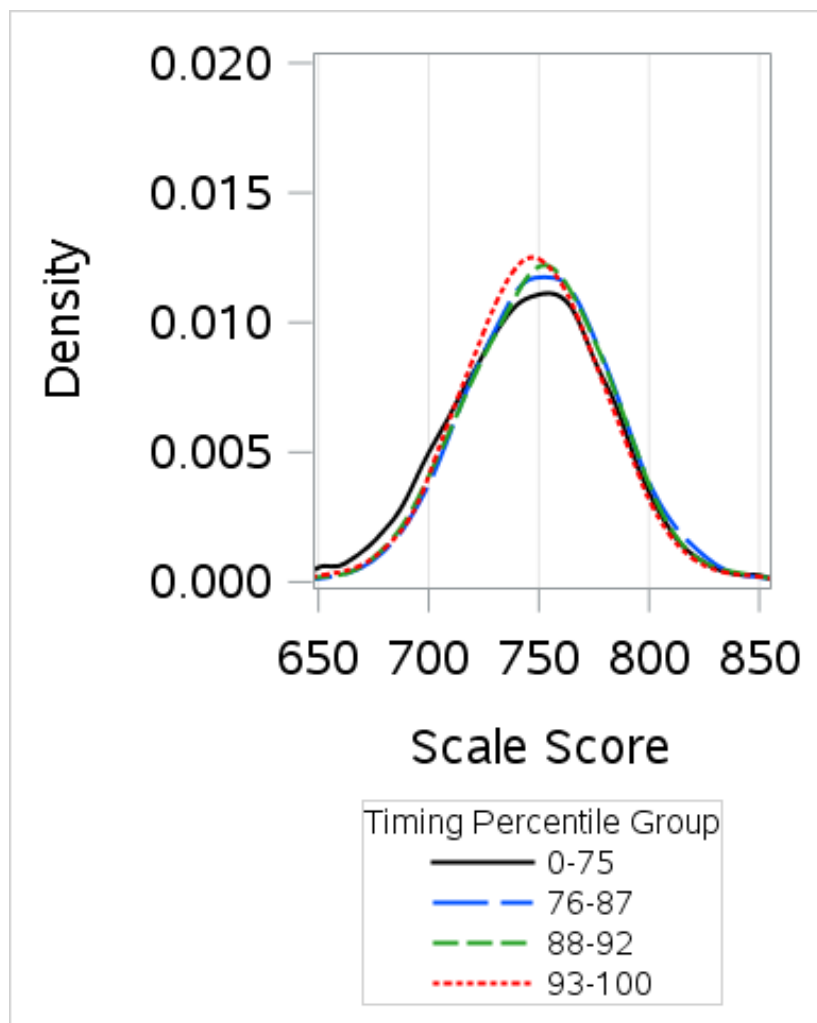
Scale Score Distributions

- Similar patterns to the performance level distributions
- For Grades 3–5, scale scores for the higher time percentile groups were slightly more concentrated in the middle of the distribution
- For Grades 6–8, scale scores for the higher time percentile groups were somewhat higher than the reference group in Units 2 & 3
- For potentially time-impacted students, scores in Grades 3 & 4 were somewhat lower than for the reference group and concentrated in a narrower part of the distribution
- For higher grades, scores for potentially time-impacted students were slightly lower and narrower, but less consistently so

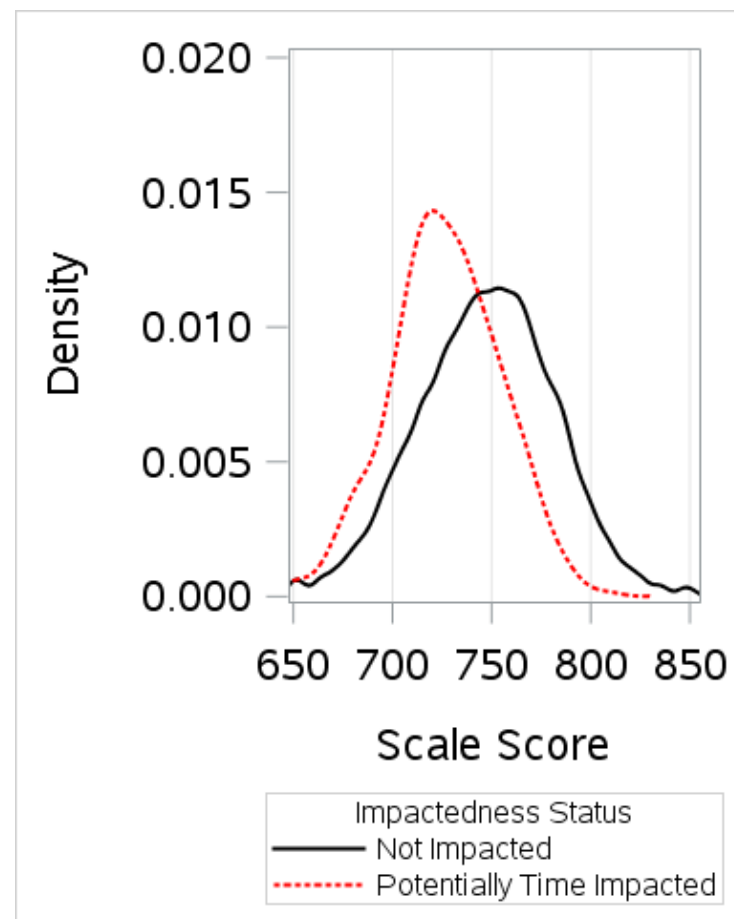
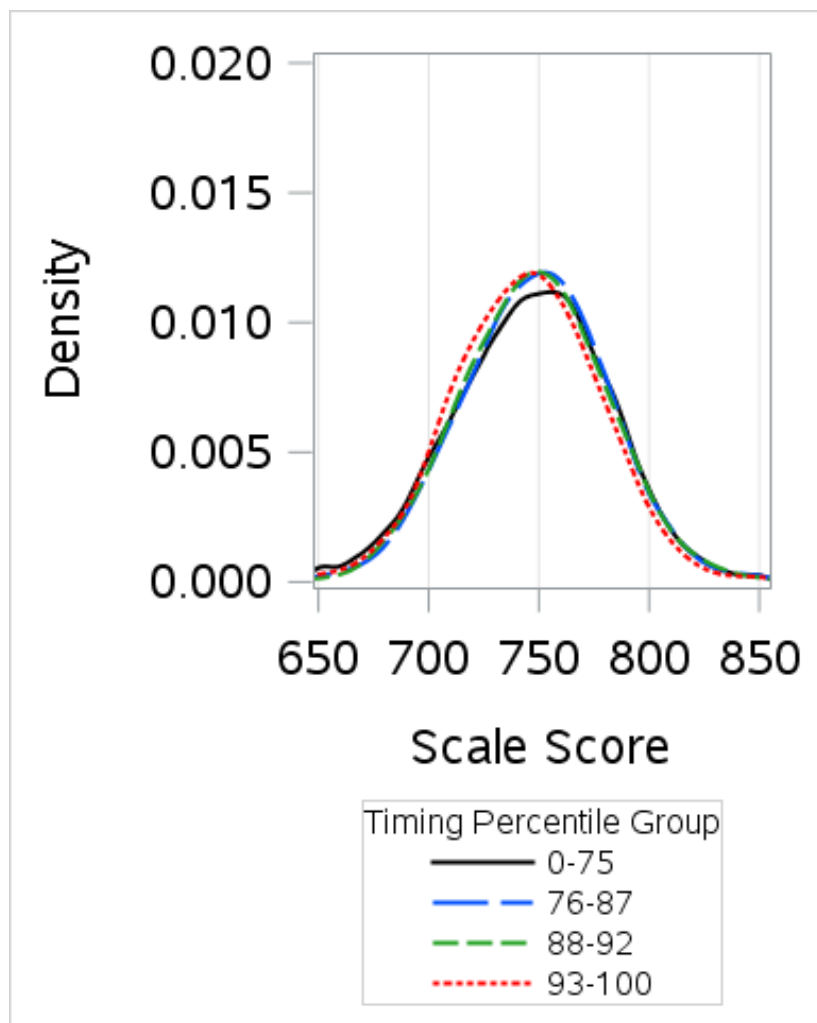
Score Distributions By Time Percentile Group and Impactedness : MAT03 Unit 1



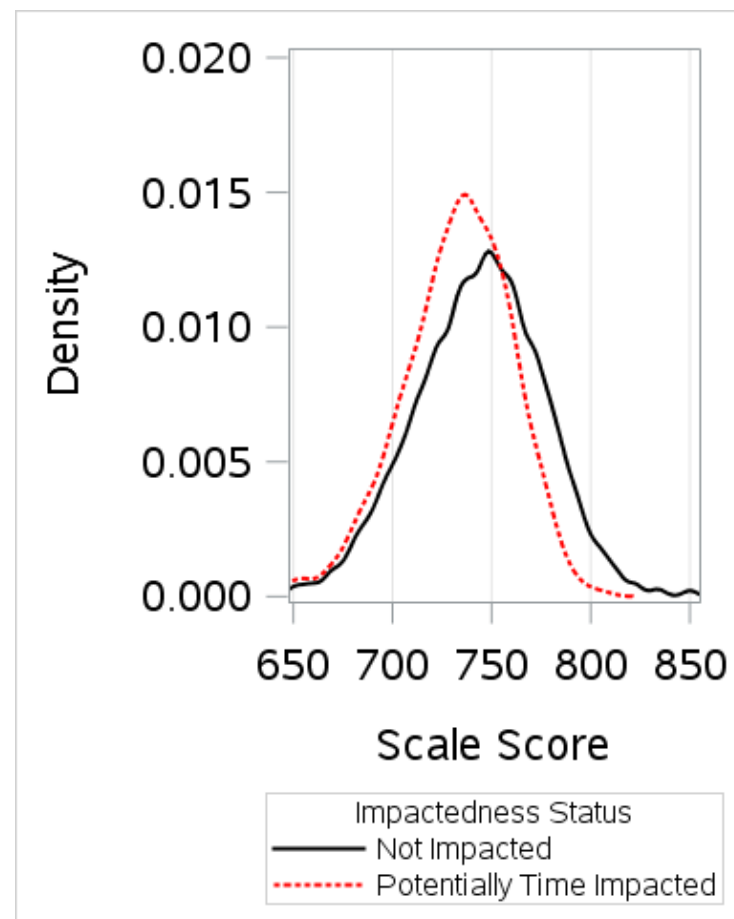
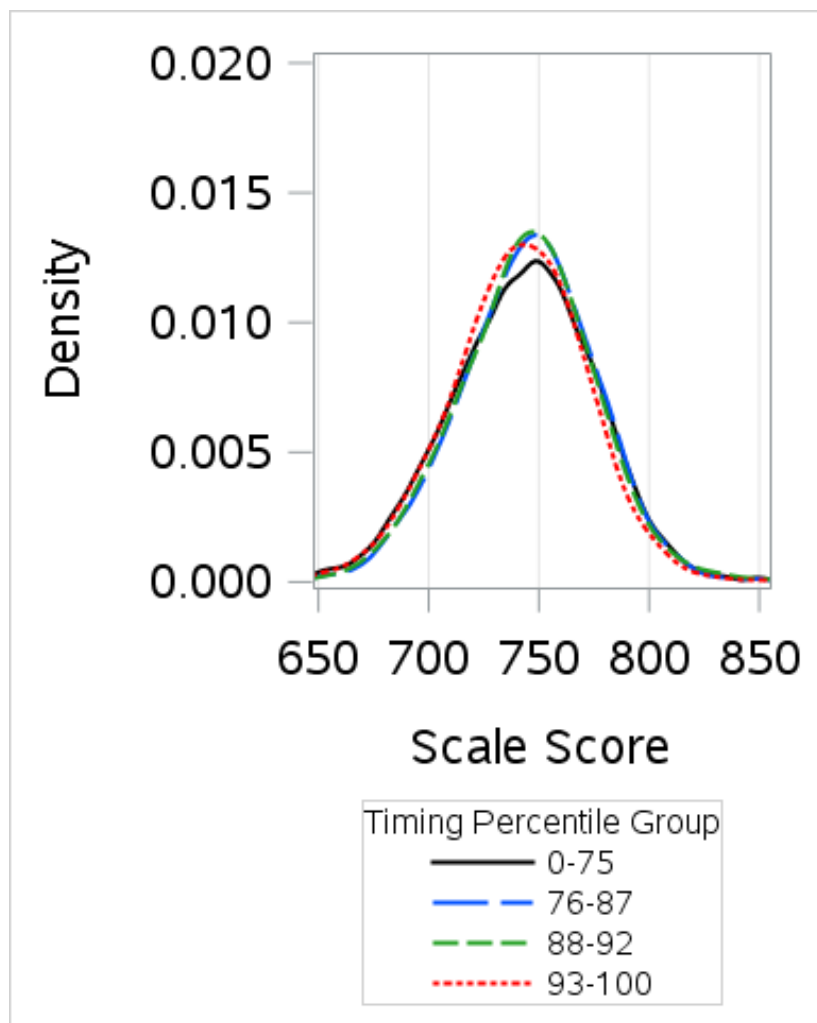
Score Distributions By Time Percentile Group and Impactedness : MAT03 Unit 2



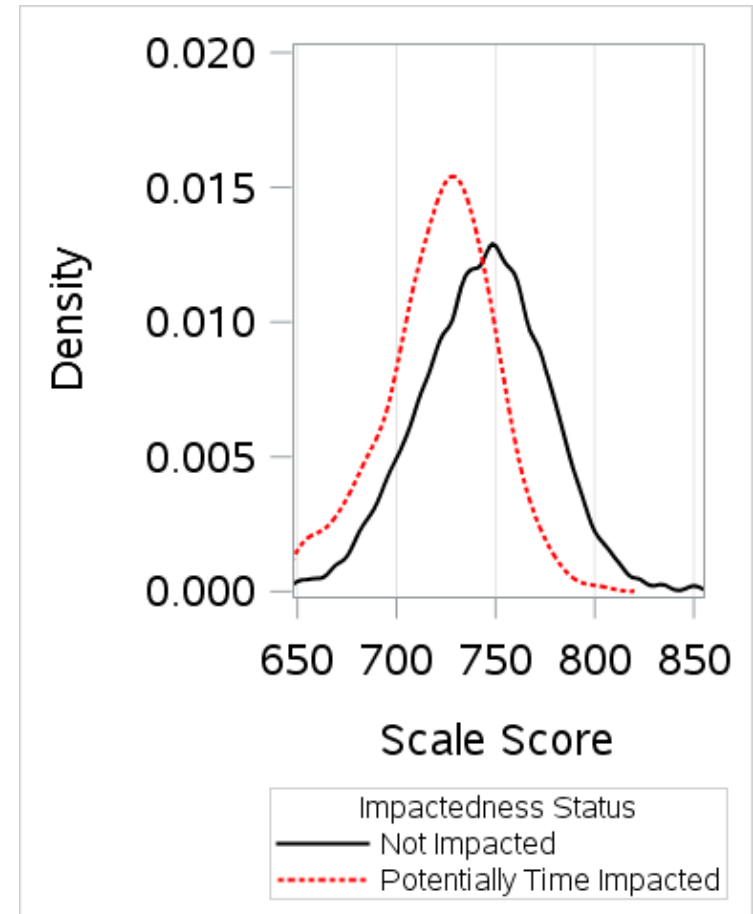
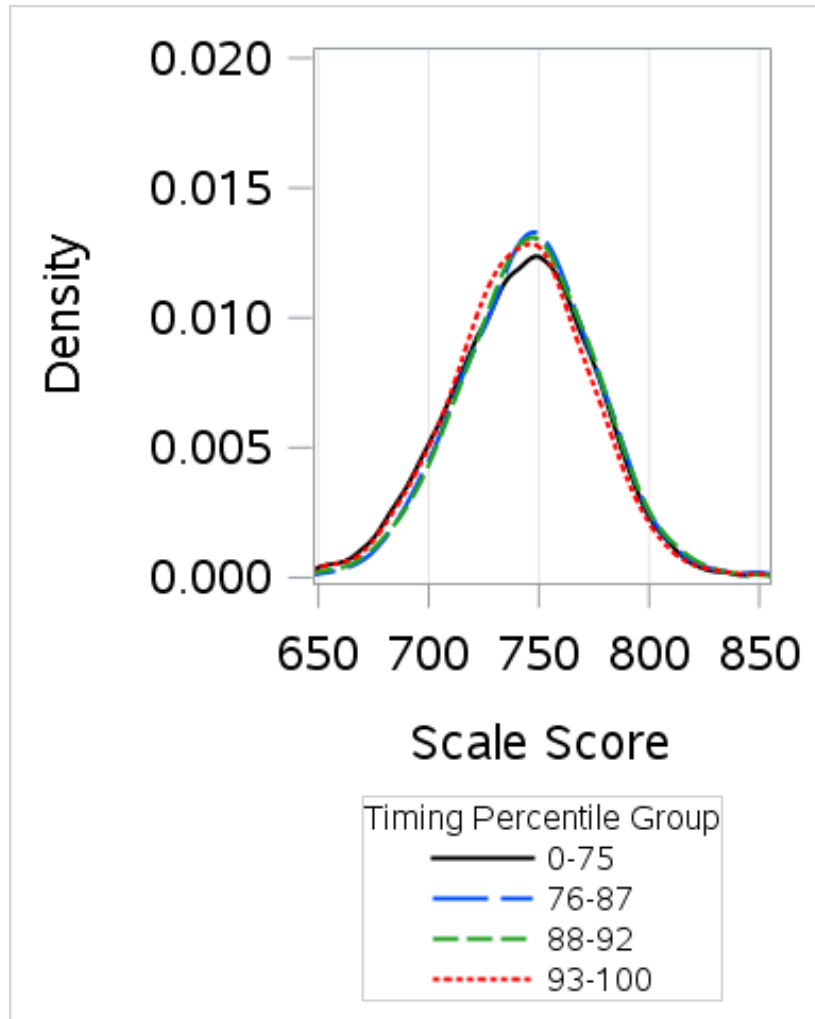
Score Distributions By Time Percentile Group and Impactedness : MAT03 Unit 3



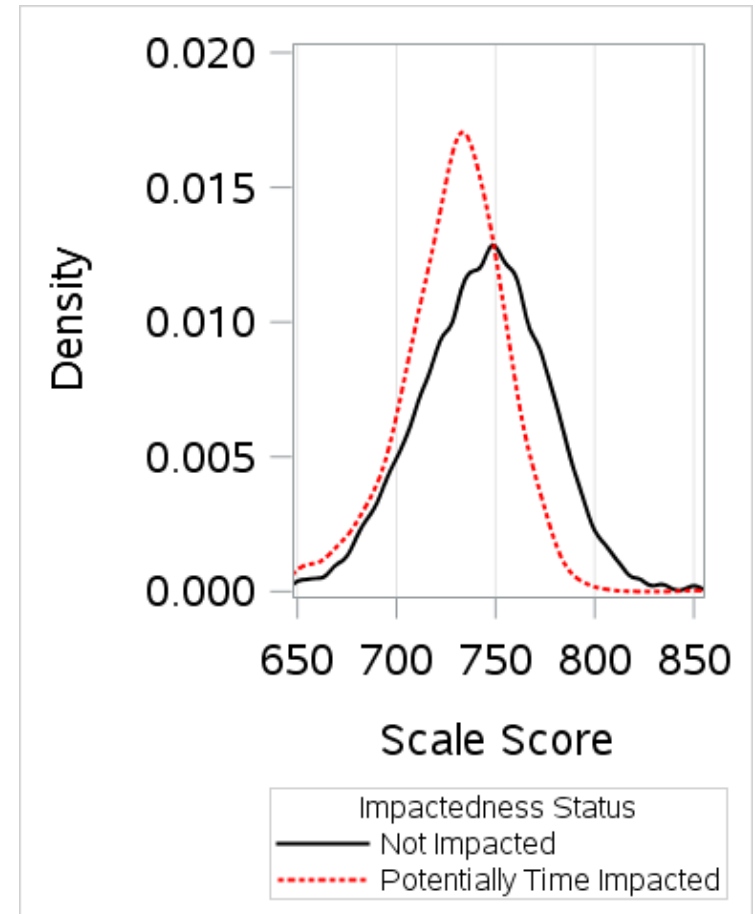
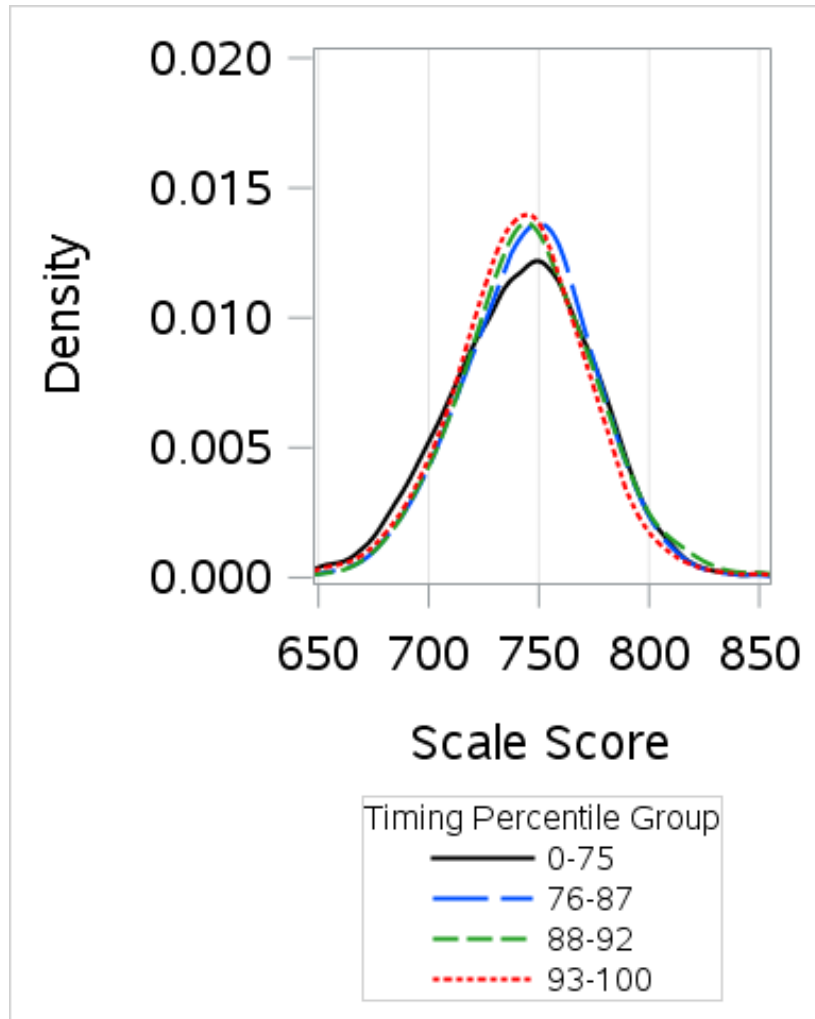
Score Distributions By Time Percentile Group and Impactedness: MAT04 Unit 1



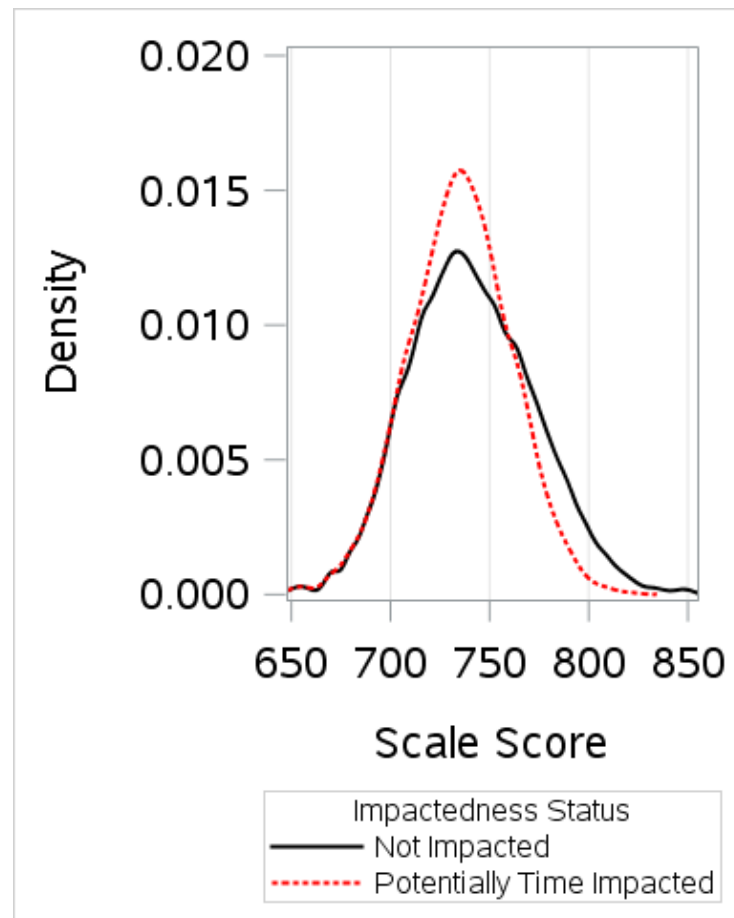
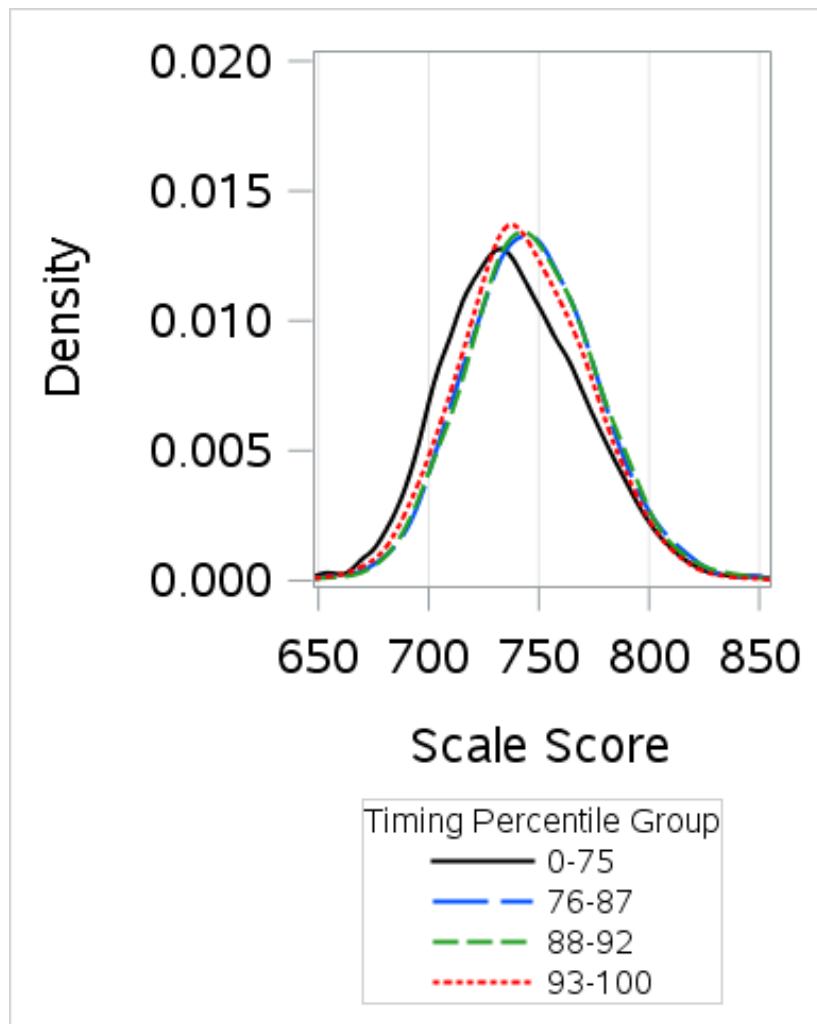
Score Distributions By Time Percentile Group and Impactedness: MAT04 Unit 2



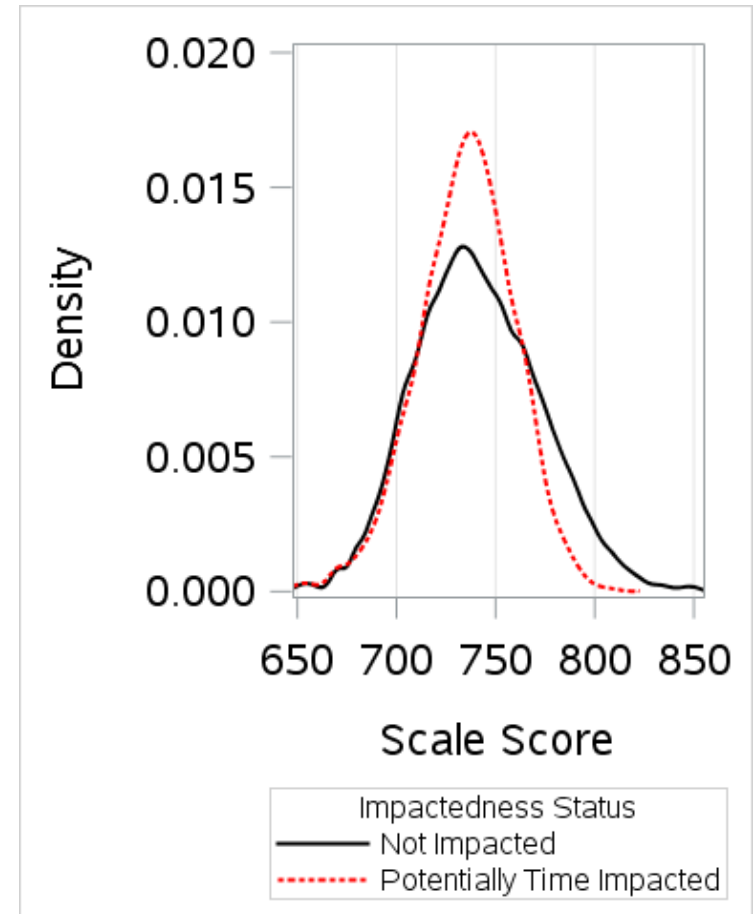
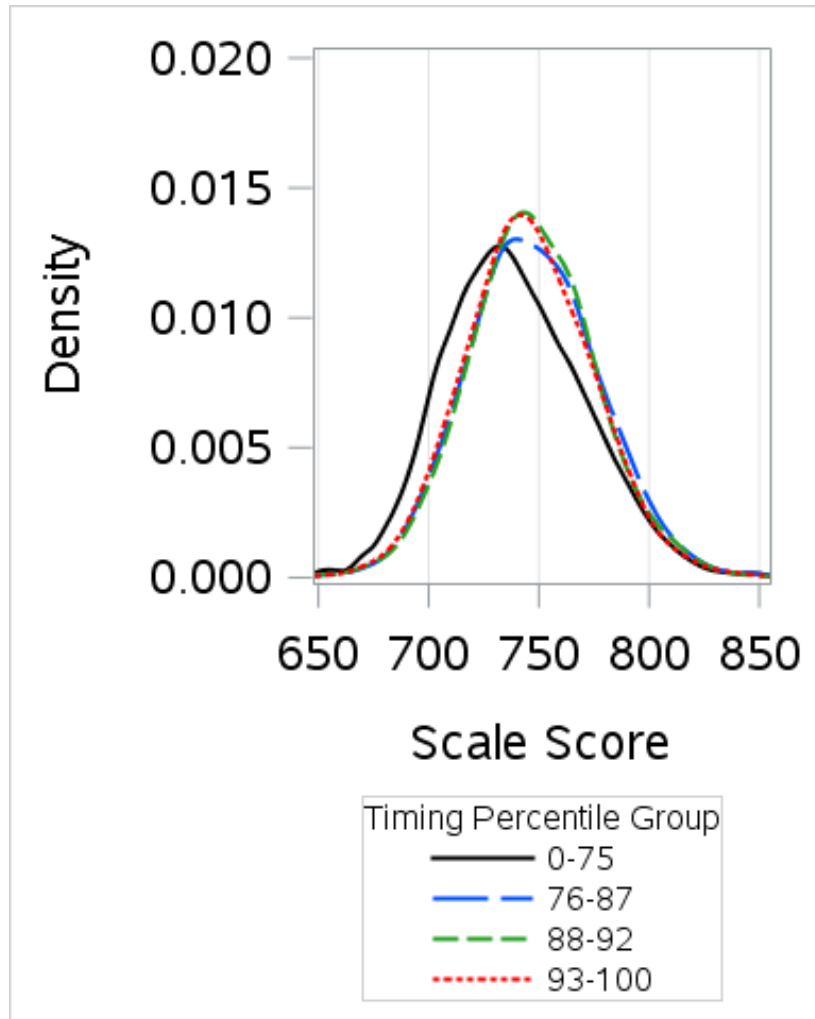
Score Distributions By Time Percentile Group and Impactedness: MAT04 Unit 3



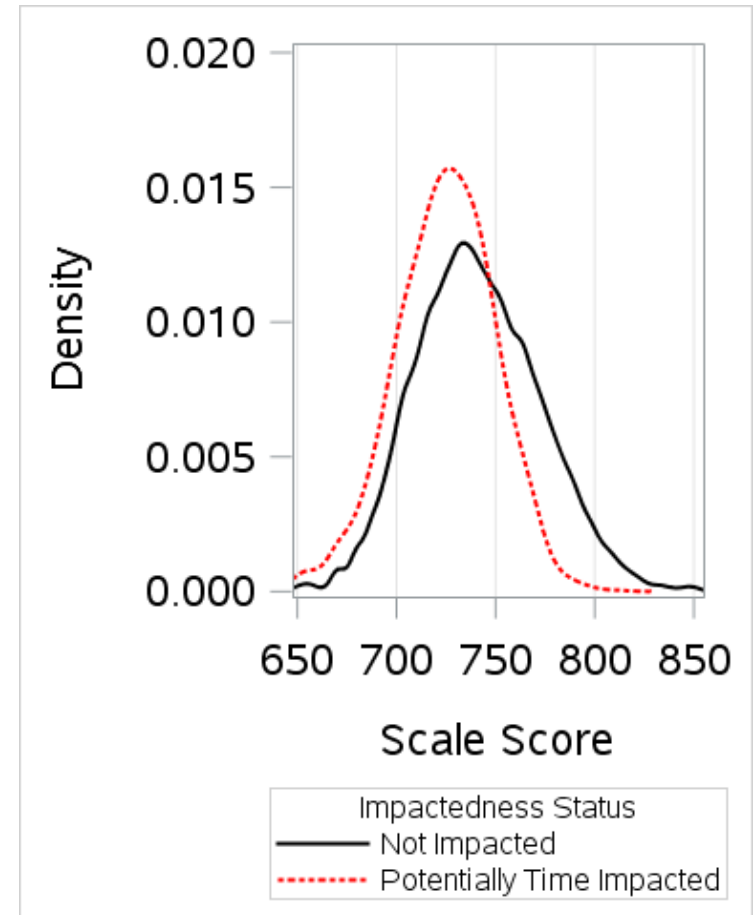
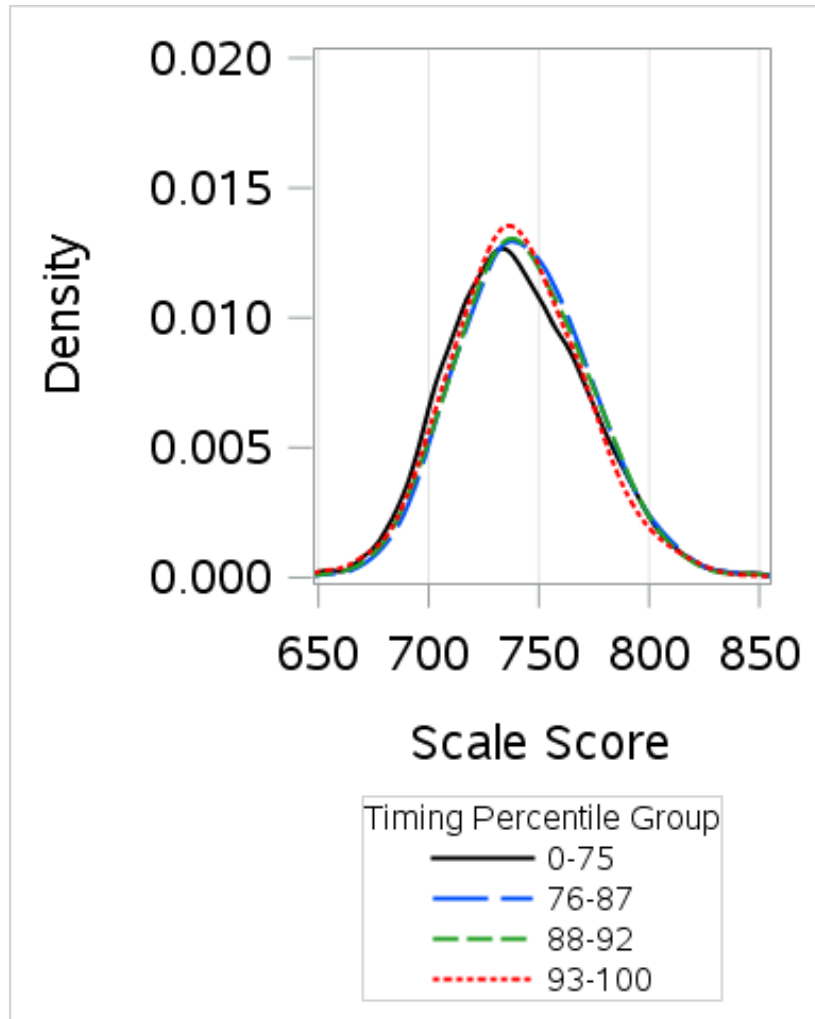
Score Distributions By Time Percentile Group and Impactedness: MAT05 Unit 1



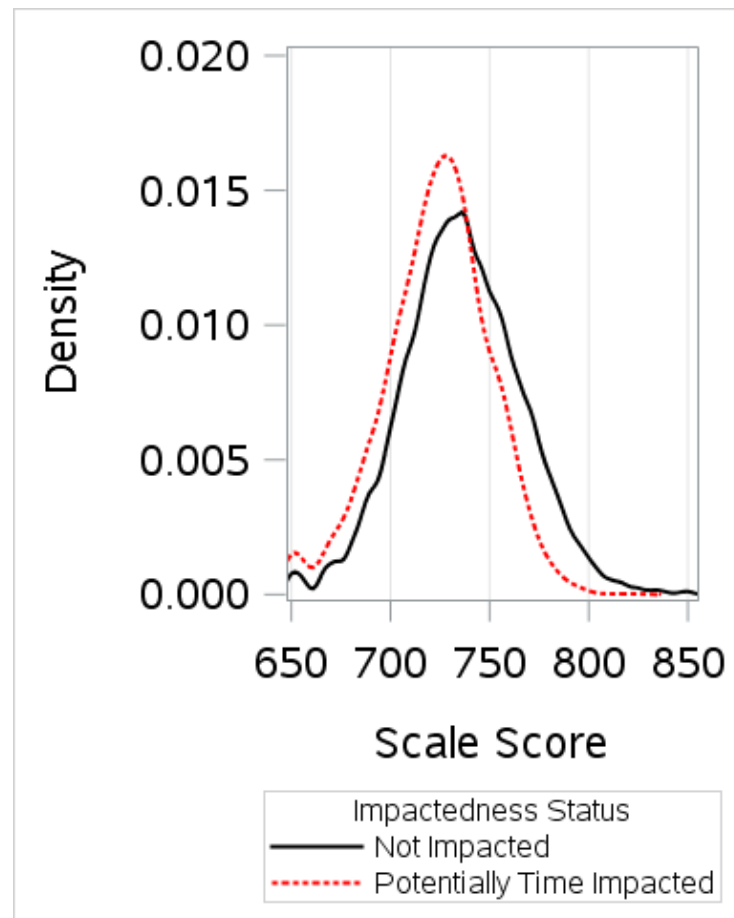
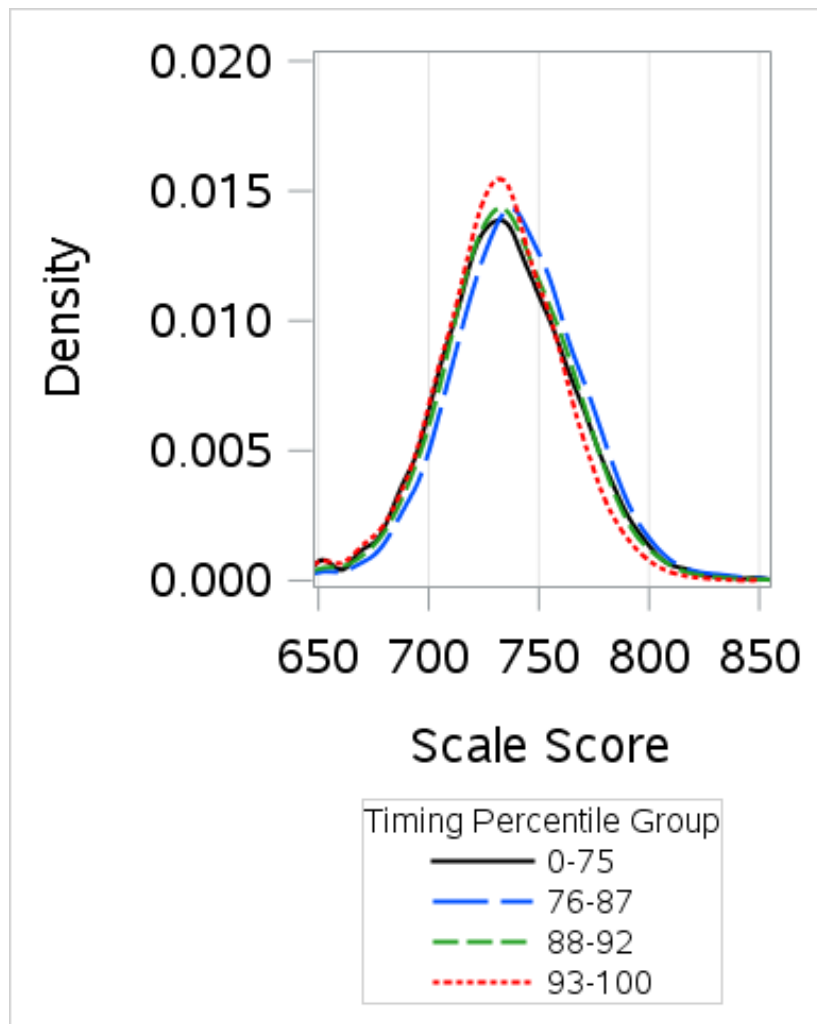
Score Distributions By Time Percentile Group and Impactedness: MAT05 Unit 2



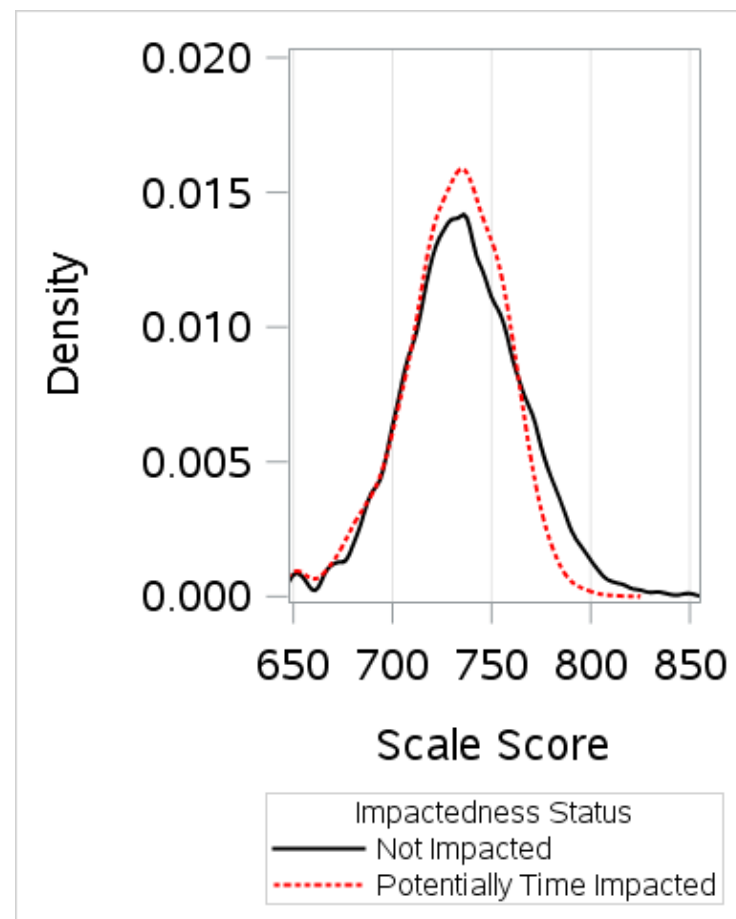
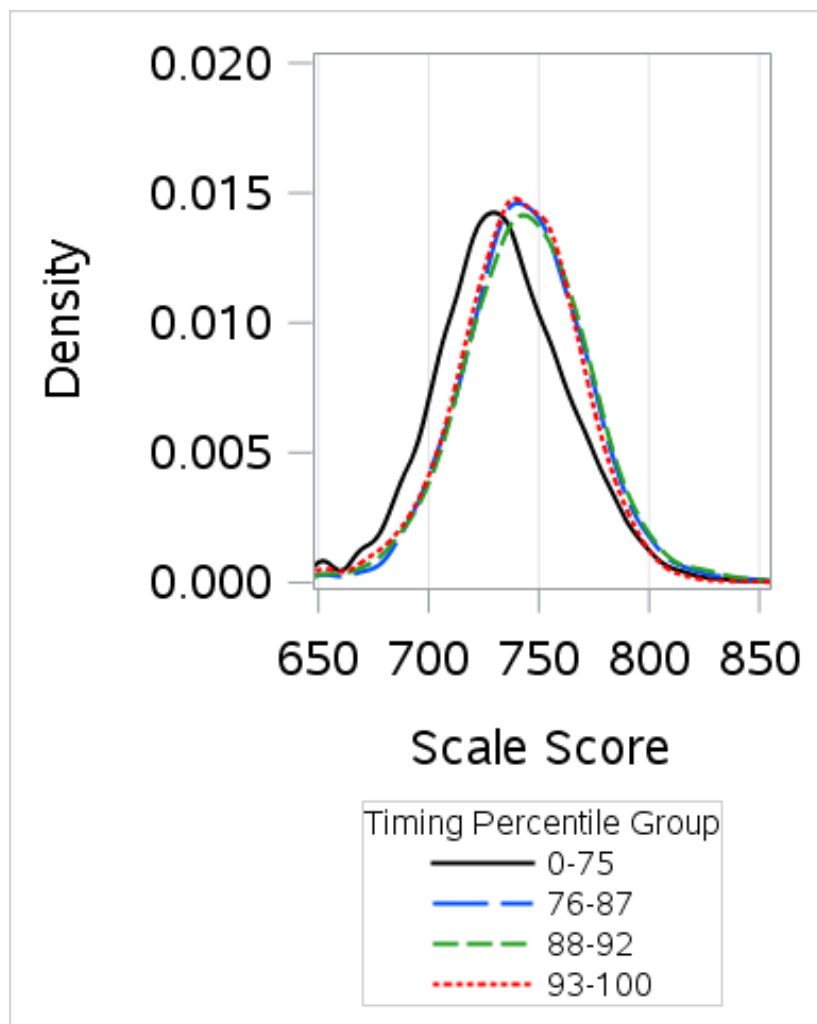
Score Distributions By Time Percentile Group and Impactedness: MAT05 Unit 3



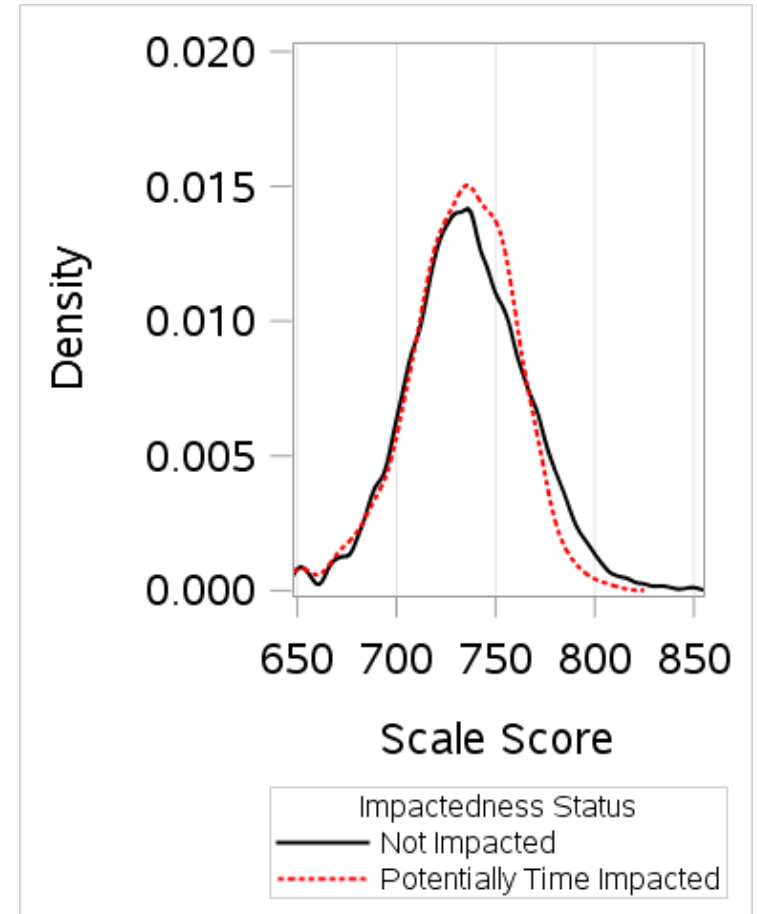
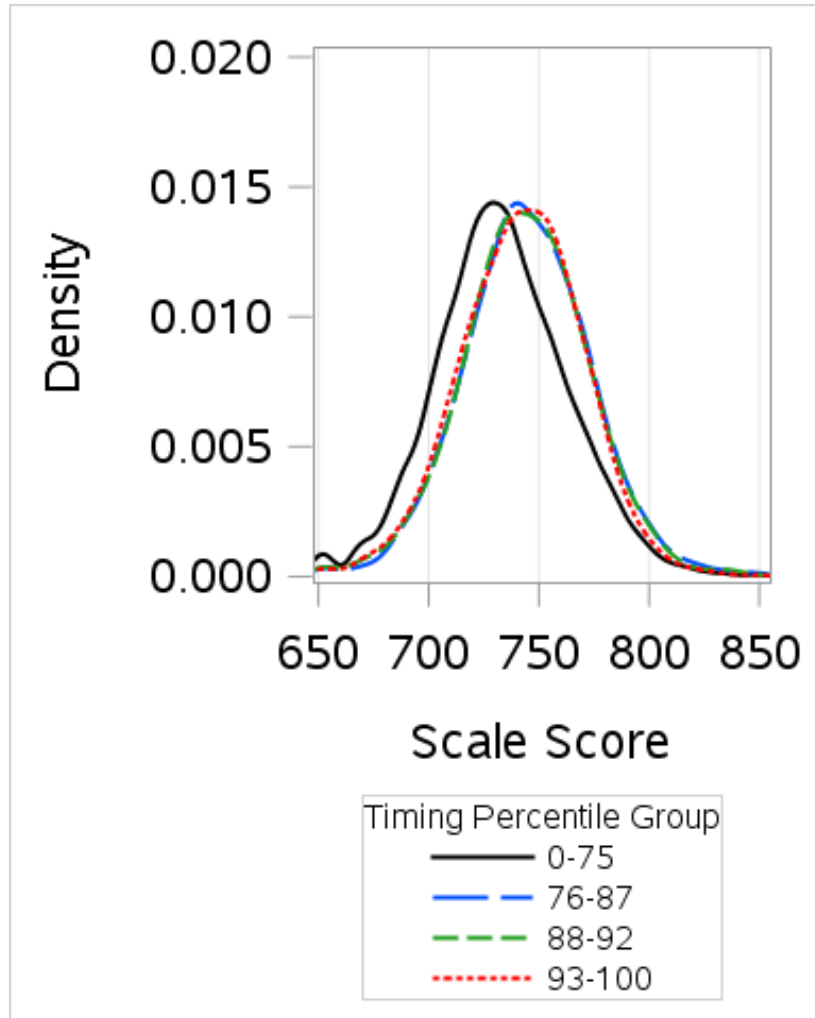
Score Distributions By Time Percentile Group and Impactedness: MAT06 Unit 1



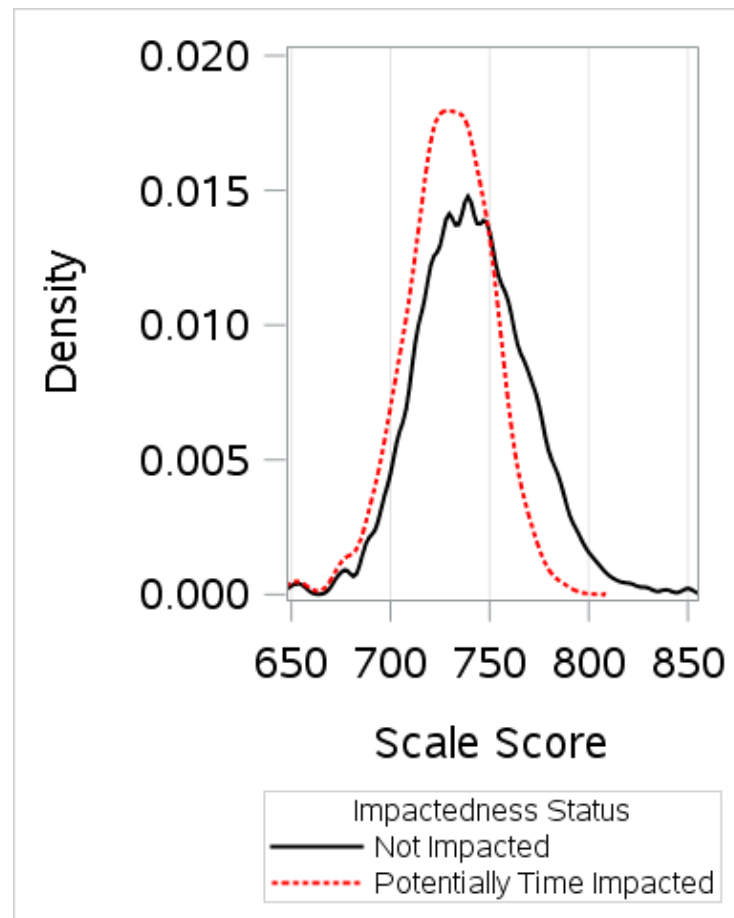
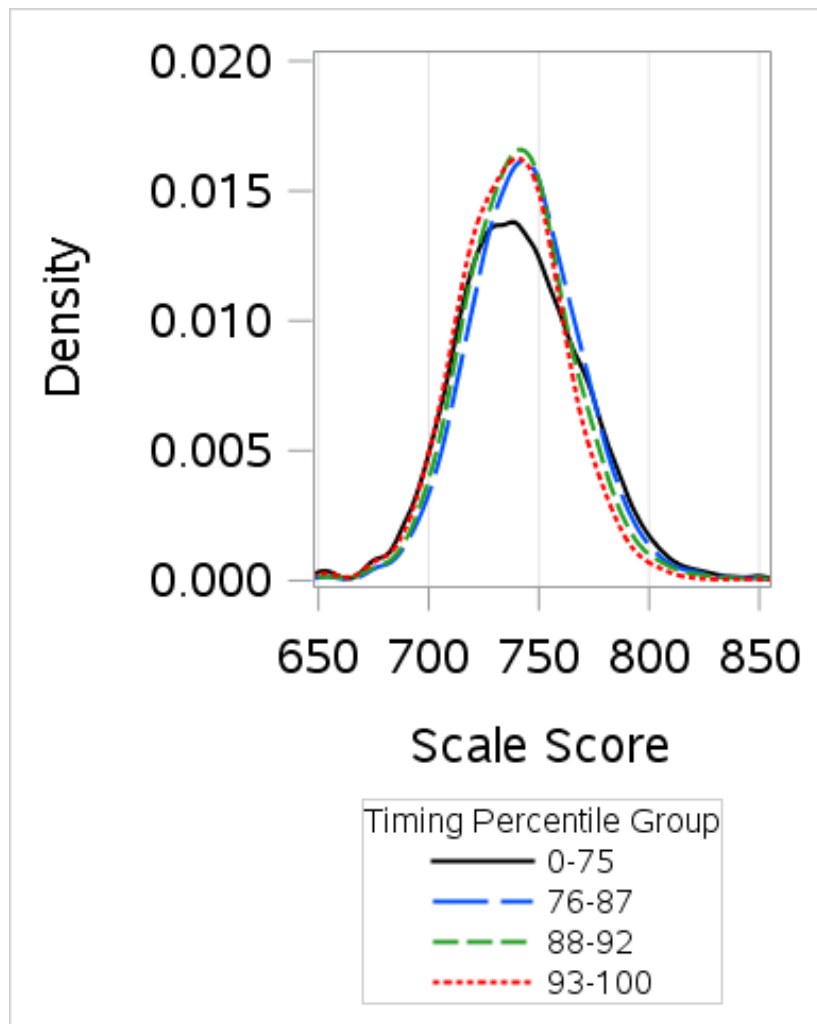
Score Distributions By Time Percentile Group and Impactedness: MAT06 Unit 2



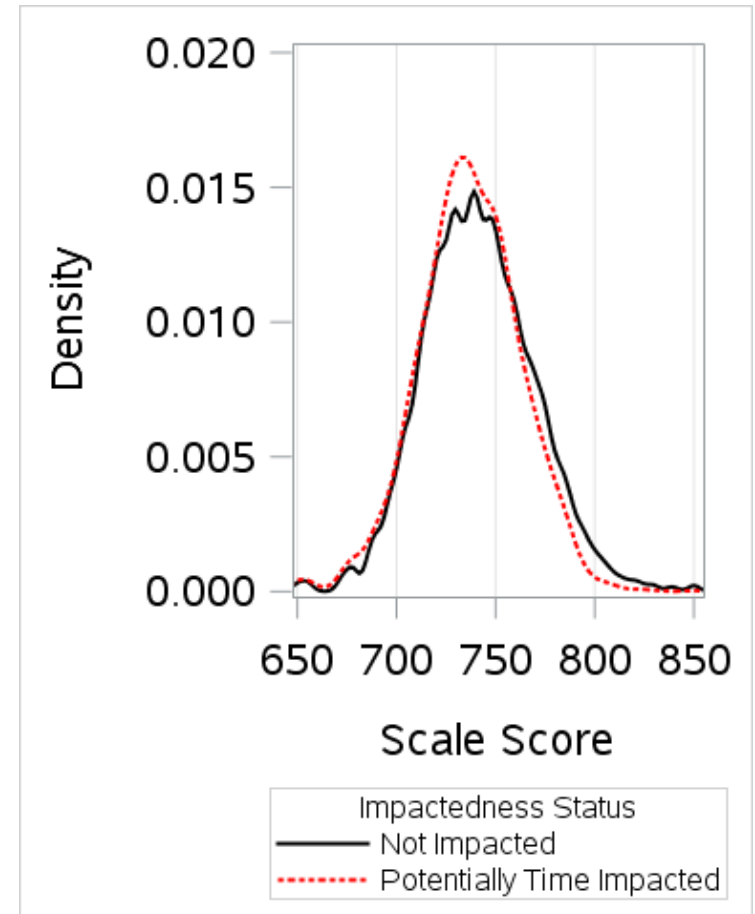
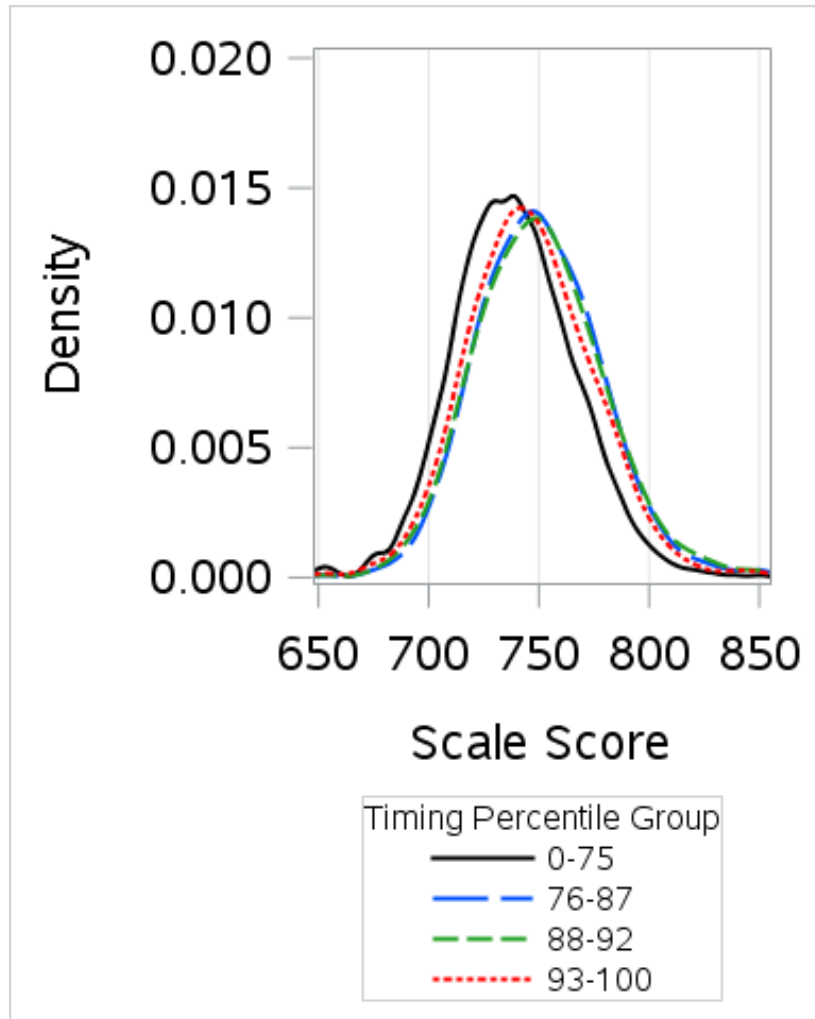
Score Distributions By Time Percentile Group and Impactedness: MAT06 Unit 3



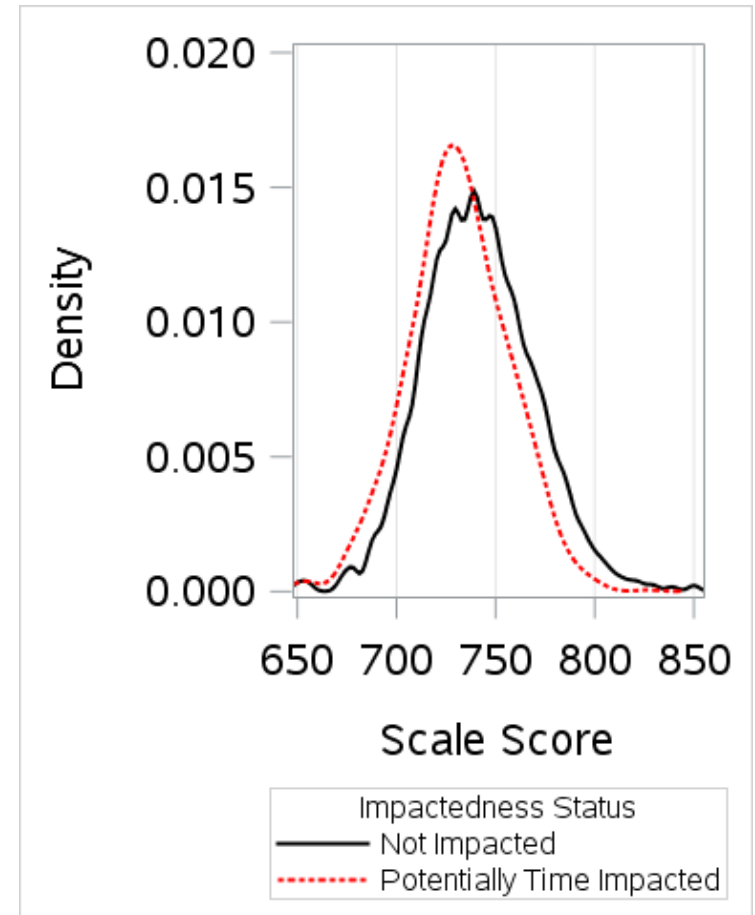
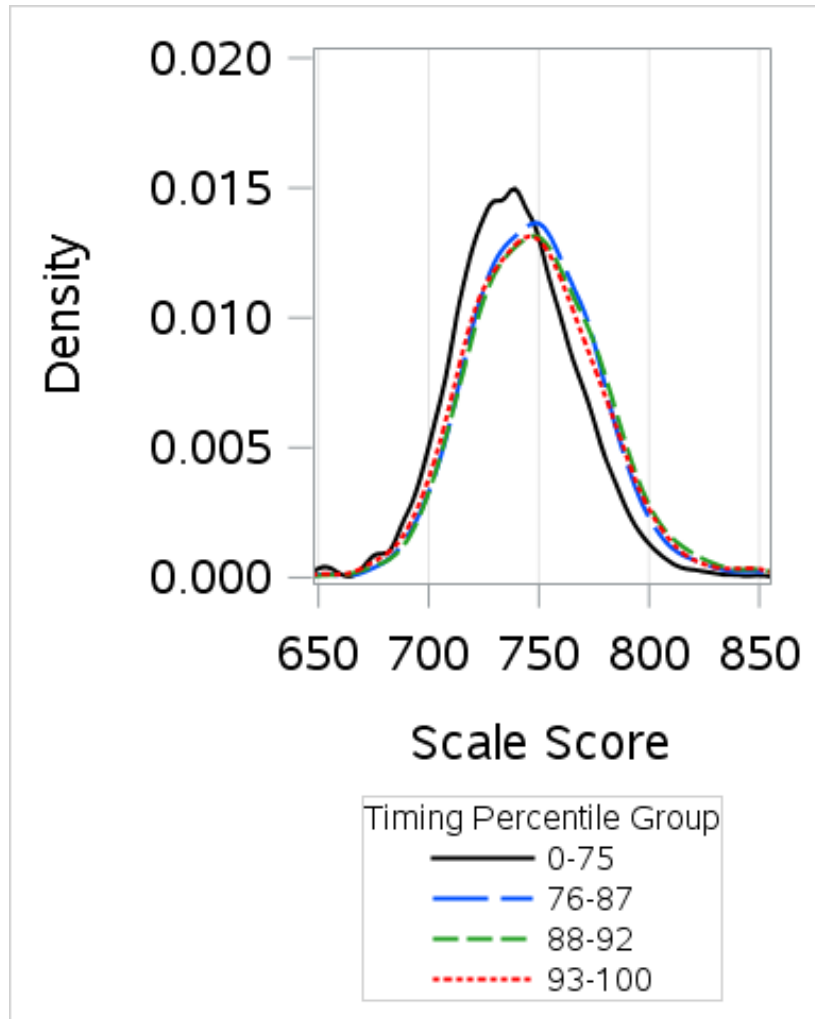
Score Distributions By Time Percentile Group and Impactedness: MAT07 Unit 1



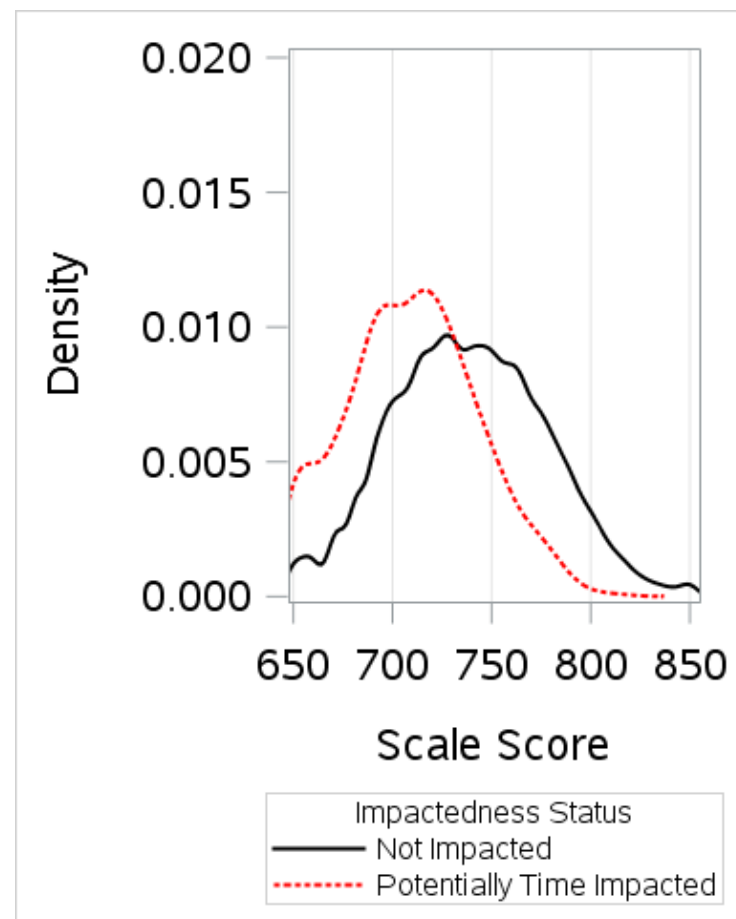
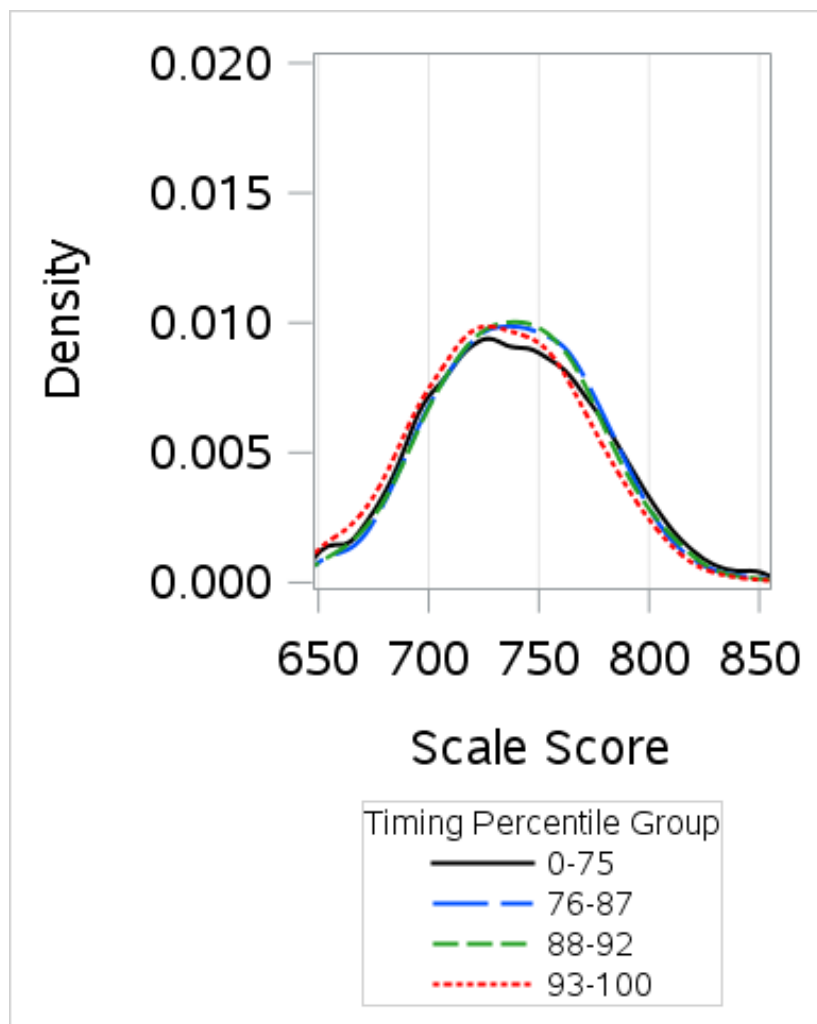
Score Distributions By Time Percentile Group and Impactedness: MAT07 Unit 2



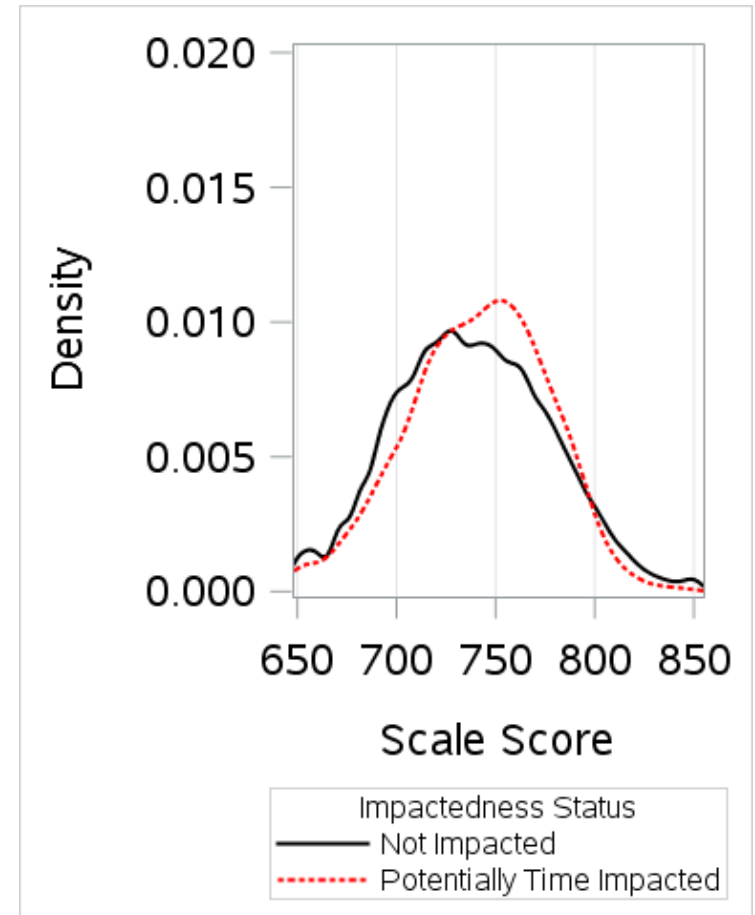
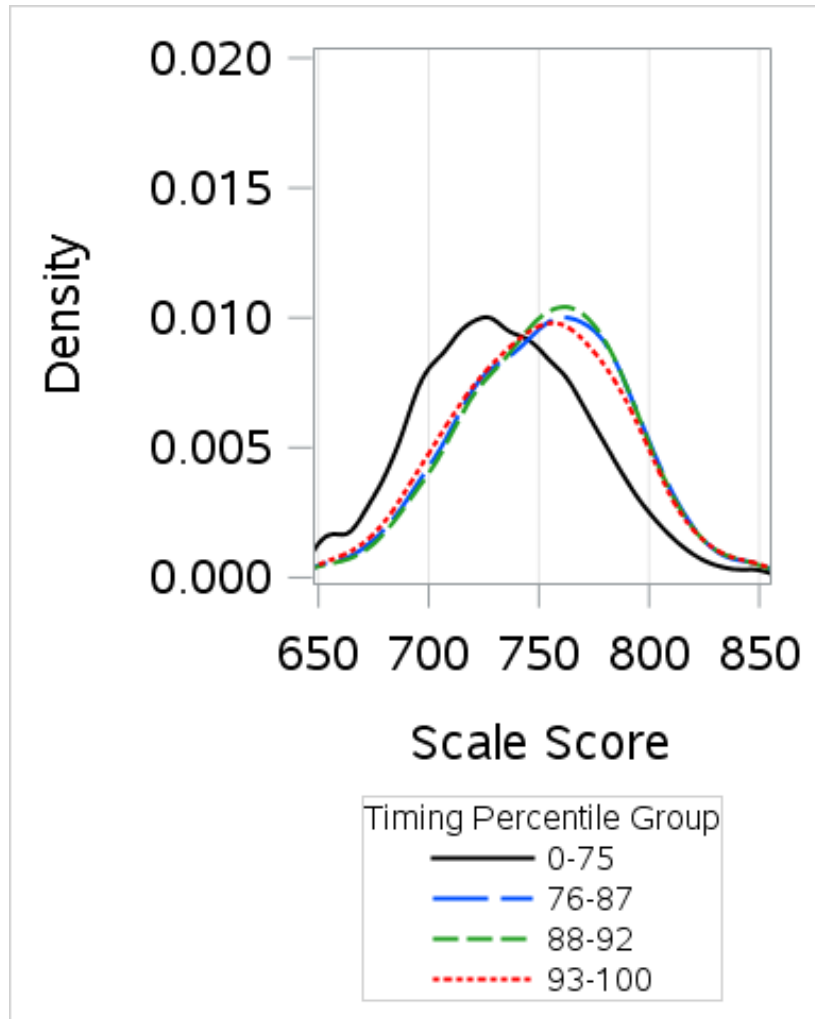
Score Distributions By Time Percentile Group and Impactedness: MAT07 Unit 3



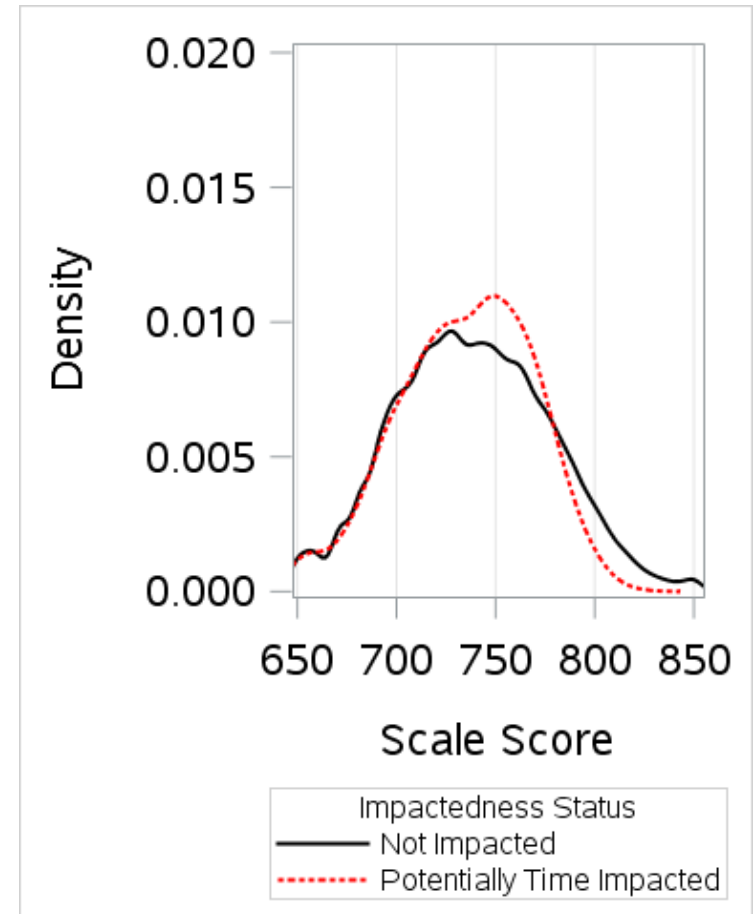
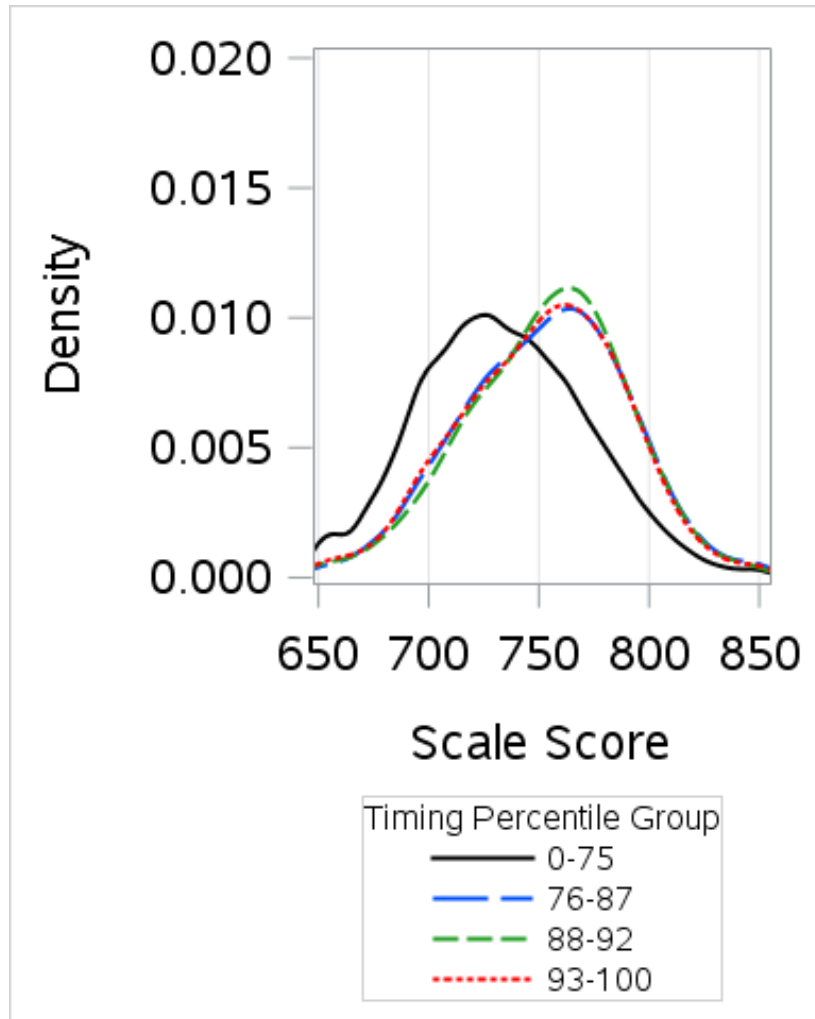
Score Distributions By Time Percentile Group and Impactedness: MAT08 Unit 1



Score Distributions By Time Percentile Group and Impactedness: MAT08 Unit 2



Score Distributions By Time Percentile Group and Impactedness: MAT08 Unit 3



Questions for the TAC

- Does the TAC have feedback regarding the two methods (highest percentile group and the potentially time-impacted indicator) to identify students who are potentially impacted by time constraints?
- Does the TAC have feedback regarding the additional analyses?
- Does the TAC have guidance for ISBE regarding the mathematics testing times?



Pearson

Supplemental Analyses

Unit-By-Unit Time Percentile Group
Comparisons

Time Percentile Group Paired Unit Comparisons: MAT03

MAT03 (N=79,918)		Time percentile group in second unit			
		0–75	76–87	88–92	93–100
	Time percentile group in first unit				
Unit 1 v. Unit 2	0–75	66.1%	6.7%	1.8%	1.5%
	76–87	5.7%	2.8%	1.8%	1.7%
	88–92	1.9%	1.2%	0.7%	1.2%
	93–100	2.3%	1.4%	0.7%	2.5%
Unit 1 v. Unit 3	0–75	65.2%	7.0%	2.2%	1.6%
	76–87	6.0%	2.6%	1.4%	2.1%
	88–92	2.2%	1.0%	0.6%	1.2%
	93–100	2.7%	1.4%	0.8%	2.1%
Unit 2 v. Unit 3	0–75	67.4%	6.0%	1.4%	1.1%
	76–87	5.6%	3.5%	1.6%	1.3%
	88–92	1.4%	1.2%	1.0%	1.4%
	93–100	1.6%	1.3%	1.0%	3.1%

Time Percentile Group Paired Unit Comparisons: MAT04

MAT04 (N=82,450)		Time percentile group in second unit			
		0–75	76–87	88–92	93–100
	Time percentile group in first unit				
Unit 1 v. Unit 2	0–75	66.3%	6.5%	1.8%	1.5%
	76–87	5.7%	3.0%	1.5%	1.7%
	88–92	1.9%	1.2%	0.8%	1.1%
	93–100	2.1%	1.3%	0.9%	2.5%
Unit 1 v. Unit 3	0–75	66.1%	6.5%	1.8%	1.8%
	76–87	6.0%	3.0%	1.6%	1.5%
	88–92	1.9%	1.2%	0.9%	1.0%
	93–100	2.1%	1.4%	0.8%	2.6%
Unit 2 v. Unit 3	0–75	67.4%	5.7%	1.4%	1.6%
	76–87	5.9%	3.6%	1.2%	1.3%
	88–92	1.4%	1.5%	1.1%	1.0%
	93–100	1.3%	1.3%	1.3%	3.0%

Time Percentile Group Paired Unit Comparisons: MAT05

MAT05 (N=89,063)		Time percentile group in second unit			
		0–75	76–87	88–92	93–100
	Time percentile group in first unit				
Unit 1 v. Unit 2	0–75	66.6%	6.1%	1.8%	1.7%
	76–87	5.4%	3.8%	1.8%	1.0%
	88–92	2.0%	1.1%	0.8%	1.2%
	93–100	2.1%	1.1%	0.6%	3.0%
Unit 1 v. Unit 3	0–75	65.4%	6.8%	2.2%	1.7%
	76–87	6.0%	2.6%	1.6%	1.8%
	88–92	2.2%	1.1%	0.5%	1.2%
	93–100	2.6%	1.4%	0.6%	2.2%
Unit 2 v. Unit 3	0–75	67.0%	6.3%	1.5%	1.3%
	76–87	5.4%	3.0%	2.0%	1.6%
	88–92	1.8%	1.2%	0.8%	1.2%
	93–100	1.9%	1.4%	0.7%	2.8%

Time Percentile Group Paired Unit Comparisons: MAT06

MAT06 (N=94,452)		Time percentile group in second unit			
		0–75	76–87	88–92	93–100
	Time percentile group in first unit				
Unit 1 v. Unit 2	0–75	66.0%	6.6%	1.8%	1.7%
	76–87	6.0%	2.9%	1.5%	1.5%
	88–92	1.9%	1.2%	0.8%	1.1%
	93–100	2.2%	1.3%	0.8%	2.6%
Unit 1 v. Unit 3	0–75	65.5%	6.3%	2.0%	2.2%
	76–87	6.3%	3.0%	1.4%	1.3%
	88–92	2.0%	1.4%	0.9%	0.8%
	93–100	2.3%	1.3%	0.8%	2.6%
Unit 2 v. Unit 3	0–75	67.5%	5.3%	1.5%	1.7%
	76–87	5.9%	3.5%	1.2%	1.4%
	88–92	1.4%	1.8%	1.0%	0.8%
	93–100	1.2%	1.4%	1.3%	3.1%

Time Percentile Group Paired Unit Comparisons: MAT07

MAT07 (N=95,010)		Time percentile group in second unit			
		0–75	76–87	88–92	93–100
	Time percentile group in first unit				
Unit 1 v. Unit 2	0–75	66.4%	6.2%	1.6%	1.8%
	76–87	6.1%	3.1%	1.5%	1.3%
	88–92	1.7%	1.2%	1.1%	1.0%
	93–100	1.9%	1.4%	0.8%	2.9%
Unit 1 v. Unit 3	0–75	65.9%	6.6%	1.9%	1.6%
	76–87	6.2%	2.9%	1.4%	1.5%
	88–92	1.8%	1.1%	0.8%	1.3%
	93–100	2.2%	1.4%	0.9%	2.5%
Unit 2 v. Unit 3	0–75	67.7%	5.8%	1.4%	1.0%
	76–87	5.5%	3.5%	1.7%	1.3%
	88–92	1.3%	1.3%	0.9%	1.5%
	93–100	1.6%	1.4%	1.0%	3.0%

Time Percentile Group Paired Unit Comparisons: MAT08

MAT08 (N=96,241)		Time percentile group in second unit			
		0–75	76–87	88–92	93–100
	Time percentile group in first unit				
Unit 1 v. Unit 2	0–75	65.6%	5.9%	2.0%	2.5%
	76–87	6.8%	2.7%	1.1%	1.4%
	88–92	2.0%	1.5%	0.6%	0.9%
	93–100	1.7%	1.9%	1.2%	2.2%
Unit 1 v. Unit 3	0–75	65.7%	6.2%	1.9%	2.2%
	76–87	6.7%	2.8%	1.2%	1.3%
	88–92	2.0%	1.4%	0.7%	1.0%
	93–100	1.7%	1.6%	1.3%	2.4%
Unit 2 v. Unit 3	0–75	68.0%	5.5%	1.3%	1.3%
	76–87	5.0%	3.6%	1.8%	1.6%
	88–92	1.4%	1.5%	1.0%	1.1%
	93–100	1.7%	1.5%	0.8%	3.0%