



Is it too late to master your numeracy when the days in your Masters are numbered?

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Project team

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A Question to ponder ...

What numeracy skill level should all primary and secondary teachers have?



The Official answer

In 2015 all Education Ministers agreed that, from 1 July 2016, the national Literacy and Numeracy Test for Initial Teacher Education Students (sometimes called LANTITE, or the National Test) will be used as the required means to demonstrate that initial teacher education students are in the top 30 per cent of the adult population for personal literacy and numeracy.



The National Numeracy Test

- Applies to all initial teacher education students
- Must pass prior to graduation
- Online test administered by ACER
- 65 questions in 2 hours, 80% with on-screen basic calculator
- Level of difficulty?
- Content?
- Pass mark?
- Ten sample questions...



Education at WSU

- Master of Teaching degree follows various undergraduate Pathway to Teaching degrees
- National test pass required prior to final practicum
- This is after 4 – 5 years of university study
- Various supports in place for Masters students
- Vast majority of WSU students do pass National Test but ...



Significant issues for students

- Stress and anxiety
- First time doing maths for many years for some
- Lack of acceptance of test regime
- Timed test
- Wordy questions, many charts and tables
- Calculator dependence
- Over confidence in ability
- Very few practise materials available



An early warning system

- Desire to alert students earlier
- Optional online diagnostic numeracy test
- Support resources
- Encourage slow and steady preparation



Already at Notre Dame...

- A Numeracy Practise site running on their Blackboard site including a diagnostic numeracy test
- Research project based on data
- Student feedback that the Notre Dame test was harder than National Test
- Plans to rewrite the test to better reflect the required standard



The joint project

- Shared new diagnostic quiz
- Different support models
 - WSU
 - Notre Dame
- Research
 - Students' online study habits
 - Areas of numeracy strength and weakness
 - Predictors for at-risk students



The Pilot Quiz

- Available to students from mid-October until early December 2017
- 40 numeracy questions, ten each for the strands:

Number and Algebra

Measurement and Geometry

Statistics and Probability

Non-calculator

- 3 open-ended feedback questions:

What did you find most useful about this site?

What improvements do you think should be made to this site?

Do you have any other general feedback about this site?

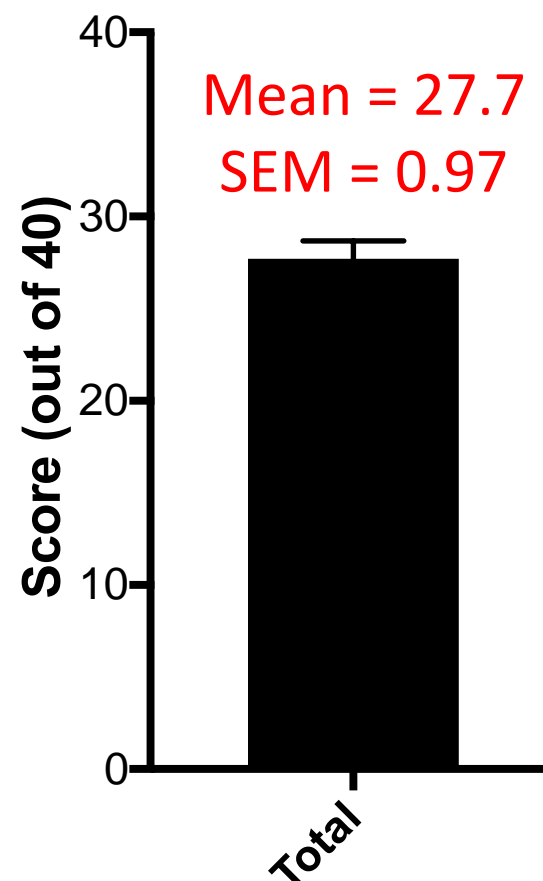
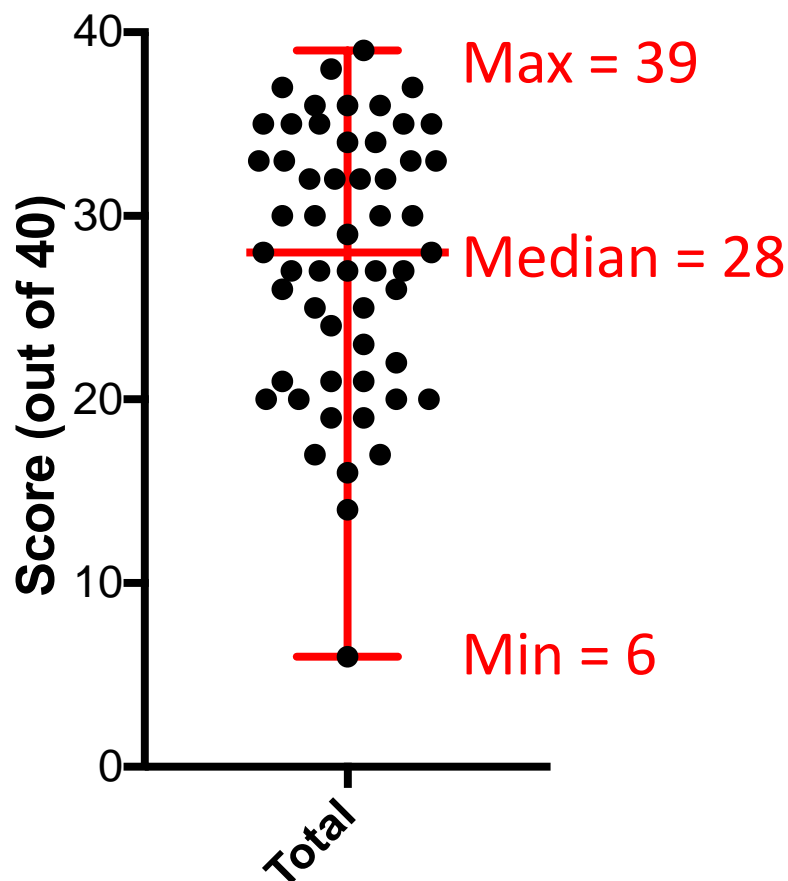


The Pilot Quiz Participants

- There were 75 test attempts across the two universities.
- When an attempt displayed more than 8 'unanswered' questions ($>20\%$), it was considered a non-genuine attempt and therefore removed from analysis.
- Only genuine first attempts were used in the analysis.
- There were 55 genuine first attempts.

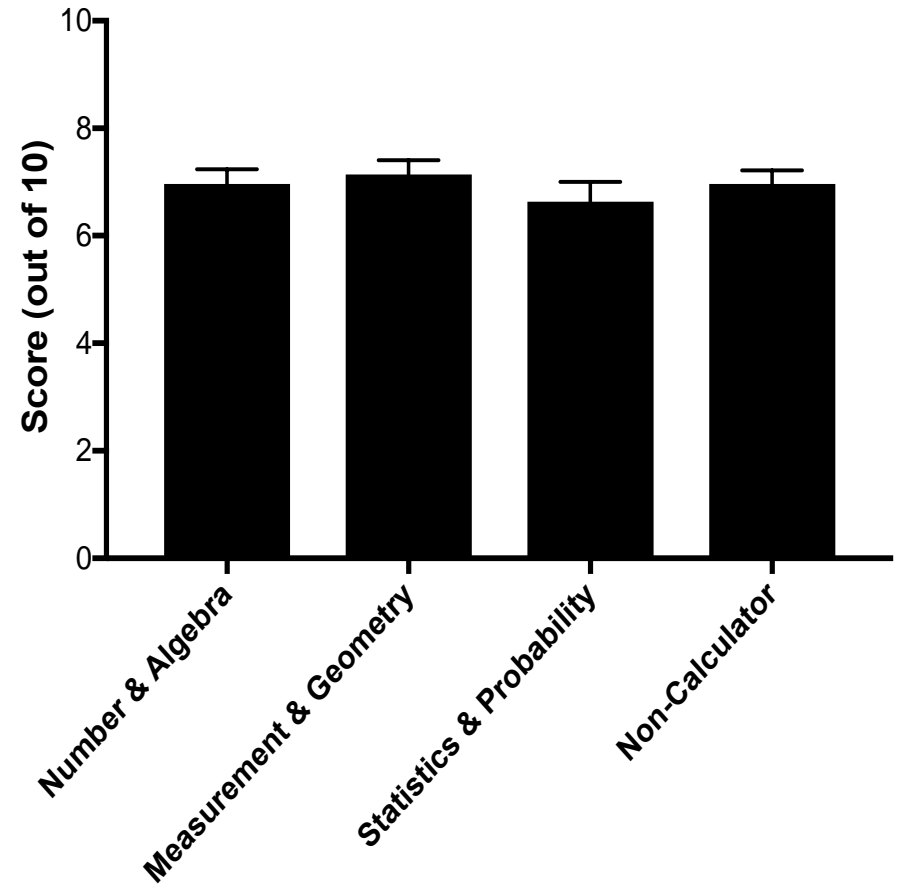
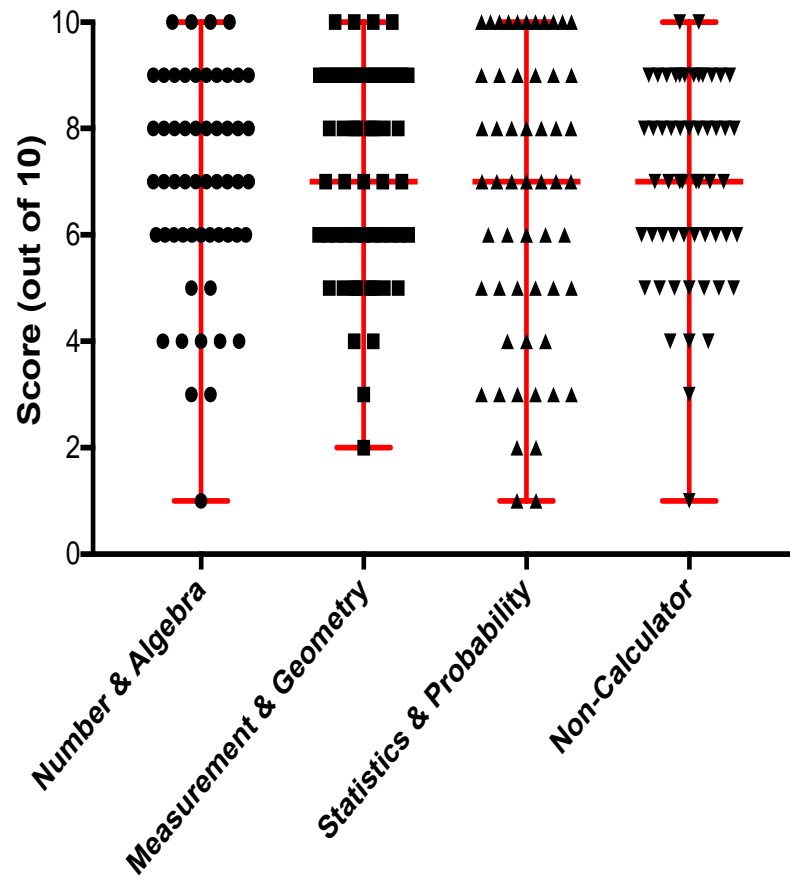


Pilot Quiz Results





Pilot Quiz Results





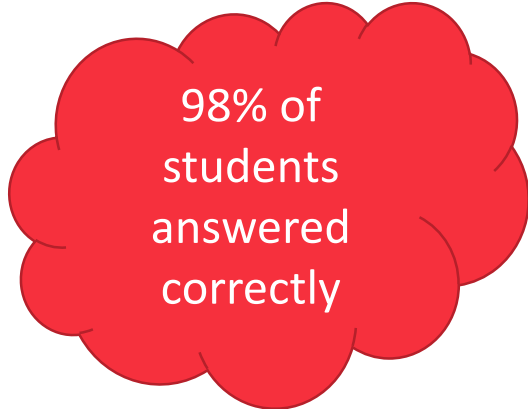
Best Performed Questions

Number and Algebra

Choose the number that matches the following sentence:

Four hundred thousand and seventy-three

- ☐ 400 037
- ☐ 400 073
- ☐ 407 030
- ☐ 473 000



98% of
students
answered
correctly



Best Performed Questions

Statistics and Probability

Peter is to select a marble from random.

The marbles are pictured below



What is the probability of Peter selecting a blue marble?

- ☐ $\frac{3}{12}$
- ☐ $\frac{4}{12}$
- ☐ $\frac{5}{12}$
- ☐ $\frac{6}{12}$

96% of students
answered
correctly

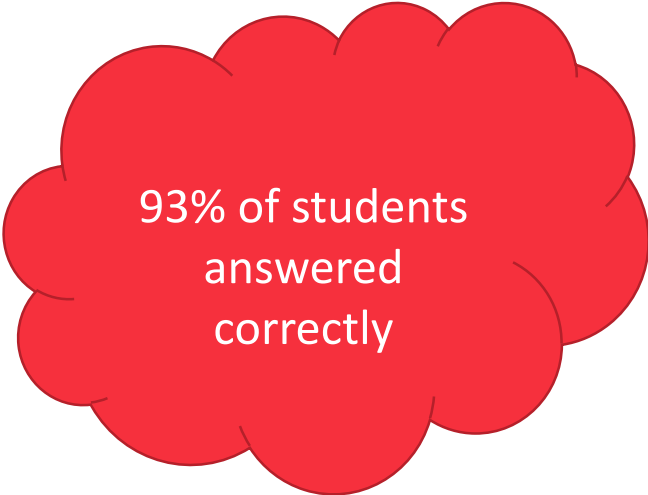


Best Performed Questions

Measurement and Geometry

A video which runs for 97 minutes is started at 7:45 pm. When will it finish?

- ☐ 9:52 pm
- ☐ 9:47 pm
- ☐ 8:52 pm
- ☐ 9:22 pm



93% of students
answered
correctly



Worst Performed Questions

Measurement and Geometry

A hiker was hiking due North.

She made these three course changes:

- 15° right turn
- 50° left turn
- a final turn right until she was heading due East

How many degrees did she turn the third time? Leave out the unit in your answer.

25% of
students
answered
correctly



Worst Performed Questions

Statistics and Probability

A restaurant offers a three-course meal with a choice of two entrees, two main courses and two desserts.

The choices offered are:

ENTREES:

Caesar Salad
Chicken and Corn Soup

MAIN COURSES:

Char-grilled Eye Fillet
Roasted Chicken

DESSERTS:

Apple Pie
Trio of Sorbets

How many different combinations of three-course meals can be served?

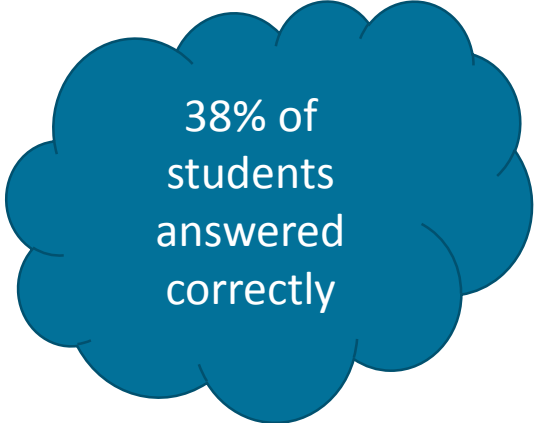
27% of
students
answered
correctly



Worst Performed Questions

Number and Algebra

To make up the cordial for the school camp, Miss Roberts knows that she has to mix 1 part orange concentrate to 5 parts water. If she has to make 36 Litres of cordial, how much concentrate (in litres) will she need? Leave out the unit (litres) in your answer.



38% of
students
answered
correctly



Pass Rate

- 48 out of 55 students passed (87.3%)
- Pass rate is comparable to what has been reported by the Australian Council of Deans of Education
- The Pilot Test results will guide our development of the main numeracy test



What did you find most useful about this site?





2018 and beyond

- Main Diagnostic quiz available early 2018 for Education students at both institutions
- Large pool of questions for all strands
- Practise sets of 10 questions from selected strand also available
- WSU Blackboard site PatTNS will be fully functional