



# Perspectives on Digital Assessment in a global context

Dr Matthew Richards | 30 November 2020

## What is the context of these perspectives?

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- I am an education technology advocate, with 15+ years of experience in global digital assessment, teacher support as well as operational services
- I have worked with schools, assessment organisations and ministries in many of the 170+ countries in which Cambridge Assessment operates
- I certainly haven't visited all of them!

## Covid has highlighted the digital divide

**THE PIE NEWS**  
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### Universities prepare for semester of online and hybrid learning

Posted on Sep 11, 2020 by Callan Quinn

Posted in Analysis, under Global.

Tagged with Coronavirus, Covid-19, Hybrid, Online, Zoom.

Bookmark the permalink.

A recent [survey](#) from the National Union of Students in the UK has suggested that "most students would like to see their courses carried out as normal this coming year as far as possible", but for many if not most around the world, this will not be the case.



Colleges and universities have tried to improve their online learning offerings over the summer. Photo: Pixabay

- Covid has forced us all to work more digitally
- For many of us in the workplace, this has involved taking our laptops home
- For schools and learners, things have been more complex...

## Specifically in the UK...

### Coronavirus: A third of pupils 'not engaging with work'

By Katherine Sellgren  
Family & Education reporter

16 June

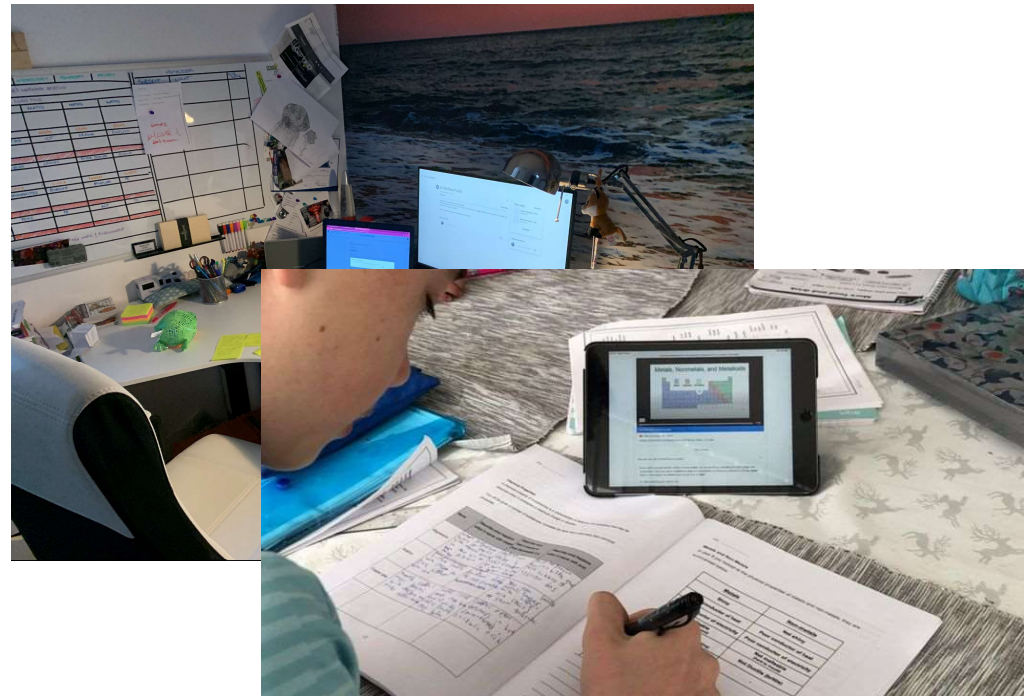


The vast majority of teachers (90%) say their pupils are doing less or much less work than they would normally at this time of the year, a study finds.

The report by the National Foundation for Educational Research (NFER) says head teachers believe around a third of pupils are not engaging with set work.

Limited or no access to technology was a problem for around a quarter (23%) of pupils, school leaders told the NFER.

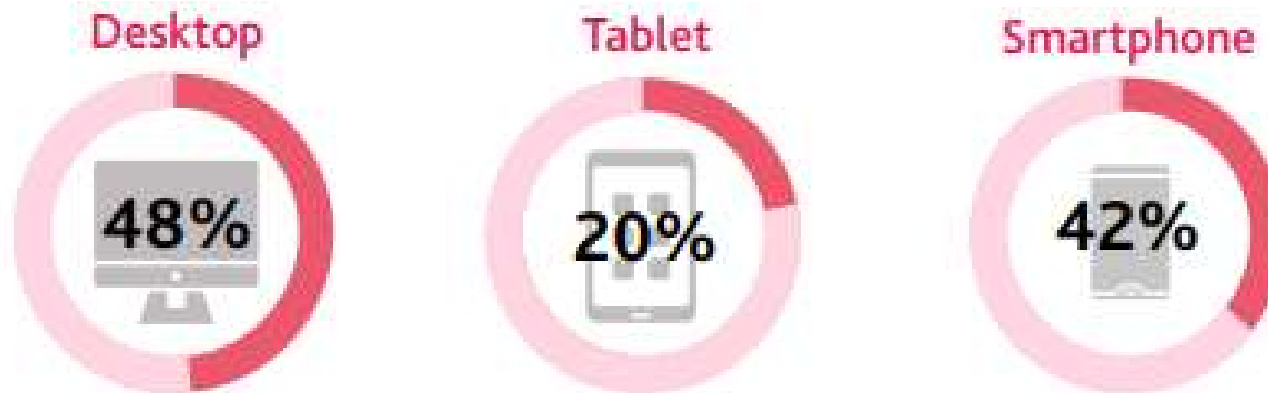
<https://www.bbc.co.uk/news/education-53049127>



BBC News



## Global percentage of students that use tech in the classroom



“I study chemistry, English language, English literature, physics and maths at school in Surat. I use pen and paper during classes, and there are blackboards in the classroom at school – but at home, I use a smartphone with pen and paper to complete my homework, which takes about an hour each day and 1–2 hours at the weekend. I attend school six days each week.”

**Student, 16, India**

# Ensuring comparable, reliable assessment

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(e) Onion leaves are green. Students testing onion leaves for the presence of starch used the method shown in the four stages of Fig. 1.5.

*For Examiner's Use*

Explain the reasons for the details shown in each stage. Write your answers on the lines below Fig. 1.5

Fig. 1.5

reasons for stage 1 .....

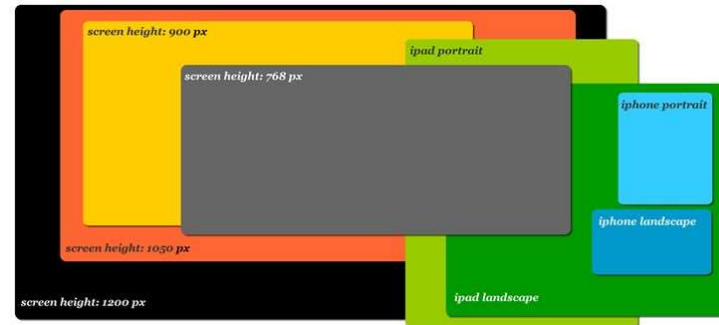
reasons for stage 2 .....

reasons for stage 3 .....

reasons for stage 4 .....

[4]

[Total: 22]

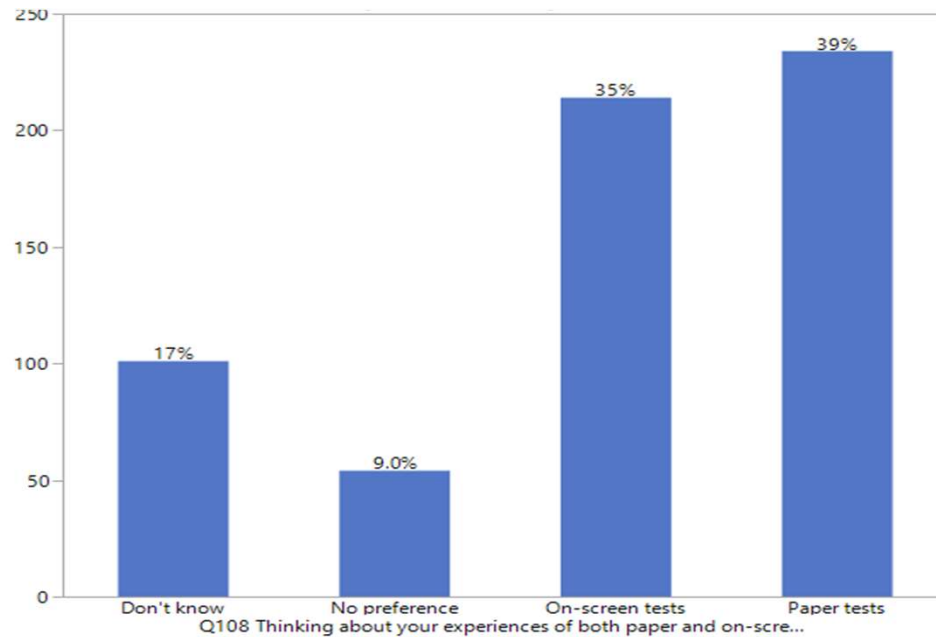


..and even a single device can be used in different ways. An equivalent candidate experience?



## Paper vs Digital Maths and Science test feedback (ca 12 year old learners)

Thinking about your experiences of both paper and on-screen tests, which do you prefer?



“...I am really used to doing workings like the calculations and everything on paper so doing that on a screen wasn't as easy as I thought it would be.”

“...it was easier [on screen] especially because I don't have to worry about my handwriting.”

## Paper vs Digital Maths and Science test feedback (ca 12 year old learners)

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### Typing ordinary text responses and typing workings

- ▶ **70%** of students agreed that it easy to type **answers** on screen (25% disagreed)
- ▶ **31%** reported that it was easy to do **workings** on screen (60% disagreed)
- ▶ Responses and observations show learners use mixed modes for jotting and working
- ▶ They often still wanted **paper to do rough work**



## Paper vs Digital Maths and Science test feedback (ca 12 year old learners)

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### Perceived advantages

- ▶ Progress overview
- ▶ Can track progress through test
- ▶ Clarity of appearance
- ▶ **Faster to type**
- ▶ More structured questions
- ▶ <sup>9</sup>Increase computer skills



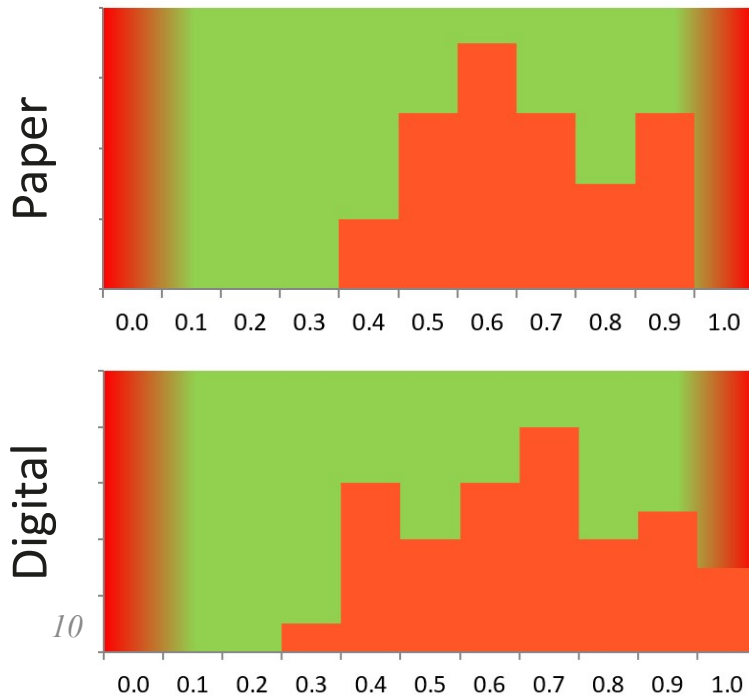
### Perceived disadvantages

- ▶ Inputting working
- ▶ Cannot draw or sketch
- ▶ Lack of flexibility
- ▶ **Typing takes longer**
- ▶ Concerns about technology failure
- ▶ More opportunities for plagiarism

## Example Science test analytics (ca 12 year old learners)

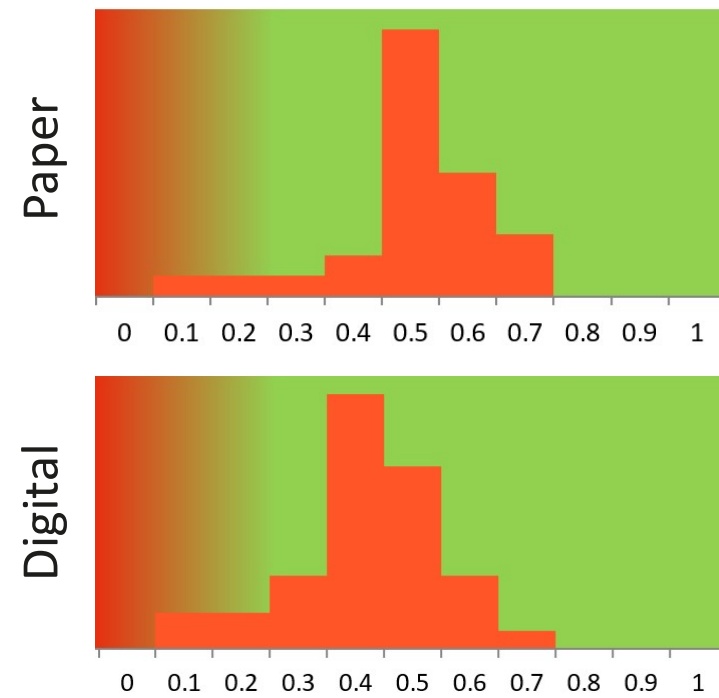
### Facility

Essentially, a measure of how easy or difficult a question is



### Discrimination

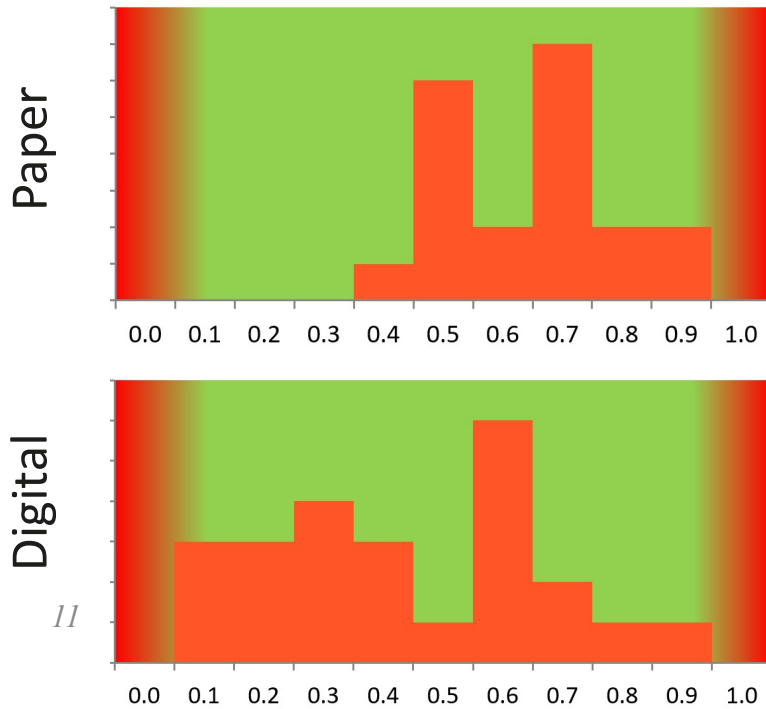
Whether higher scoring test takers performed better, worse or the same as lower scoring test takers on a particular question



## Example Maths test analytics (ca 12 year old learners)

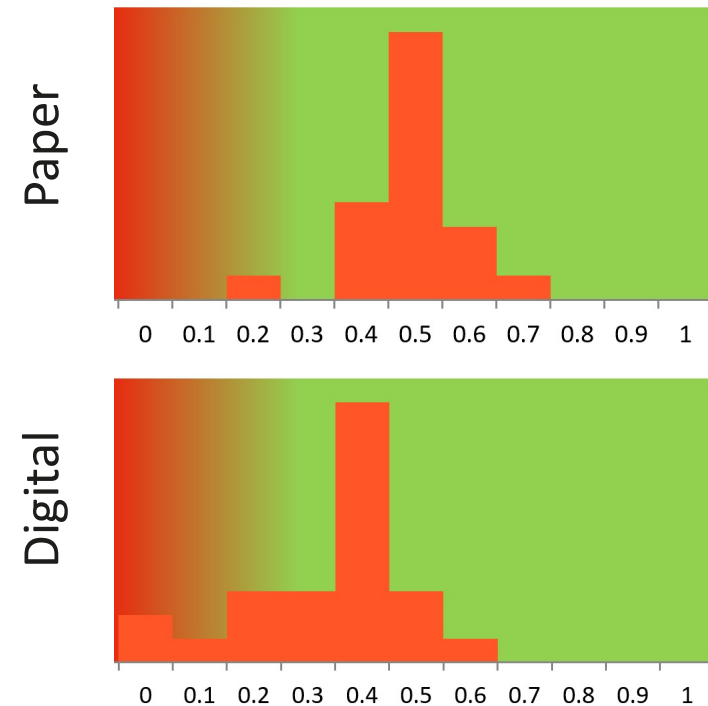
### Facility

Essentially, a measure of how easy or difficult a question is



### Discrimination

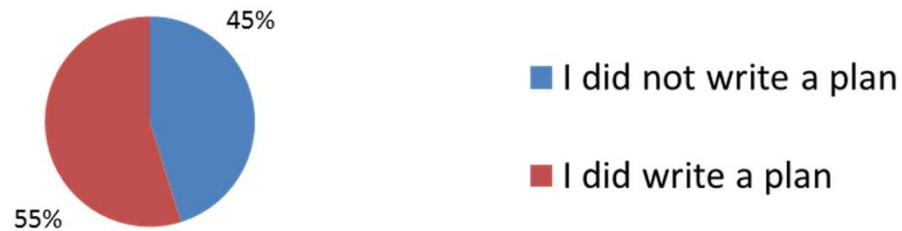
Whether higher scoring test takers performed better, worse or the same as lower scoring test takers on a particular question



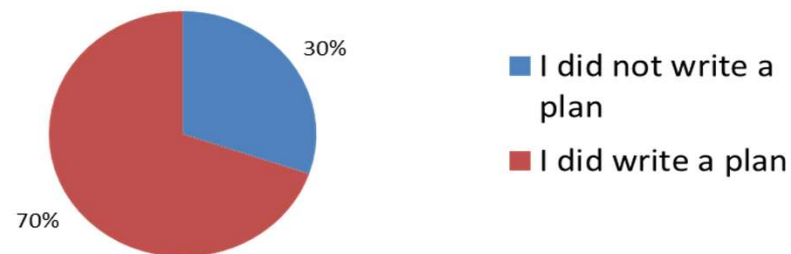
## Paper vs Digital General paper test feedback (ca 12/13 year old learners)

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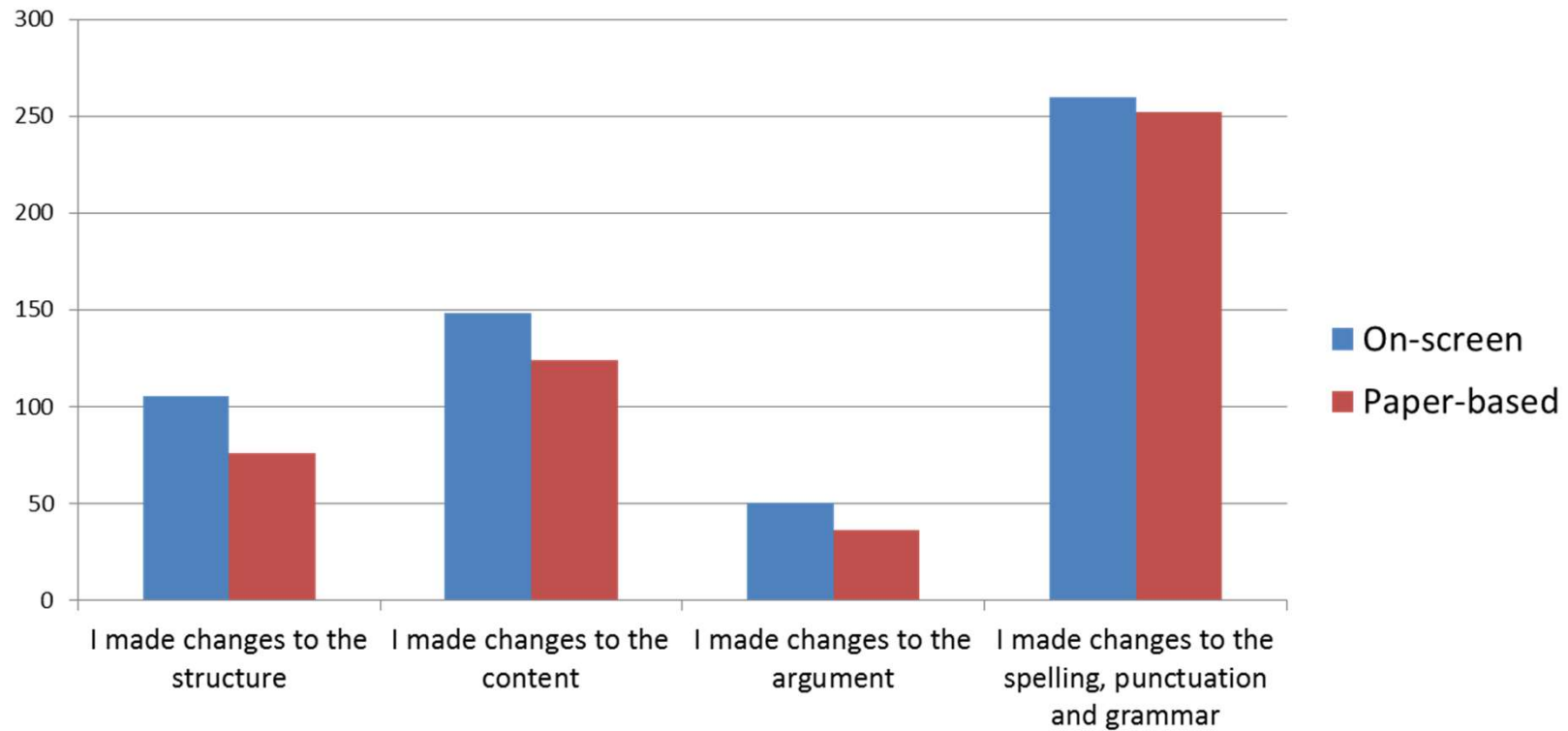
**Before typing your on-screen essay  
did you make a plan?**



**Before writing your paper-based essay  
did you make a plan?**



## Paper vs Digital General paper test feedback (ca 12/13 year old learners)



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## Paper vs Digital General paper test feedback (ca 12/13 year old learners)

Having the word count on the computer helped me out because I didn't have to waste my time counting all the words.

I use the italics/bolding to emphasize a word or phrase more.

Writing an essay on computer is slower for me because I don't normally type as fast as others.

With the computer I felt more comfortable when writing my essay being that my school is digital.

The typing of other people bothered me.

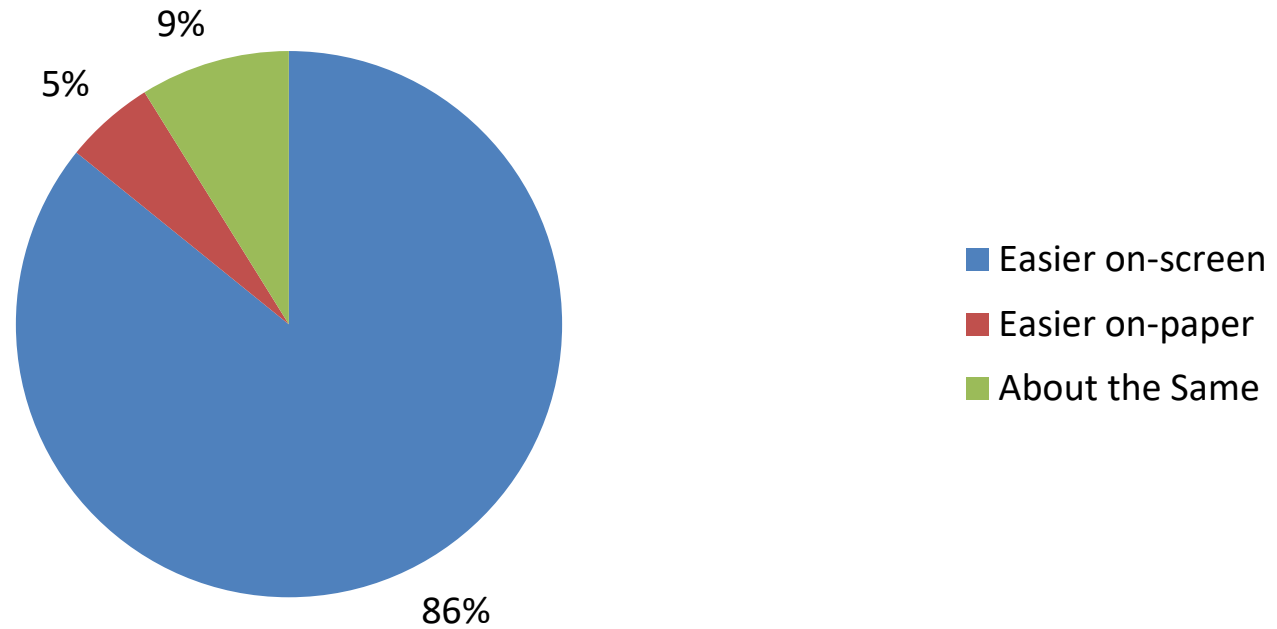
On paper I was more organized whereas on the computer I was less organized and more all over the place.

I have more time to go back and review my work. I also type better than write because my handwriting is bad.

## Paper vs Digital General paper test feedback (ca 12/13 year old learners)

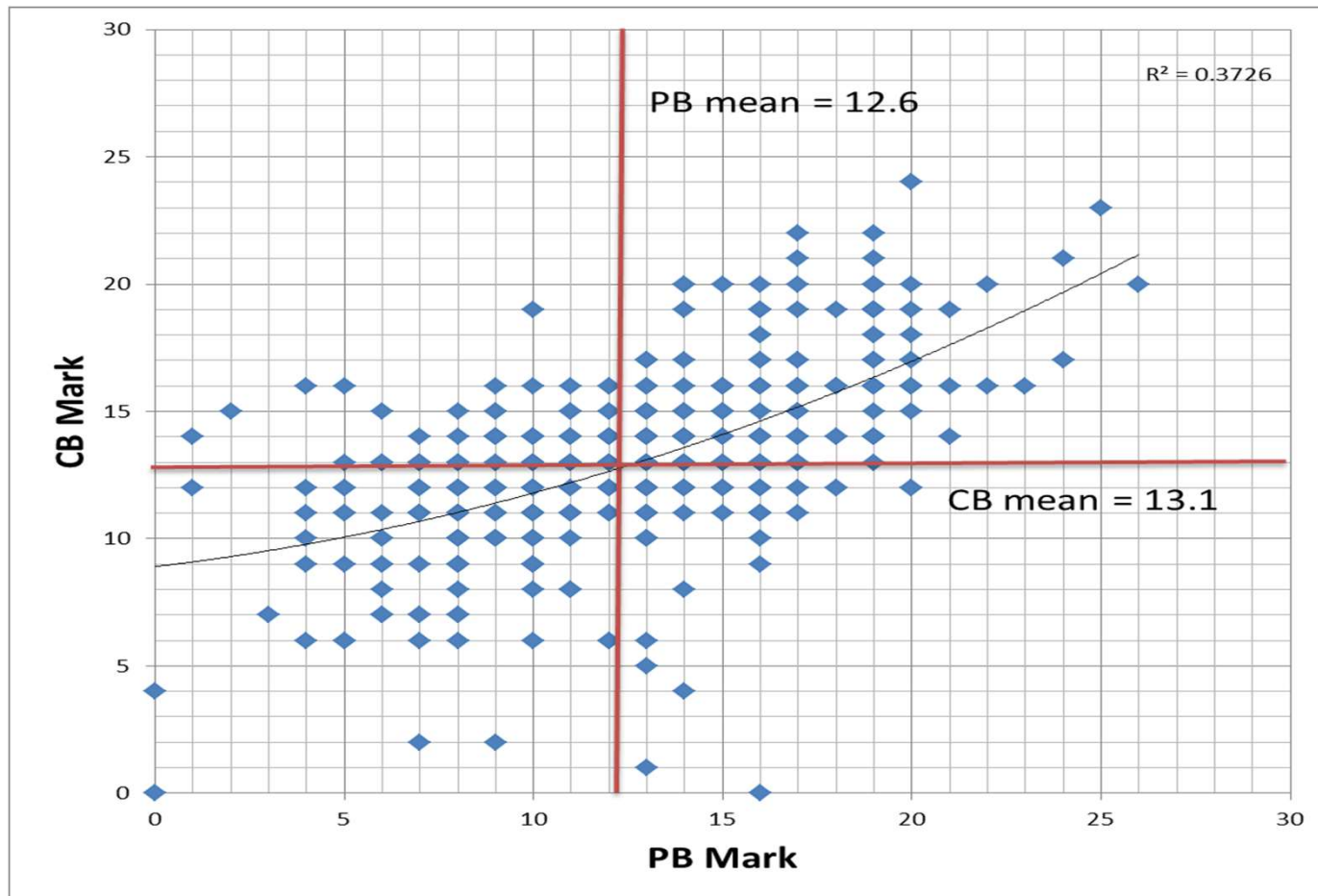
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Was the test easier to do on paper or on computer?



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## Paper vs Digital General paper: Comparability of outcomes





## Paper vs Digital General paper test Examiner feedback

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**Legibility** – “Although there is an individuality about handwriting, online scripts tended to remove such a barrier and allow a fairer assessment of writing quality”

**Structure** – On-screen tests generally better structured

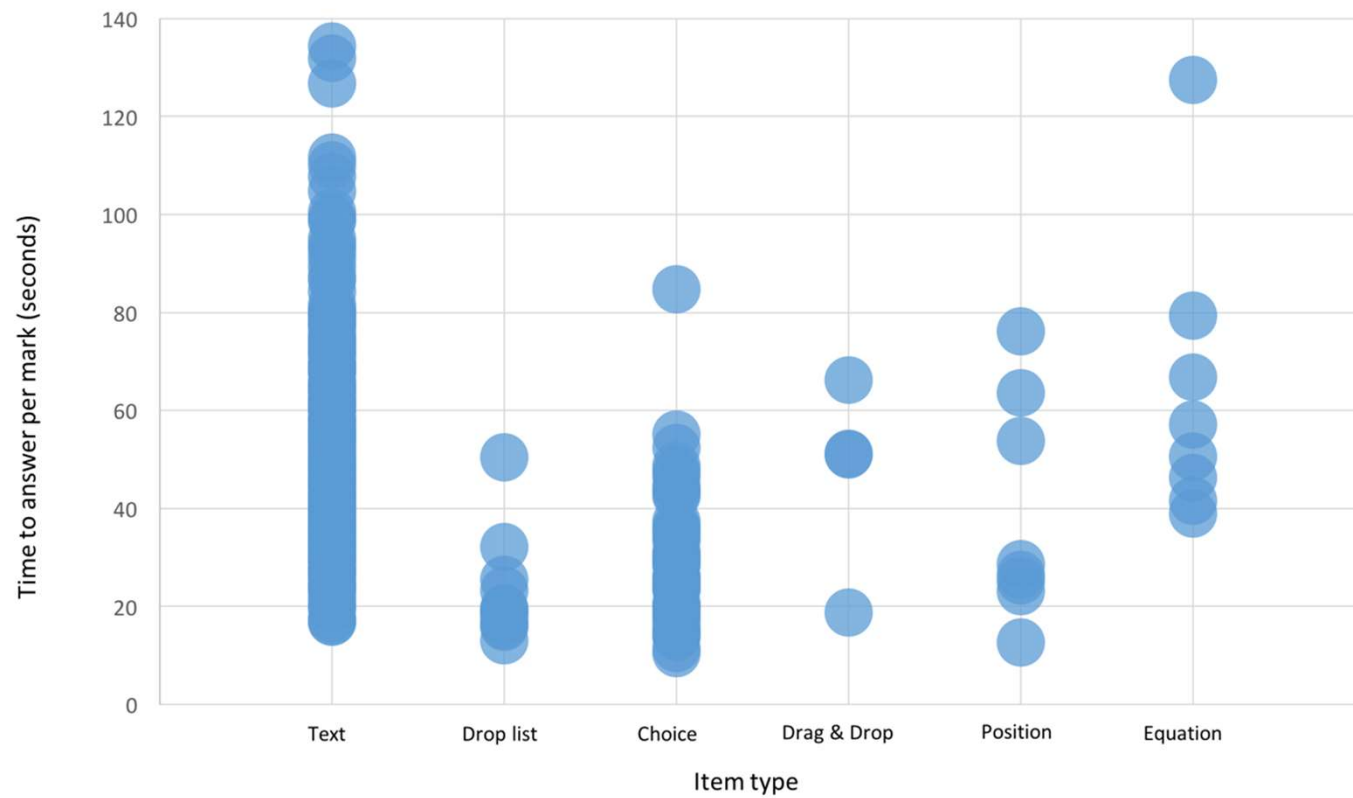
**SPAG** – Problem to differentiate *typos* for on-screen tests

**Length** – On-screen tests were generally much longer

**Toolbar** – No evidence of distracting candidates

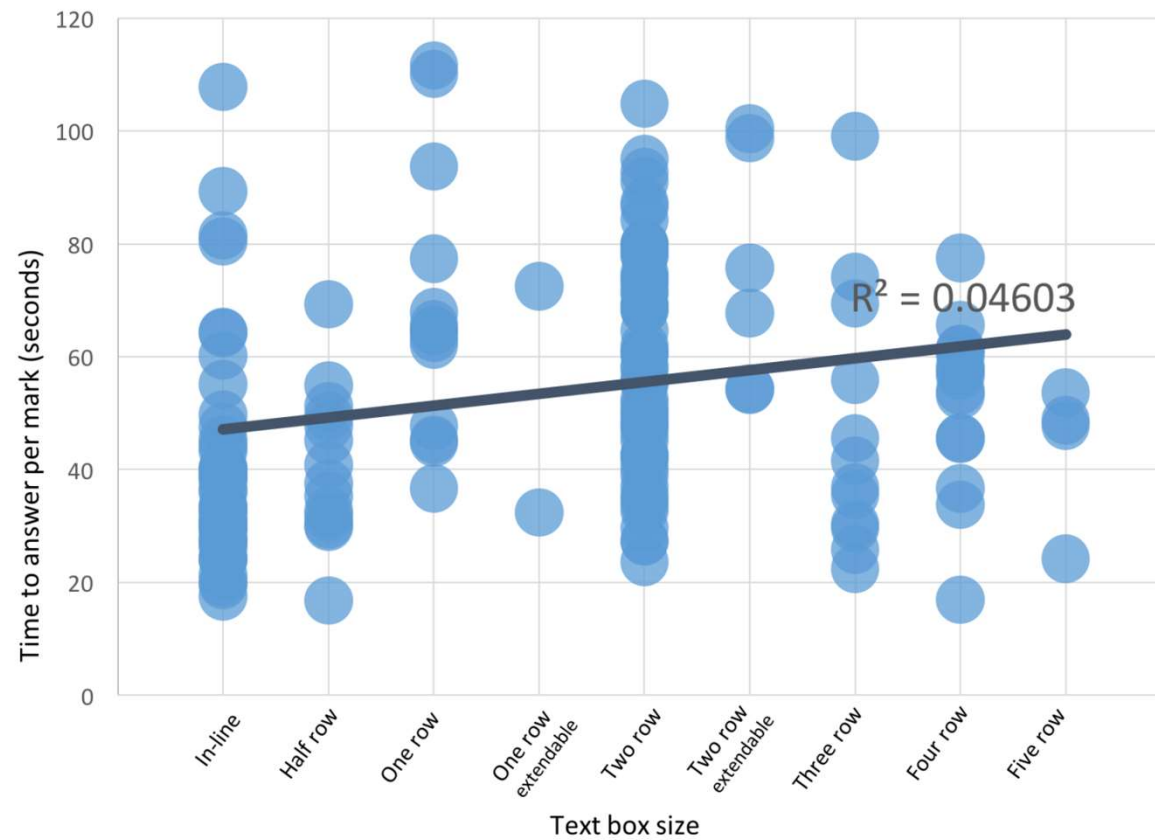
**Discrimination** – On-screen tests appear to benefit the weaker candidate

## Exploiting richer assessment data: Identifying problems with items

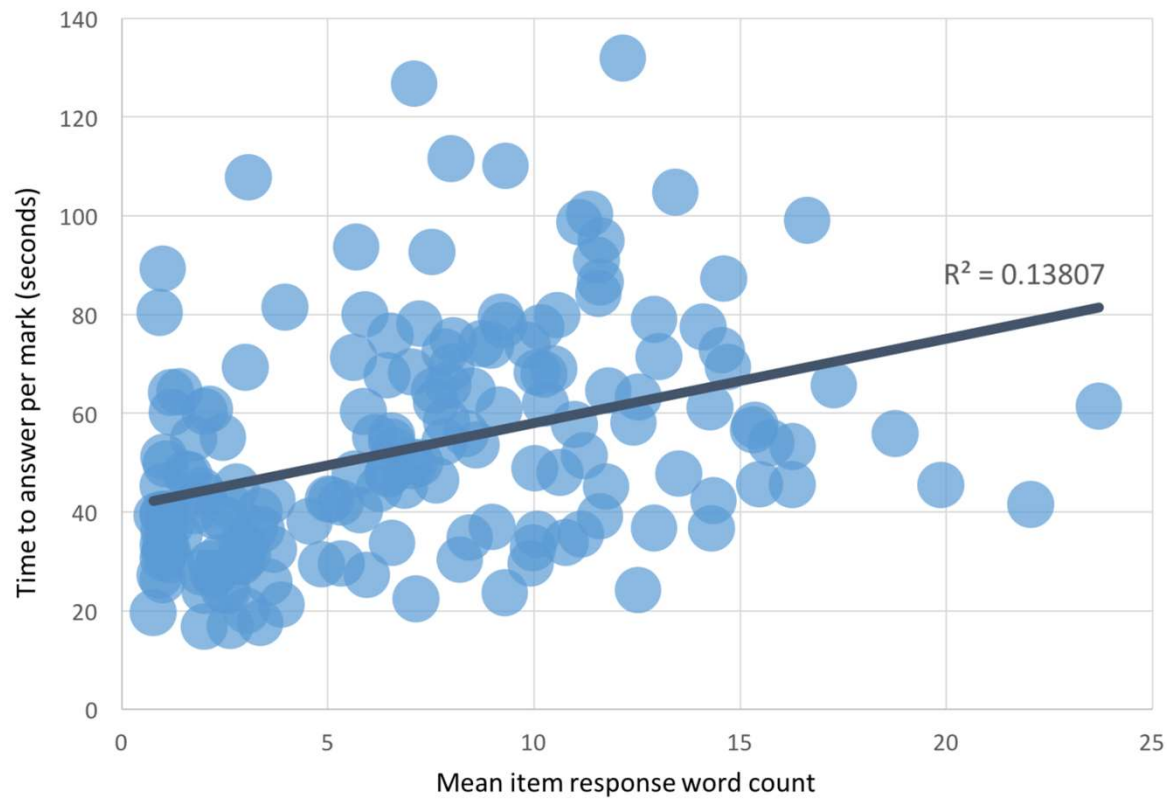


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## Does default number of rows provided impact time taken?



## Do learners spend a lot of time writing longer responses?



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## Examples of questions that were quick to answer...

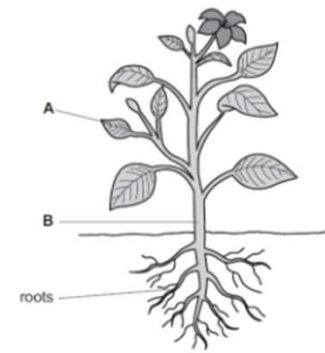
5

Vinegar contains a substance with the formula  $C_2H_4O_2$ .

Name the **three** elements in vinegar.

[3]

16.8 seconds per mark



1(a)

The diagram shows a flowering plant.

Name parts A and B.

A

B

[2]

16.9 seconds per mark

## ...and questions that took more time

4(a)

Calcium carbonate reacts with hydrochloric acid.

Calcium chloride, carbon dioxide and water are the products of this reaction.

Type in a word equation for this reaction in the space below.

[1]

126.8 seconds per mark

17(a)

Usman makes a prediction about the planets in the Solar system.

'The time to orbit the Sun increases the further away the planet is from the Sun'

To find evidence to support his prediction he uses the internet.

The table shows the information he finds.

planet	relative mass compared to Earth	distance from the Sun in millions of km	average surface temperature in °C	strength of gravity in N/kg	time to orbit the Sun in Earth years
Mercury	0.05	58	169	3.7	0.2
Venus	0.81	108	460	8.9	0.6
Earth	1.00	150	14	9.8	1.0
Mars	0.11	228	63	3.7	1.9

Does the information in the table support this prediction?

Explain your answer.

[1]

131.9 seconds per mark

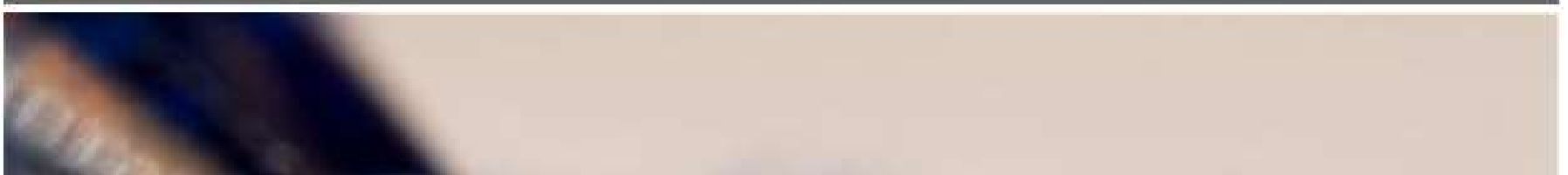
# The Telegraph

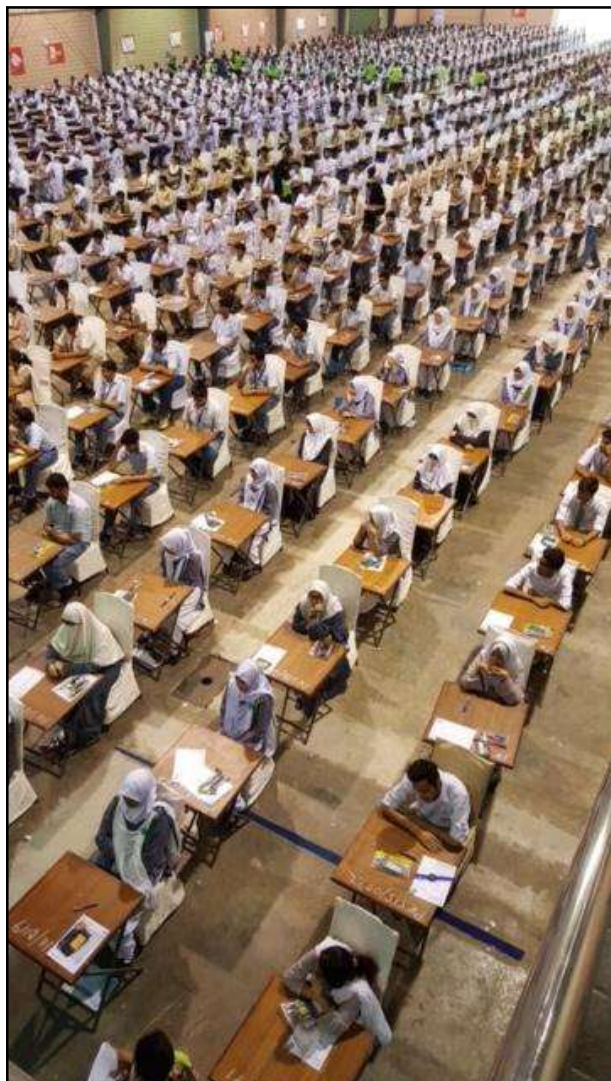
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## Pupils 'losing marks in exams due to poor handwriting'

The rise of digital technology is having a major impact on pupils' handwriting skills, with teachers unable to read exam scripts and emoticons creeping into students' work, research finds





**Cambridge**  
**IGCSE** Cambridge International Examinations  
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER



**GEOGRAPHY** 0460/01  
Paper 1 Geographical themes For Examination from 2016  
**SPECIMEN PAPER**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator  
Ruler

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name in the spaces provided.  
Write in dark blue or black pen.  
You may use an HB pencil for any diagrams, graphs or rough working.  
Do not use staples, paper clips, glue or correction fluid.  
**DO NOT WRITE IN ANY BARCODES**

Write your answer to each question in the space provided.  
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, each from a different section.

The insert contains Photographs A, B and C for Question 2, Photograph D for Question 3 and Figs 8A and 8B for Question 5.  
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.  
The number of marks is given in brackets [ ] at the end of each question or part question.

AQA

SPECIMEN MATERIAL

GCSE  
English Language  
8700/2

Paper 2 Writers' viewpoints and perspectives

Specimen 2014 Time (TBC) 1 hour 45 minutes

**Materials**  
For this paper you must have:  
• Source A and B – which are provided as a loose insert.

- Instructions:**
- Answer all questions.
  - Use black ink or black ball-point pen.
  - Fill in the boxes on this page.
  - You must answer the questions in the spaces provided.
  - Do not write outside the box around each page or on blank pages.
  - Do all rough work in this book. Cross through any work you do not want to be marked.
  - You must refer to the insert booklet provided.
  - You must not use a dictionary.

Centre number

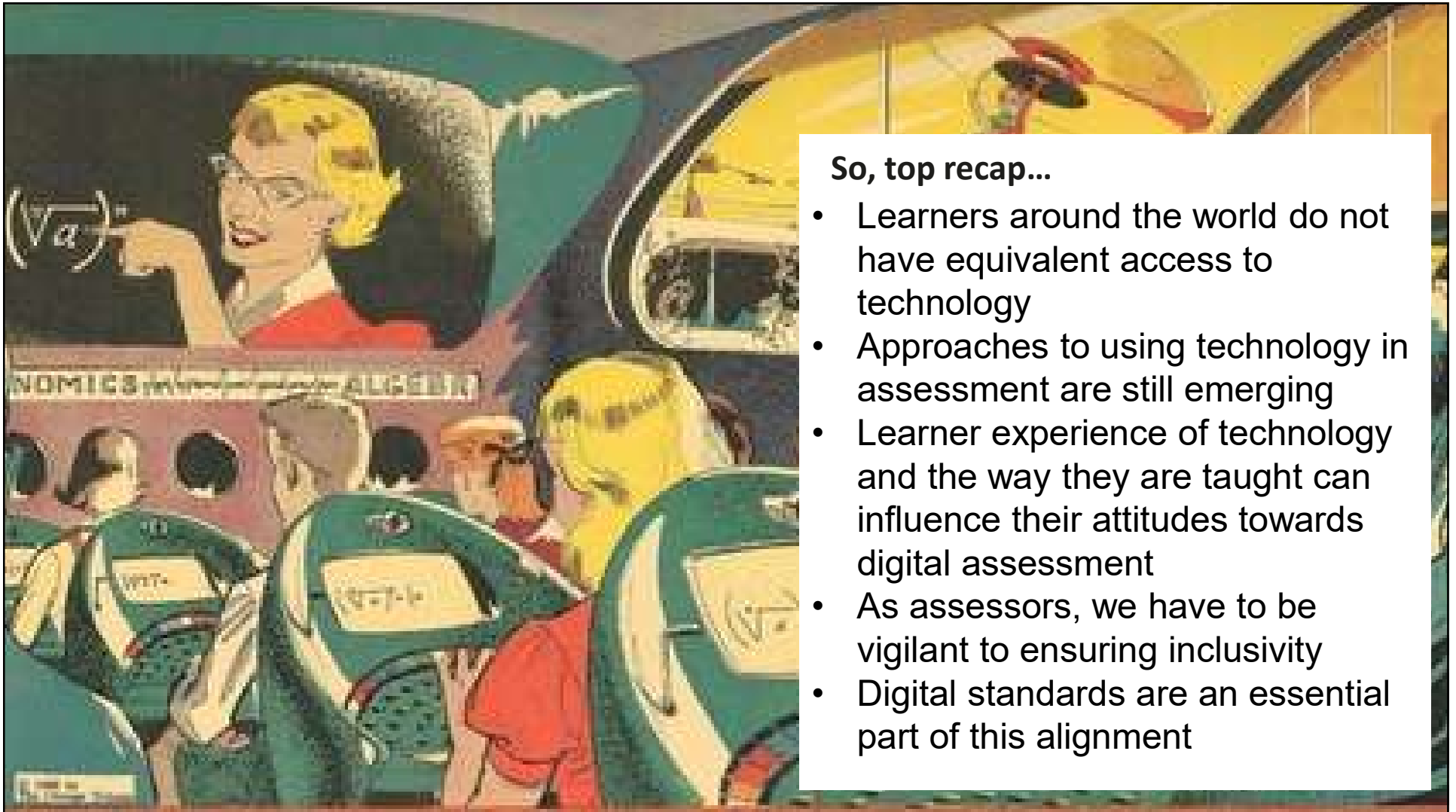
Candidate number

Surname

Forename(s)







### So, top recap...

- Learners around the world do not have equivalent access to technology
- Approaches to using technology in assessment are still emerging
- Learner experience of technology and the way they are taught can influence their attitudes towards digital assessment
- As assessors, we have to be vigilant to ensuring inclusivity
- Digital standards are an essential part of this alignment