



WEBINAR

STANDARDISATION AND SCHOOL-BASED ASSESSMENT

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PRESENTATION OUTLINE

1. Umalusi mandate and regulatory framework
2. Overview of standardisation Process
3. Statistical adjustment of Exam Mark Distribution
4. Overview of School Based Assessment (SBA)
5. Statistical adjustment of SBA Mark Distribution
6. Conclusion

UMALUSI MANDATE AND REGULATORY FRAMEWORK

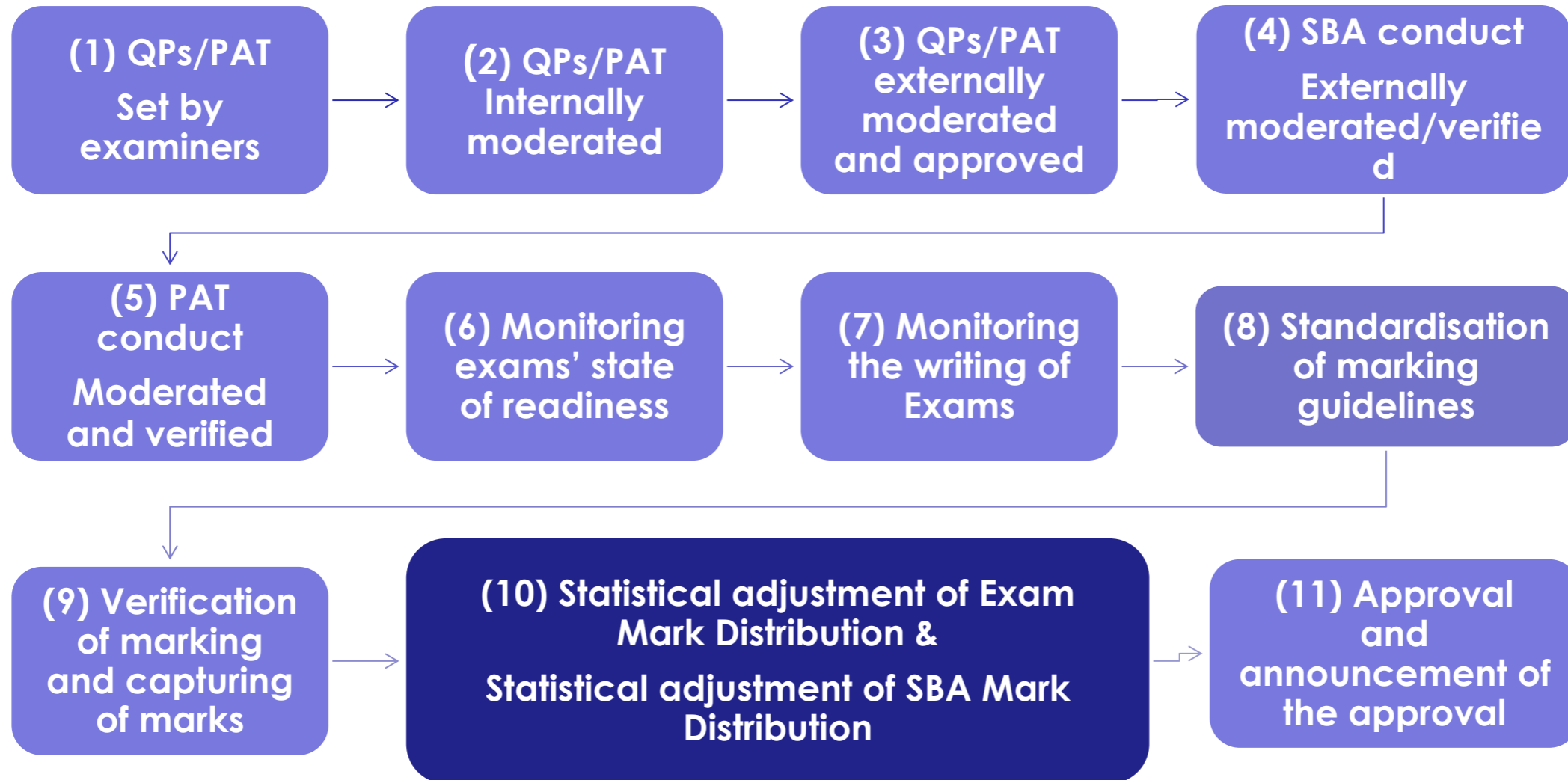
As the Quality Council for General and Further Education and Training, Umalusi derives its mandate for standardisation from the:

The General
Further Education
and Training
Quality Assurance
Act as amended
in 2008. Section
17A (4):

*The Council may adjust raw
marks during the
standardisation process*

OVERVIEW OF STANDARDISATION PROCESS

OVERVIEW OF STANDARDISATION PROCESS



WEIGHTINGS OF MARKS STANDARDISED PER SUBJECT

Assessment	Weighting
External assessment (Examinations)	75%
Internal assessment (School-based assessments)	25%

Standardisation of marks – Umalusi standardises the results of each subject in the following order:

1. Standardisation of the external exam marks (75%),
2. Statistical moderation of the internal SBA marks (25%)

OVERVIEW OF STANDARDISATION PROCESS

What is Standardisation?

A Quality assurance process used the world over to mitigate the impact on learner performance caused by exam-related factors other than the learners' subject knowledge, abilities and aptitude.



OVERVIEW OF STANDARDISATION PROCESS

Why Standardise Marks?

- To ensure credibility of the exam and value of the qualification...which contributes to public trust and confidence,
- To mitigate the sources of variability (Standard of the exam or marking, curricula or cohort changes, etc) that impact on learner performance (**Important 'quality assurance process used the world-over'**)
- To achieve equivalence of the standard of the examination across years, subjects & assessment bodies, and
- To deliver relatively consistent and credible results for use by universities, colleges, employers.

'Standardisation' / Statistical adjustment of mark distributions

- Principle of correspondence:

When standards of examinations(from year to year, subject to subject...) are equivalent, certain statistical mark distributions should correspond. Compare distributions with norms...

- “Ogiving” – instruments of ‘standardisation’/SAMD

- ‘Norm’ /historical average(HA) computed from raw marks of the previous 5 years....see graphs(watch for recent trends)
- Comparison between the distribution of this year’s marks and the ‘norm’ /average(HA)
- Median/Mean
- Pass/Failure rate
- % distinctions

- Pairs analysis (and Eigenvalue ranking)

- Comparing the average marks of candidates in a subject (“anchor subject”) with those of the **same** sets of candidates in other subjects

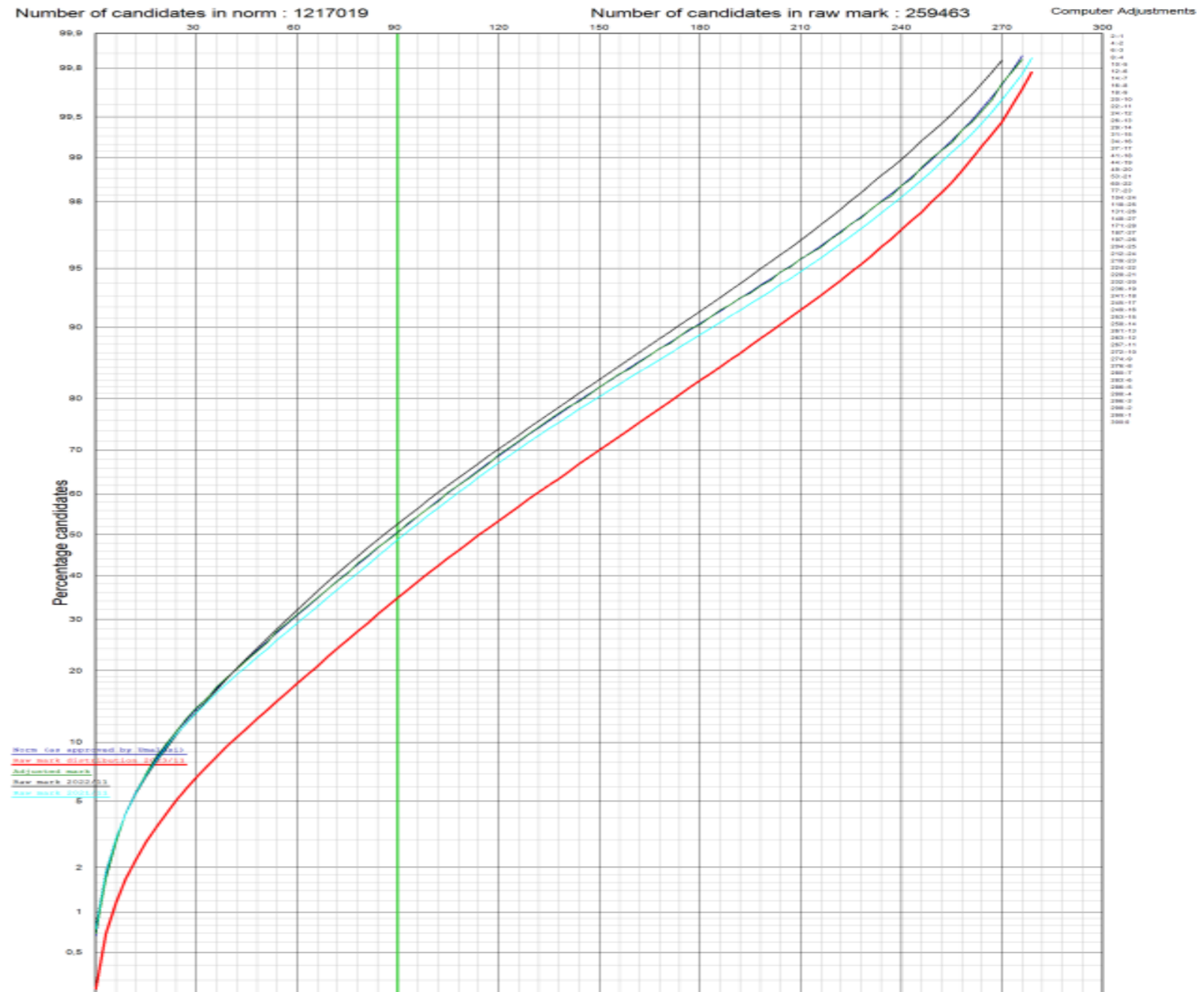
Candidates Enrolled = 268418 Outstanding = 2767 Absent = 6161 Irregular = 27 % Standardise = 98,94

Statistics

Percentage Distribution	1C 00-09	1B 10-19	1A 20-29	2 30-39	3 40-49	4 50-59	5 60-69	6 70-79	7B 80-89	7A 90-100	Mean	Median	Cand.
Norm	13,81	16,91	19,67	18,05	13,19	08,52	05,17	02,96	01,38	00,34	31,91	29,67	1217019
Cumulative Norm	13,81	30,71	50,39	68,44	81,63	90,15	95,32	98,28	99,66	100			
Rawmark 201811	17,05	26,24	28	17,01	08,39	01,99	00,84	00,44	00,04	00	23,26	22,33	2264
Cumulative Rawmark 201811	17,05	43,29	71,29	88,3	96,69	98,67	99,51	99,96	100	100			
Adjusted mark 201811	12,95	15,66	19,36	19,67	14,06	08,41	05,04	03,1	01,44	00,3	32,57	30,67	233726
Cumulative Adjusted mark 2018	12,95	28,61	47,98	67,65	81,71	90,12	95,16	98,26	99,7	100			
Rawmark 201911	13,13	18,18	19,89	18,11	13,59	08,57	04,68	02,46	01,13	00,26	31,38	29,33	221963
Cumulative Rawmark 201911	13,13	31,31	51,21	69,32	82,9	91,48	96,16	98,62	99,74	100			
Adjusted mark 201911	13,13	18,18	19,89	18,11	13,59	08,57	04,68	02,46	01,13	00,26	31,38	29,33	221963
Cumulative Adjusted mark 2019	13,13	31,31	51,21	69,32	82,9	91,48	96,16	98,62	99,74	100			
Rawmark 202011	16,28	16,69	18,9	16,52	12,22	08,34	05,44	03,28	01,84	00,49	31,65	29	232997
Cumulative Rawmark 202011	16,28	32,97	51,87	68,39	80,61	88,94	94,39	97,66	99,51	100			
Adjusted mark 202011	16,28	16,69	18,9	16,52	12,22	08,34	05,44	03,28	01,84	00,49	31,65	29	232997
Cumulative Adjusted mark 2020	16,28	32,97	51,87	68,39	80,61	88,94	94,39	97,66	99,51	100			
Rawmark 202111	13,37	15,67	19,37	18,46	13,26	08,78	05,63	03,41	01,58	00,45	32,85	30,67	258897
Cumulative Rawmark 202111	13,37	29,04	48,42	66,88	80,14	88,92	94,56	97,97	99,55	100			
Adjusted mark 202111	13,37	15,67	19,37	18,46	13,26	08,78	05,63	03,41	01,58	00,45	32,85	30,67	258897
Cumulative Adjusted mark 2021	13,37	29,04	48,42	66,88	80,14	88,92	94,56	97,97	99,55	100			
Rawmark 202211	13,4	18,3	20,72	17,51	12,89	08,49	05,01	02,53	00,94	00,22	31,08	28,67	269436
Cumulative Rawmark 202211	13,4	31,7	52,42	69,93	82,82	91,3	96,32	98,85	99,78	100			
Adjusted mark 202211	14,96	16,74	18,72	17,94	12,6	08,72	05,33	03,11	01,53	00,37	31,86	29,67	269436
Cumulative Adjusted mark 2022	14,96	31,7	50,42	68,36	80,96	89,67	95	98,1	99,63	100			
Rawmark 202311	06,62	11,23	16,78	18,68	16,41	12,92	08,79	05,3	02,61	00,66	39,58	38	259463
Cumulative Rawmark 202311	06,62	17,85	34,63	53,3	69,71	82,63	91,43	96,73	99,34	100			
Adjusted mark 202311	13,98	16,95	19,39	17,89	13,3	08,72	05,04	02,96	01,41	00,36	31,9	29,67	259463
Cumulative Adjusted mark 2023	13,98	30,93	50,33	68,22	81,52	90,24	95,27	98,23	99,64	100			

'Statistical adjustment of mark distributions

Mean of norm	31,91
Mean of raw marks	39,58



General Approach to Standardisation Principles

- Apply both positive/upward and negative/downward adjustments,
- No adjustments of more than 10%(points) in either direction...and NOT beyond the norm,
- Adjustment NOT more than 50% of raw mark,
- Positive/negative adjustments should NOT go beyond the norm/average,
- Marks that are well beyond the norm should be adjusted downwards, but not as far as the norm...'lock in' gains,
- Take account of comments by examiners and moderators; qualitative inputs by assessment body and specialist evaluators,

NB: Refer to the official document for detailed Standardisation Principles

GENERAL PRINCIPLES APPLIED IN THE STANDARDISATION AND OF EXAMINATION MARKS.

(NB: These principles are applied in order to achieve the purpose of standardisation)

In general, adjustments should not exceed 10 percentage points or the historical average (norm).

That is:

- a. No adjusted mark should be beyond the norm or historical average.
 - b. No adjustment should exceed 10 percentage points.
1. In exceptional circumstances, adjustments in excess of 10% (10 percentage points) may be considered and recommended to EXCO of Council for approval. This principle should be read in conjunction with Principle 1 (a) above.
 2. In the case of the individual candidate, the adjustment effected should not exceed 50% of the raw mark obtained by the candidate. This principle should be read in conjunction with Principle 1 above.
 3. If the distribution of the raw marks is below the historical average (norm), the marks may be adjusted upwards, subject to the limitations above.

GENERAL PRINCIPLES APPLIED IN THE STANDARDISATION AND OF EXAMINATION MARKS.

(NB: These principles are applied in order to achieve the purpose of standardisation)

5. If the distribution of the raw marks is above the historical average (norm), the marks may be adjusted downwards, subject to the limitations above.
6. The computer adjusted mark is calculated based on the above principles.
7. For those subjects with a practical component of 50%, raw marks could be accepted, unless there is strong evidence for an adjustment.
8. Nevertheless, Umalusi retains the right to amend these principles, where and when deemed to be necessary based on sound educational principles.

OVERVIEW OF SCHOOL BASED ASSESSMENT (SBA)

OVERVIEW OF SBA

What is School Based Assessments?

School-based Assessment (SBA) comprises all forms of assessment which are conducted by the teacher at school level. This includes assignments, projects, simulations, research, demonstrations, role plays, listening exercises, tests and examinations.

OVERVIEW OF SBA

Why School-Based Assessments?

- SBA provides a more comprehensive evaluation of a learner's abilities and progress.
- Educational advantage - to encourage learners to study/work throughout the year. (Since 2000/2001 SBA marks were included in the resulting process).

OVERVIEW OF SBA

Why Statistically Adjust SBA marks?

Analysis by Umalusi revealed that there were inconsistencies in SBA year marks:

- SBA average much higher than exam average (Scientific subjects),
 - For languages, SBA average often lower than exam average.
- To curb inflation/deflation of marks that may occur at school/centre level, and
 - To address inconsistencies that may occur in the administration of internal assessments across schools/centres

STATISTICAL ADJUSTMENT OF SBA MARK DISTRIBUTION

STATISTICAL ADJUSTMENT OF SBA MARK DISTRIBUTION

- Statistical adjustment of SBA is based on the **adjustment decisions** taken during the standardisation of external marks – referred to as the '**adjusted examination mark**'
- All SBA marks are statistically adjusted per **subject**, per **centre** to a **mean** according to set formulae and to a **standard deviation** that is the same as that of the **adjusted examination mark**.
- During the process of the statistical adjustment of SBA marks of a subject at a centre, learners' SBA raw marks may be adjusted across the distribution:
upwards,
downwards,
accepted as is - raw
disregarded.

STATISTICAL ADJUSTMENT OF SBA MARK DISTRIBUTION

SBA of a centre are:

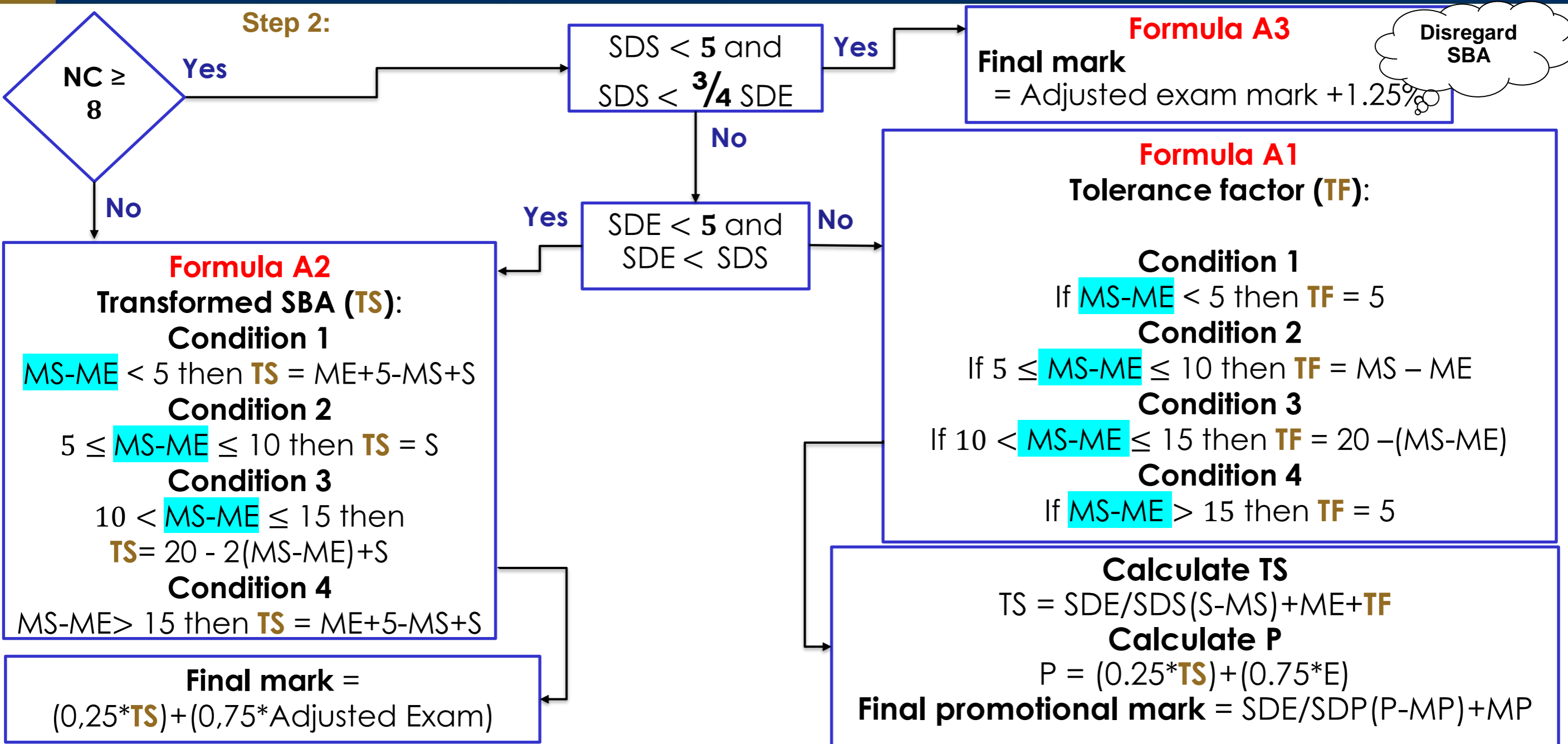
- ✓ **Accepted as is:** When the difference between the SBA mean and the adjusted examination mean is between 5% and 10%, ($5 \leq MS-ME \leq 10$).
- ✓ **Adjusted upwards :** When the difference between the SBA mean and the adjusted examination mean is less than 5% ($MS-ME < 5$).
- ✓ **Adjusted upwards or downwards:** When the difference between the SBA mean and the adjusted examination mean is greater than 10% ($10 < MS- ME \leq 15$ or $MS-ME >15$)
- ✓ **Disregarded:** when $SDS < 5$ and $< 3/4 SDE$ (SBA marks are too close to the mean, indicating low variability. Example to follow)

STATISTICAL ADJUSTMENT OF SBA MARK DISTRIBUTION

Step 1:

Calculate the following statistical measures:

- Mean of the adjusted examination mark **ME**
- Standard Deviation of the examination mark **SDE**
- Mean of the SBA mark **MS**, and
- Standard Deviation of the SBA mark **SDS**



Statistical Adjustment: Example of disregarded SBA mark (A3)

Adjusted Exam Mark	SBA MARK	Disregard Formula	Final mark
22	54	$22 + 1,25$	23,25
13	56	$13 + 1,25$	14,25
14	65	$14 + 1,25$	15,25
8	58	$8 + 1,25$	9,25
39	54	$39 + 1,25$	40,25
34	58	$34 + 1,25$	35,25
6	52	$6 + 1,25$	7,25
19	53	$19 + 1,25$	20,25
3	59	$3 + 1,25$	4,25
17	56	$17 + 1,25$	18,25
11	51	$11 + 1,25$	12,25
13	54	$13 + 1,25$	14,25
12	61	$12 + 1,25$	13,25
24	68	$24 + 1,25$	25,25
3	58	$3 + 1,25$	4,25

Step 1: Calculate means and standard deviations:

ME	15,8666667
SDE	10,0920211
MS	57,1333333
SDS	4,5733528
NC	15
3/4 SDE	7,569015788

Step 2: Check formulae:

$NC \geq 8$	Yes
Check if $SDS < 5$ and $< 3/4 SDE$	Yes

Step 3: Decision: **SBA Mark disregarded**

Step 4: Formula used to result candidates: Final Mark = Adjusted Exam mark + 1.25%

Note: This is an example in percentages: NSC marks are calculated out of 300 marks

Statistical Adjustment: Example of Formula A2, Condition 1 of a Centre

Adjusted Exam Mark	SBA MARK	Transformed SBA	Final mark
47	34	34,67	43,9175
50	56	56,67	51,6675
38	35	35,67	37,4175
41	50	50,67	43,4175
45	60	60,67	48,9175
46	28	28,67	41,6675
43	55	55,67	46,1675
36	39	39,67	36,9175
37	65	65,67	44,1675

Step 1: Calculate means and standard deviations:

ME	42,5555556
SDE	4,5973691
MS	46,8888889
SDS	12,4046984
NC	9
3/4 SDE	3,448026811

Step 2: Check formulae:

NC ≥ 8	Yes
Check if SDS < 5 and < 3/4 SDE	No
Check SDE < 5 and SDE < SDS	Yes

Step 3: Decision: **Formula to be used: A2**

Step 4: Calculate mean difference:

$$MS - ME = 4,3333333$$

Step 5: Decision: $MS - ME < 5$, **Condition 1**

$$\text{Then } TS = ME + 5 - MS + S$$

Step 6: Formula used to result candidates: Final Mark = $(0,25 \cdot TS) + (0,75 \cdot \text{Adjusted Exam})$

Note: This is an example in percentages: NSC marks are calculated out of 300 marks

Statistical Adjustment: Example of Formula A1, Condition 2 of a Centre

Adjusted Exam Mark	SBA MARK	Transformed SBA	Final mark
67	65	64,06780	67
58	67	65,56027	60
53	63	62,57533	56
64	58	58,84415	63
64	64	63,32156	65
49	56	57,35168	51
70	87	80,48497	74
33	57	58,09792	38
57	60	60,33662	58
62	67	65,56027	63
66	87	80,48497	70
41	69	67,05274	47
58	67	65,56027	60
63	62	61,82909	63
52	55	56,60545	53

Step 1: Calculate means and standard deviations:

ME	54,3401361
SDE	8,5035646
MS	61,3265306
SDS	11,3952868
NC	49
3/4 SDE	8,546465106
MP	56,0867347
SDP	7,8641488
TF	6,9863946

Step 2: Check formulae:

NC ≥ 8	Yes
Check if SDS < 5 and < 3/4 SDE	No
Check SDE < 5 and SDE < SDS	No

Step 3: Decision: **Formula to be used: A1**

Step 4: Calculate mean difference:

$$MS - ME = 6,9863946$$

Step 5: Decision: $5 \leq MS - ME \leq 10$, **Condition 2**

$$\text{Then TF} = MS - ME = 6,9863946$$

Step 6: Formula used to calculate TS: $TS = SDE/SDS(S-MS)+ME+TF$

Step 7: $P = (0.25*TS)+(0.75*E)$

Step 8: **Final promotional mark** = $SDE/SDP(P-MP)+MP$

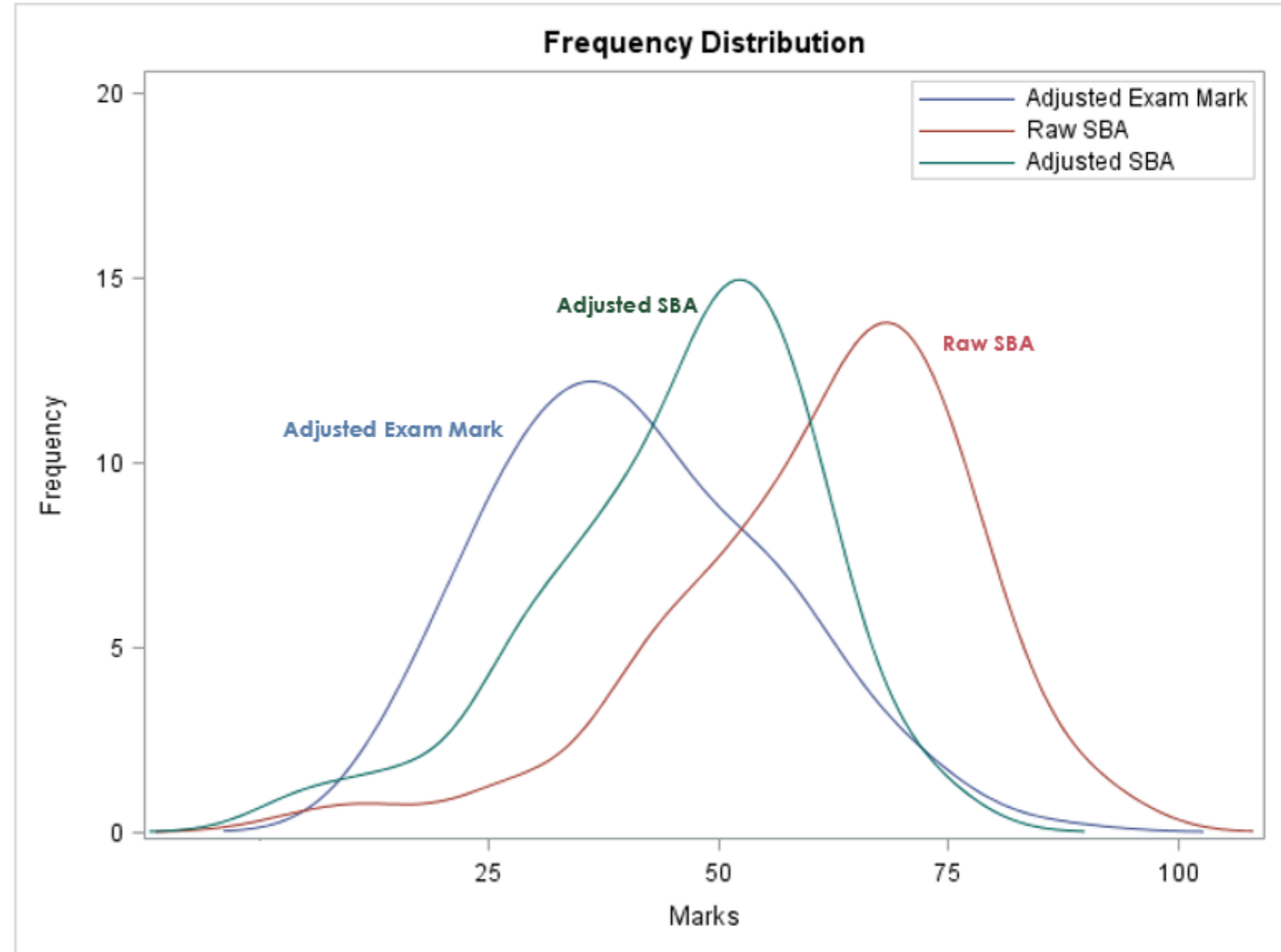
STATISTICAL ADJUSTMENT OF SBA MARK DISTRIBUTION

NC \geq 8 (172)	Yes
Check if SDS < 5 and < 3/4 SDE	No
Check SDE < 5 and SDE < SDS	No

Formula to be used: A1

Condition 5 - MS-ME >15

	Mean	Standard Deviation
Adjusted Exam Mark	40,85	14,99
Raw SBA	61,07	16,43
Adjusted SBA	46,01	14,51



REMARKS: DEVELOPMENT AND CONDUCT OF SBA

- The Statistical moderation of SBA is **applied consistently** across all Assessment Bodies and across all qualifications

Based on the explanation of standardisation and statistical adjustment of marks it is imperative that online schools take cognisance of how learners' results are negatively impacted by:

- Poor-quality SBA tasks;
- Poor conduct, administration and management of PAT and SBA tasks;
- Inconsistent marking and moderation of PAT and SBA tasks;
- Lack of constructive feedback and developmental plans for learners; and
- **Inflation or deflation of PAT and SBA marks.**

Challenges: Online Schools/Centres

- Online Schooling is unregulated and a relatively new terrain in SA. The regulations are currently being finalised. However, in the interim
- The challenges facing Assessment Bodies, and their online schools/centres are to ensure:
 - The development of good quality SBA tasks through rigorous internal moderation;
 - Authenticity of assessments through adequate administration of the conduct of SBA;
 - Consistent marking and moderation of PAT and SBA tasks; and
 - Constructive feedback and developmental plans for learners.

Some General Remarks

- Standardisation **as a dynamic process** has met and overcome numerous challenges over the years e.g. Change in curricula and learner cohorts,
- While Statistical adjustments attempt to give a fair/honest feedback, **they cannot adjust for the ills of a society on graph paper,**
- Quality exams engineered by examiners and moderators have invaluable potential to direct good teaching/learning and **improve standards through feedback,** and
- **Exams reflect** (like a mirror) what is before them..if you don't like what you see not helpful to break the mirror

CONCLUSION

- In seeking balanced solutions, the overriding consideration of the Standardisation Process is **to treat all candidates fairly, consistently and to deliver constant and credible results**, thereby sustaining public trust and confidence.
- Responsibility to **set, maintain and improve** standards of assessment

Thank you.

QUESTIONS

