

THE EFFECT OF FORMATIVE ENGAGEMENT UPON SUMMATIVE PERFORMANCE IN ON-LINE ASSESSMENTS

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BACKGROUND TO THE STUDY

- Generally held views:
 - Formative assessments encourage learning
 - Students don't attempt assessments that don't have marks





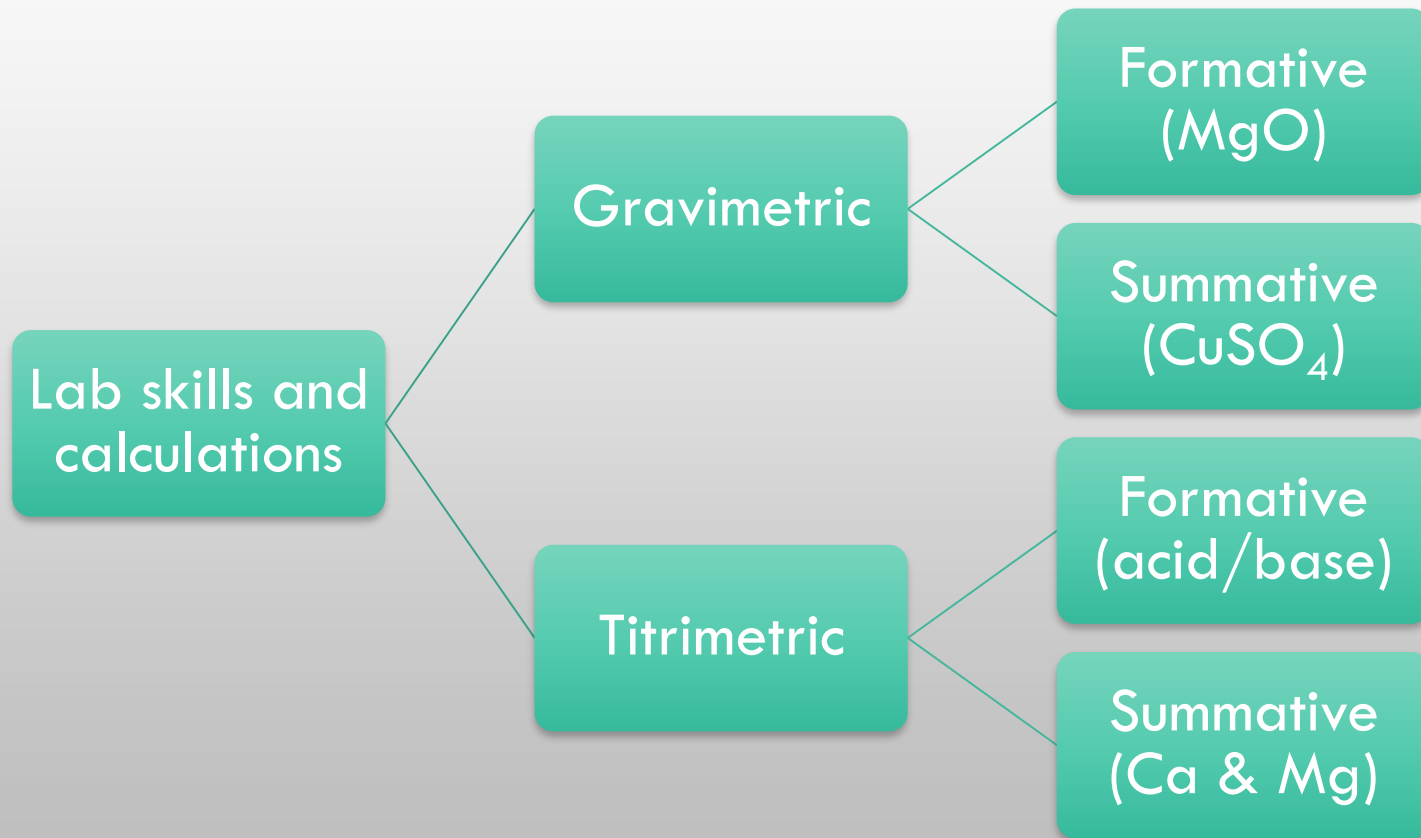
CONTEXT

- Foundation year students
(100-150 per cohort)
- Very mixed prior experience/
knowledge
- Laboratory sessions in first few weeks
- Progress to a range of science
degrees





ASSESSMENT DESIGN



SMART WORKSHEET

CuSO_4

Correct answers derived from student's own data

Full INSTANT feedback

Marks for 1st, 2nd, 3rd attempts (with reduction)

“solve” button gives correct calculation answer for zero marks

DETERMINATION OF THE FORMULA OF A COMPOUND



RESULTS

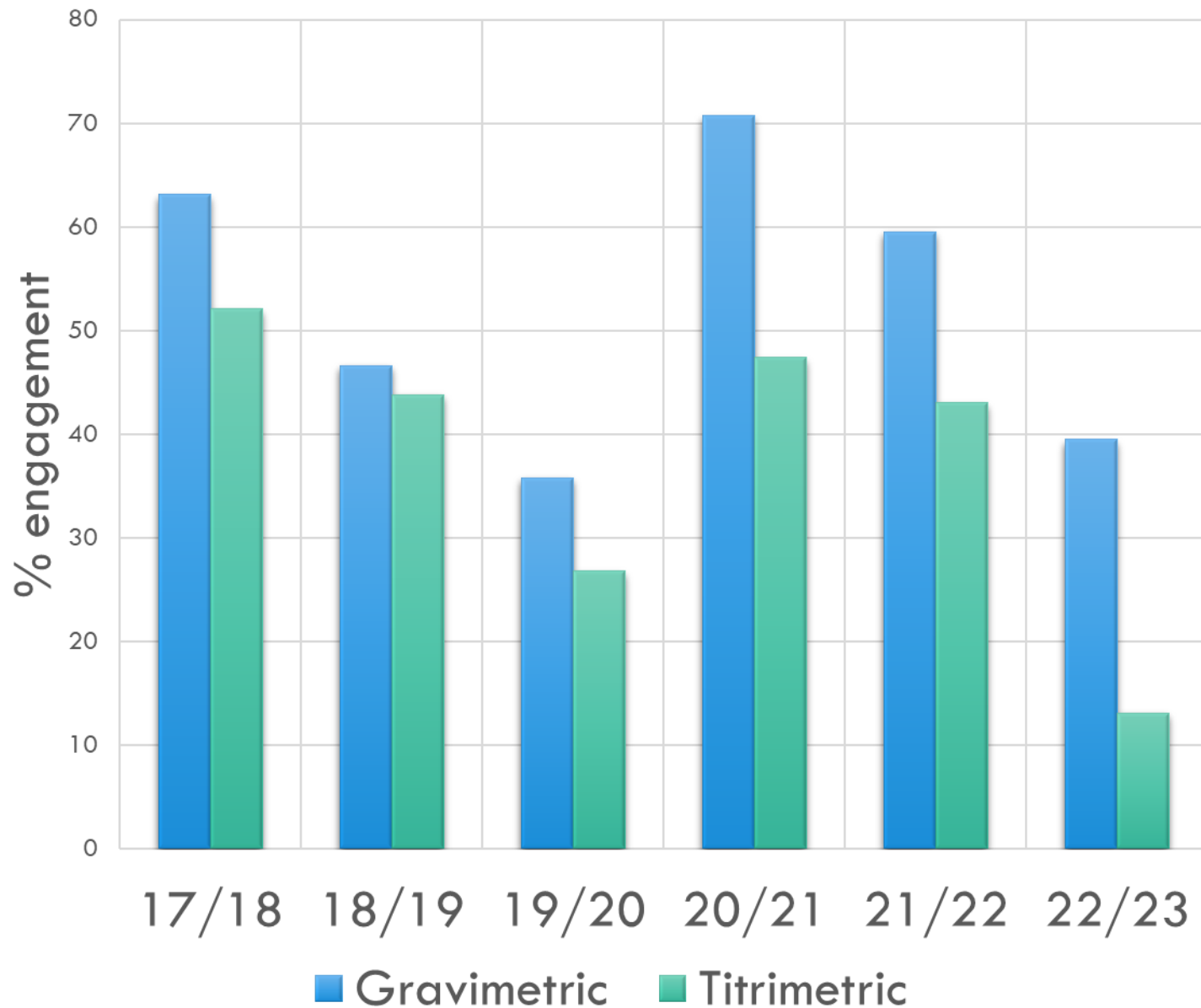
	Mass (g)	
Crucible and lid (A)	<u>23.9941</u>	✓
Crucible, lid, and Mg (B)	<u>24.0610</u>	✓
Crucible, lid, and product (C)	<u>24.1044</u>	✓

CALCULATIONS

MASSES

Determine the masses of Mg, product, and oxygen.

	Mass (g)	
Mg	<u>0.0669</u>	✓
Product	<u>0.1103</u>	✓
Oxygen	<u>0.0434</u>	✓

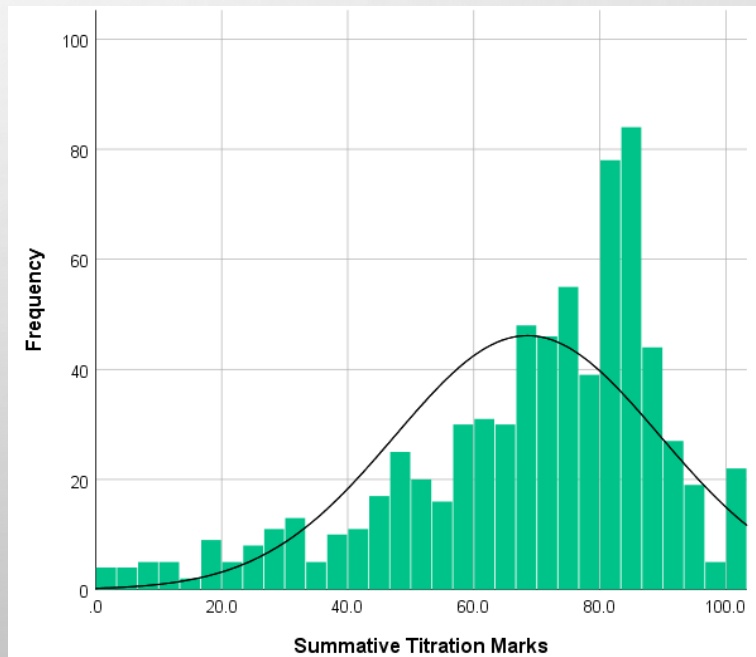
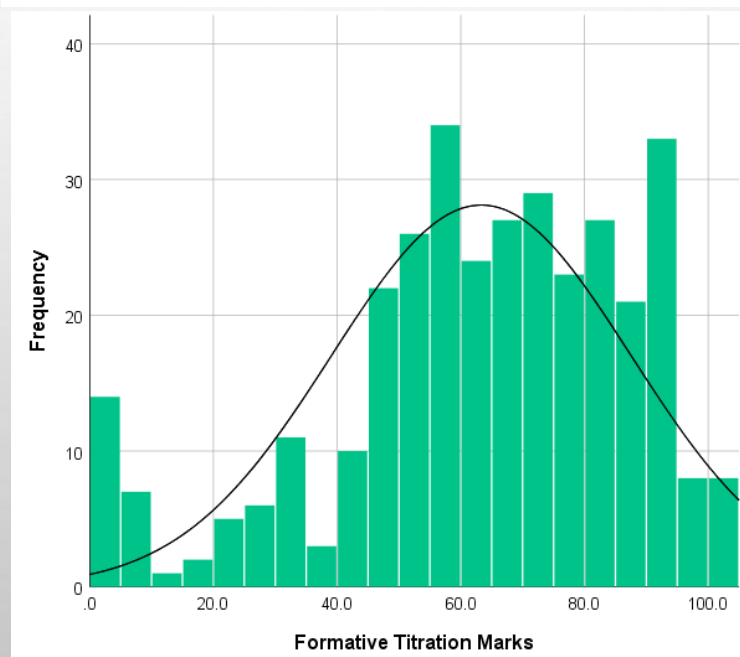
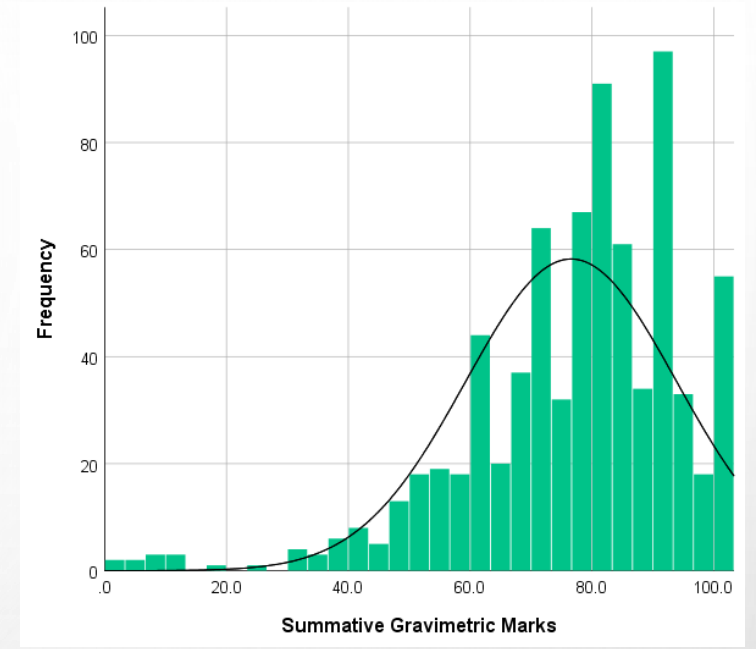
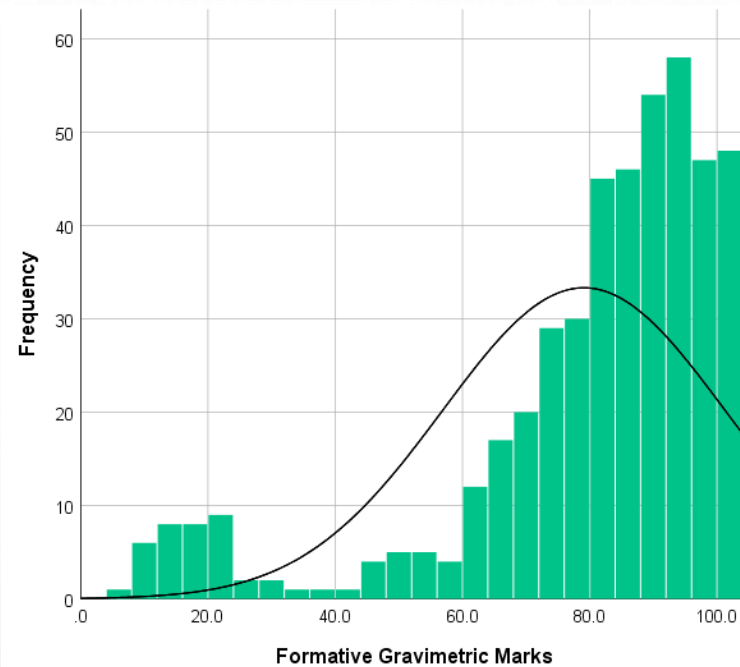


ENGAGEMENT WITH FORMATIVE ASSESSMENTS

Overall:
% engage (grav) 52.8
% engage (titr) 38.9

TESTING FOR NORMALITY – MARK DISTRIBUTIONS

Assessment	N
Form Grav	463
Sum Grav	759
Form Titr	341
Sum Titr	728



MARK UPLIFT

NON-PARAMETRIC (MANN-WHITNEY)

	Median no form	Median with form	Median difference	p
Grav	76.67	81.67	5.00	<0.001
Titr	67.70	78.95	11.25	<0.001

PARAMETRIC (T-TEST)

	Mean no form	Mean with form	Mean difference	p
Grav	71.56	80.12	8.56	<0.001
Titr	63.55	74.50	10.94	<0.001

CONCLUSIONS AND LIMITATIONS

CONCLUSIONS

- STUDENTS **DO** ENGAGE WITH FORMATIVE ASSESSMENTS
- THOSE THAT FULLY ENGAGE PERFORM SIGNIFICANTLY BETTER IN THE SUMMATIVE ASSESSMENTS

LIMITATIONS

- STUDENTS SELF-SELECTED AND HENCE THE EFFECTS MAY BE DUE TO INNATE MOTIVATION
- EFFECTS MAY NOT BE THE SAME FOR ASSESSMENTS THAT ARE NOT ON-LINE

THANK YOU
FOR YOUR ATTENTION



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