



**An Analysis and Recommendation on the
Setting of Grading Thresholds in
the Secondary Version of the SmarterMeasure
Learning Readiness Indicator**

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One of the useful features of the SmarterMeasure Learning Readiness Indicator is that school leaders (faculty and/or administrators) can view SmarterMeasure scores through a dashboard which allows them to at-a-glance identify students who might be at risk of not doing well in an online course based on their SmarterMeasure scores. Then based on these findings the school can provide remediation and support as appropriate. This serves as a valuable student service which can increase the retention rates among online learners.

Figure 1 below illustrates how that through the use of green, red or black icons schools can tell at a glance which students are classified as “failed,” “questionable,” or “passed” on the sections of SmarterMeasure.

Readiness Ranges Key

- ✔ = Passed
- ? = Questionable
- = Failed
- = Not Yet Completed

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Order By: Date Taken - Descending Sort

	Name	Date Taken	Personal Attributes	Technical Competency	Technical Knowledge	Reading Comprehension	Typing Speed	Primary Learning Style	Select
1)	Kin	02/28/09	●	●	●	●	--	--	<input type="checkbox"/>
2)	Ca	02/28/09	?	●	●	●	--	Logical	<input type="checkbox"/>
3)	Kin	02/28/09	●	●	?	●	29 wpm / 93%	Verbal	<input type="checkbox"/>
4)	Jac	02/28/09	✔	●	●	●	--	Logical	<input type="checkbox"/>
5)	yve	02/28/09	?	?	?	✔	19 wpm / 93%	Verbal	<input type="checkbox"/>
6)	De	02/28/09	?	●	●	●	--	Social	<input type="checkbox"/>
7)	Evi	02/28/09	?	●	●	?	--	Visual	<input type="checkbox"/>
8)	Su	02/28/09	?	✔	?	?	15 wpm / 95%	Logical, Social	<input type="checkbox"/>
9)	Am	02/28/09	?	●	●	●	--	--	<input type="checkbox"/>
10)	Tre	02/28/09	?	?	?	●	13 wpm / 100%	Solitary, Visual, Verbal, Logical, Social	<input type="checkbox"/>
11)	Jos	02/28/09	✔	●	●	✔	--	Social	<input type="checkbox"/>
12)	Jof	02/28/09	?	●	●	●	--	--	<input type="checkbox"/>

Figure 1 – SmarterMeasure Administrative Dashboard

Because the student population of each school is unique, one of the features of SmarterMeasure is that schools can set the grading thresholds to determine what level of

SmarterMeasure scores should classify their students as “failed,” “questionable,” or “passed.”

The image below is the dialogue box through which schools can set these grading thresholds to set these colors on the administrative dashboard.

Tool Order

You may reorder the sections below by dragging and dropping them. Sections with a key (🔑) next to them cannot be re-ordered. If you want to skip a section drop it in the grey box under the "Results" line. The "Readiness Ranges" can also be adjusted for each section. The default "Readiness Range" is indicated in the parenthesis next to each field. [Learn more](#) about Readiness Ranges.

Section	Version	Failed	Questionable
🔑 Personal Information	Standard	n/a	n/a
Personal Attributes	Secondary Education ▼	<input type="text"/> (30)	<input type="text"/> (65)
Learning Styles	Secondary Education ▼	<input type="text"/> (30)	<input type="text"/> (65)
Reading Rate & Recall	8th Grade ▼	<input type="text"/> (30)	<input type="text"/> (65)
Technical Competency	Secondary Education ▼	<input type="text"/> (30)	<input type="text"/> (65)
Technical Knowledge	Secondary Education ▼	<input type="text"/> (30)	<input type="text"/> (65)
Typing Speed & Accuracy	Secondary Education ▼	<input type="text"/> (21)	<input type="text"/> (31)
🔑 Confirm Email Address	Standard	n/a	n/a
🔑 Results	Standard	n/a	n/a

To skip a section drag it to the grey box below.

Figure 2 – Grading Threshold Dialogue Box

It is important to note that these grading thresholds only change the indicating colors on the administrative dashboard, NOT on the score report which the student sees.

The grading thresholds which are standard when a secondary school first begins using SmarterMeasure are indicated above in Figure 2. Schools are urged to re-set these grading thresholds to more appropriately match their student population. For example, one school

is using SmarterMeasure for their technology magnet program students. They would expect the students entering this program to have higher technology related scores. So they increased the grading thresholds in this area. Others schools may have many students who request remediation in reading. If this is the case this school may choose to lower the expected grading threshold in reading. Recommendations for more appropriate settings based on recent research will be provided below. However, **schools are encouraged to set the grading thresholds as they consider best represents their student population.**

The grading thresholds that are standard when a secondary school begins using SmarterMeasure were determined very early in the development of SmarterMeasure. Most of these numbers were determined by roughly dividing the range of scores from 0 – 100 into thirds. There was nothing strongly scientific about this method. However, the company which provides SmarterMeasure (SmarterServices, LLC) is resistant to changing these pre-sets for existing accounts because they have been set this way and the hundreds of SmarterMeasure administrators who are accustomed to seeing these values would be confused if the company automatically imposed a change.

ANALYSIS OF GRADING THRESHOLD VALUES

In July, 2008 SmarterServices conducted an analysis of SmarterMeasure scores to determine a more appropriate guideline for grading thresholds for college and university accounts. At that time the Secondary Version of SmarterMeasure was very new and not enough data existed to conduct an analysis on the distribution of SmarterMeasure scores among secondary school students. A copy of this full report regarding the higher education data analysis is available at

http://smartermeasure.com/documents/Readi_Grading_Thresholds.pdf

The purpose of this report is to present the analysis conducted using SmarterMeasure scores of only secondary school students. During the eighteen-month period prior to November 15, 2010 a total of 5,692 secondary students took the SmarterMeasure assessment. For the purposes of this analysis 1,000 of these cases were randomly selected. When a student did not complete a section of SmarterMeasure a zero value

existed in the database. For the purposes of this analysis zero values were deleted resulting in the number of valid cases indicated in Table 1 below. Zero values were not considered in the calculation of the means.

There are sections of SmarterMeasure for which a grading threshold can be modified by the school: Overall Technical Competency, Technical Knowledge, Individual Attributes, and Reading Competency. Each of these four constructs is measured on a scale of 0 – 100. The mean scores and standard deviations are indicated in Table 1 below.

		Statistics			
		Individual Attributes	Technical Knowledge	Reading Recall	Technical Competency
N	Valid	935	811	869	839
	Missing	65	189	131	161
Mean		75.5346	63.0810	62.43	85.30
Mode		76.04	64.06	70	90
Std. Deviation		8.50777	13.00920	20.685	14.886

Table 1: Measures of Central Tendency

The scores for Technical Knowledge, Individual Attributes, and Reading Competency were more normally distributed than those for Technical Competency which were skewed toward a grade of 100. This finding is congruent with the plans to revise the Technical Competency section to make it more difficult in an upcoming version of SmarterMeasure. See Figures 3, 4, 5 and 6 below for a visual representation of the distribution of SmarterMeasure scores for these categories.

RECOMMENDATIONS FOR FUTURE PRACTICE

- SmarterServices is not going to modify the pre-set grading threshold values for existing secondary schools.** However we do suggest based on the data in this analysis

the following values if a school would like to modify the scores to more accurately represent the normal distribution of scores:

Recommended Grading Threshold Values:

Category	Failed	Questionable	Passed
Overall Technical Competency	Below 80	80 - 90	90+
Technical Knowledge	Below 50	50 - 75	75+
Individual Attributes	Below 70	70 - 85	85+
Reading Competency	Below 50	50 - 80	80+

It should be noted that these suggested grading threshold values are more stringent than the previous standard values and will result in more students being directed toward support services from the institution.

2. The second recommendation for practice is that **when new schools create a SmarterMeasure account the grading threshold values which are set will be based on the newly calculated values above.**

Histograms

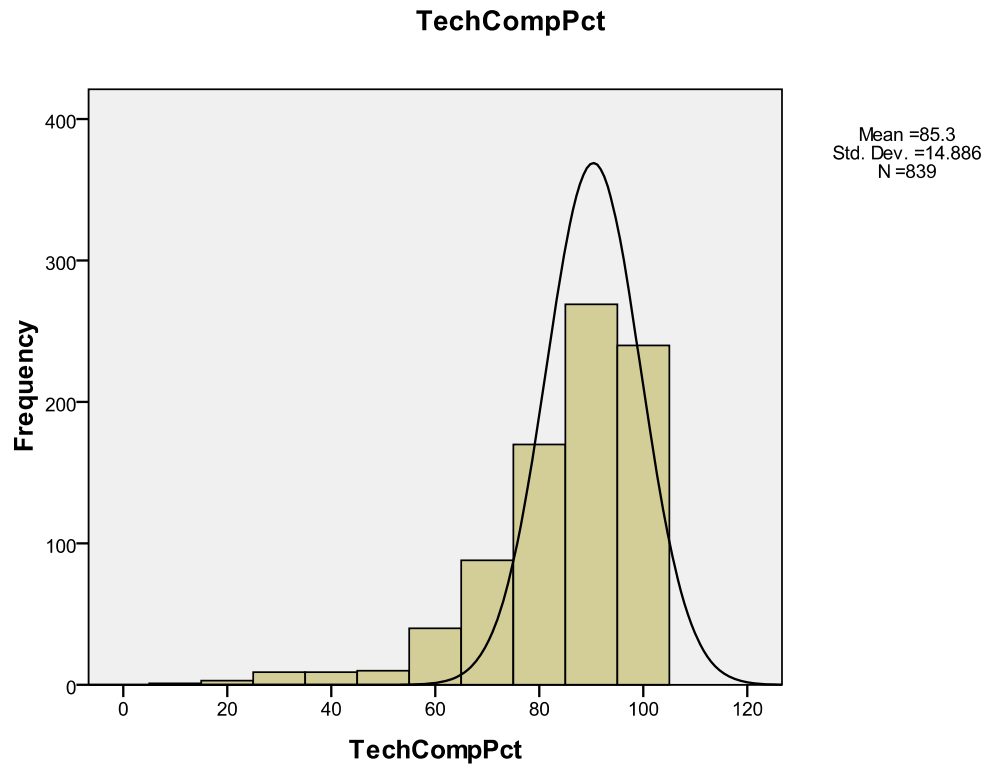


Figure 3 – Overall Technical Competency Scores

TechKnowledgePct

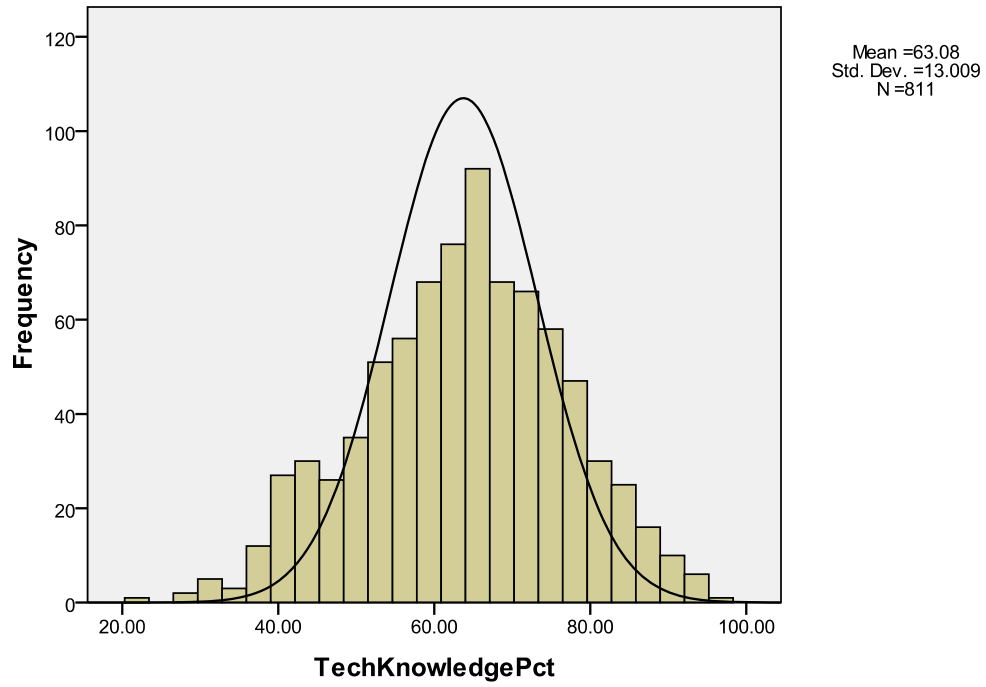


Figure 4 – Technical Knowledge Scores

PersonalAttributesPct

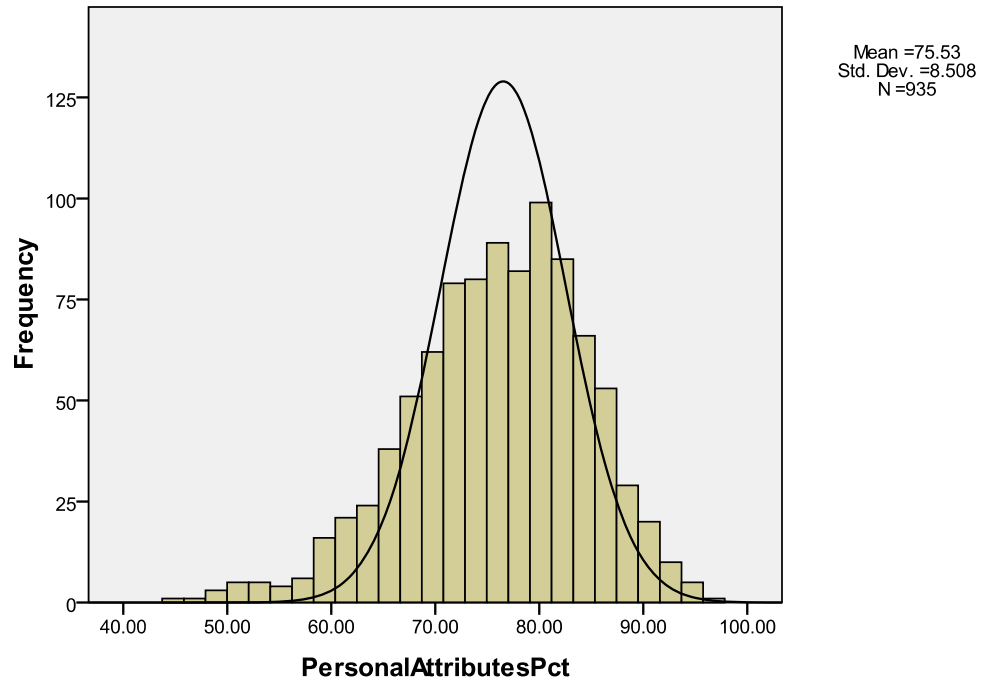


Figure 5 – Individual Attributes Scores

ReadingPct

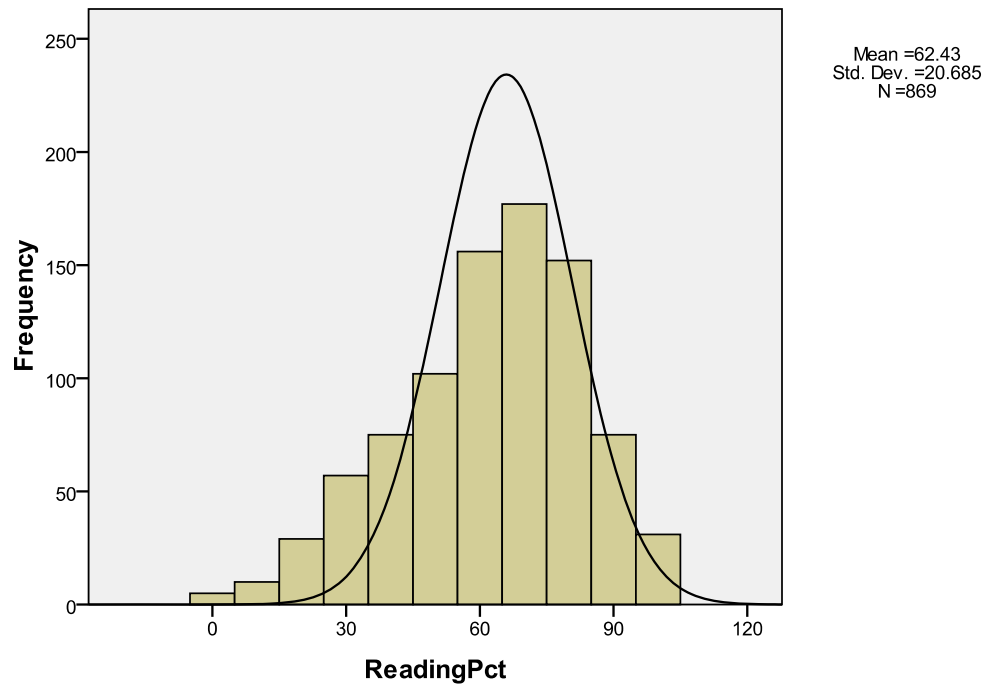


Figure6 – Reading Comprehension Scores

Frequency Tables

TechCompPct

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	1	.1	.1	.1
	20	3	.3	.4	.5
	30	9	.9	1.1	1.5
	40	9	.9	1.1	2.6
	50	10	1.0	1.2	3.8
	60	40	4.0	4.8	8.6
	70	88	8.8	10.5	19.1
	80	170	17.0	20.3	39.3
	90	269	26.9	32.1	71.4
	100	240	24.0	28.6	100.0
	Total	839	83.9	100.0	
	Missing	System	161	16.1	
Total		1000	100.0		

TechKnowledgePct

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21.88	1	.1	.1	.1
	26.56	1	.1	.1	.2
	28.13	1	.1	.1	.4
	29.69	2	.2	.2	.6
	31.25	3	.3	.4	1.0
	32.81	1	.1	.1	1.1
	34.38	2	.2	.2	1.4
	35.94	3	.3	.4	1.7
	37.50	9	.9	1.1	2.8
	39.06	14	1.4	1.7	4.6
	40.63	13	1.3	1.6	6.2
	42.19	14	1.4	1.7	7.9
	43.75	16	1.6	2.0	9.9
	45.31	12	1.2	1.5	11.3
	46.88	14	1.4	1.7	13.1
	48.44	17	1.7	2.1	15.2
	50.00	18	1.8	2.2	17.4
	51.56	26	2.6	3.2	20.6
	53.13	25	2.5	3.1	23.7
	54.69	27	2.7	3.3	27.0
	56.25	29	2.9	3.6	30.6
	57.81	35	3.5	4.3	34.9
	59.38	33	3.3	4.1	39.0
	60.94	38	3.8	4.7	43.6
	62.50	38	3.8	4.7	48.3
	64.06	54	5.4	6.7	55.0
	65.63	38	3.8	4.7	59.7

	67.19	36	3.6	4.4	64.1
	68.75	32	3.2	3.9	68.1
	70.31	36	3.6	4.4	72.5
	71.88	30	3.0	3.7	76.2
	73.44	29	2.9	3.6	79.8
	75.00	29	2.9	3.6	83.4
	76.56	28	2.8	3.5	86.8
	78.13	19	1.9	2.3	89.1
	79.69	14	1.4	1.7	90.9
	81.25	16	1.6	2.0	92.8
	82.81	9	.9	1.1	94.0
	84.38	16	1.6	2.0	95.9
	85.94	8	.8	1.0	96.9
	87.50	8	.8	1.0	97.9
	89.06	6	.6	.7	98.6
	90.63	4	.4	.5	99.1
	92.19	2	.2	.2	99.4
	93.75	4	.4	.5	99.9
	95.31	1	.1	.1	100.0
	Total	811	81.1	100.0	
Missing	System	189	18.9		
Total		1000	100.0		

PersonalAttributesPct

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	44.79	1	.1	.1	.1
	46.88	1	.1	.1	.2
	47.92	1	.1	.1	.3
	48.96	2	.2	.2	.5
	50.00	3	.3	.3	.9
	51.04	2	.2	.2	1.1
	52.08	3	.3	.3	1.4
	53.13	2	.2	.2	1.6
	54.17	1	.1	.1	1.7
	55.21	3	.3	.3	2.0
	56.25	2	.2	.2	2.2
	57.29	4	.4	.4	2.7
	58.33	11	1.1	1.2	3.9
	59.38	5	.5	.5	4.4
	60.42	10	1.0	1.1	5.5
	61.46	11	1.1	1.2	6.6
	62.50	12	1.2	1.3	7.9
	63.54	12	1.2	1.3	9.2
	64.58	13	1.3	1.4	10.6
	65.63	25	2.5	2.7	13.3
	66.67	24	2.4	2.6	15.8
	67.71	27	2.7	2.9	18.7
	68.75	36	3.6	3.9	22.6
	69.79	26	2.6	2.8	25.3
	70.83	37	3.7	4.0	29.3
	71.88	42	4.2	4.5	33.8
	72.92	45	4.5	4.8	38.6

	73.96	35	3.5	3.7	42.4
	75.00	31	3.1	3.3	45.7
	76.04	58	5.8	6.2	51.9
	77.08	42	4.2	4.5	56.4
	78.13	40	4.0	4.3	60.6
	79.17	49	4.9	5.2	65.9
	80.21	50	5.0	5.3	71.2
	81.25	41	4.1	4.4	75.6
	82.29	44	4.4	4.7	80.3
	83.33	29	2.9	3.1	83.4
	84.38	37	3.7	4.0	87.4
	85.42	26	2.6	2.8	90.2
	86.46	27	2.7	2.9	93.0
	87.50	15	1.5	1.6	94.7
	88.54	14	1.4	1.5	96.1
	89.58	10	1.0	1.1	97.2
	90.63	10	1.0	1.1	98.3
	91.67	8	.8	.9	99.1
	92.71	2	.2	.2	99.4
	93.75	4	.4	.4	99.8
	94.79	1	.1	.1	99.9
	95.83	1	.1	.1	100.0
	Total	935	93.5	100.0	
Missing	System	65	6.5		
Total		1000	100.0		

ReadingPct

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	5	.5	.6	.6
	10	10	1.0	1.2	1.7
	20	29	2.9	3.3	5.1
	30	57	5.7	6.6	11.6
	40	75	7.5	8.6	20.3
	50	102	10.2	11.7	32.0
	60	156	15.6	18.0	49.9
	70	177	17.7	20.4	70.3
	80	152	15.2	17.5	87.8
	90	75	7.5	8.6	96.4
	100	31	3.1	3.6	100.0
	Total	869	86.9	100.0	
	Missing	System	131	13.1	
Total		1000	100.0		