

● 23.11.2022 ●

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Use of technology in Science lessons

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★



JOSE
OLIVEIRA

NASBTT
Consultant

SESSION OUTCOMES



**TO UNDERSTAND THE VARIOUS WAYS OF DELIVERING REMOTE LESSONS,
THEIR ADVANTAGES AND DRAWBACKS.**

OUTCOME 1



**TO MAXIMISE THE POTENTIAL OF ASYNCHRONOUS AND SYNCHRONOUS
ONLINE TEACHING.**

OUTCOME 2



**TO EXPLORE VARIOUS ONLINE RESOURCES IN ORDER TO INCREASE
STUDENTS' PARTICIPATION AND ENGAGEMENT.**

OUTCOME 3



1



2



3



4



5

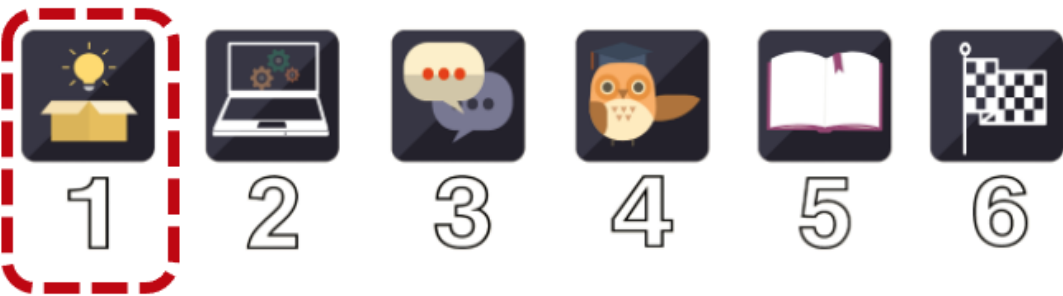


6

1



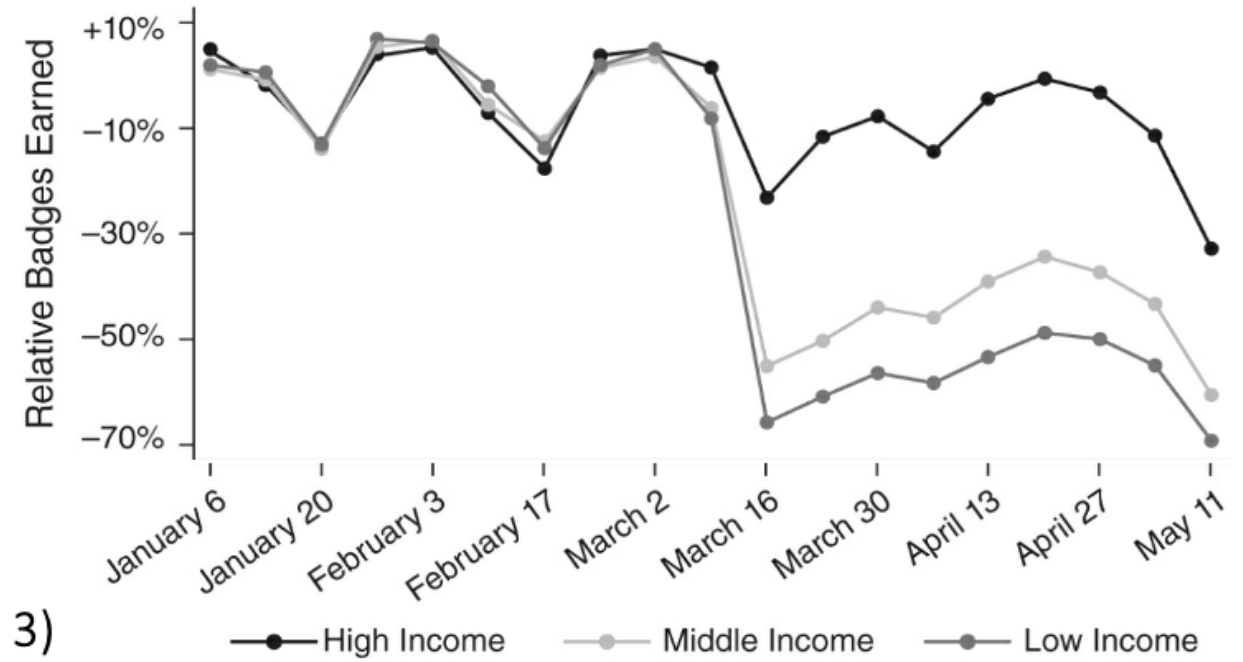
WHY INVEST IN REMOTE TEACHING ?



WHY INVEST IN REMOTE LEARNING?

- Address wider gap in **inequality levels**, exacerbated by the pandemic.
- A chance to tackle **systemic issues**, such as absenteeism and parental engagement.
- Allow preparation of a (yet) unknown **future world** of schooling.

Student Progress in Zearn, by School-Area Income Level For Classrooms Using Zearn *BEFORE* the Shutdown



Oster, E. (2020, 3)



1



2



3



4



5



6

YOUR OWN PRACTICE/ SETTING



How much of your teaching / resources are computer or online-based?

01

How often do you use mobile devices in your classroom? Why?

02

What are the advantages and disadvantages of using mobile devices to teach Science?

03



1



2



3



4



5

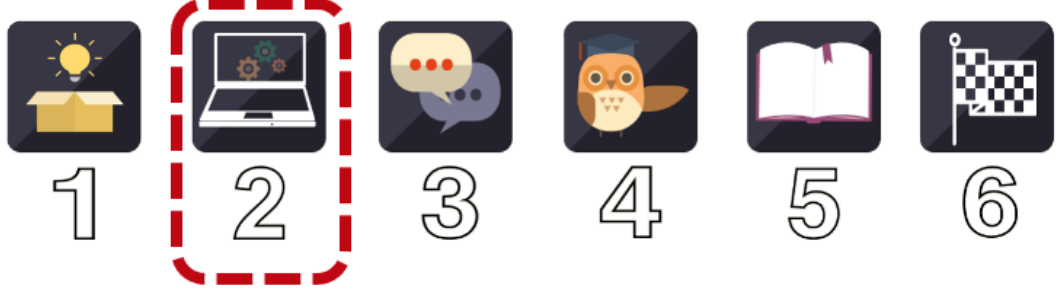


6

2



**DELIVERY &
RESOURCES**



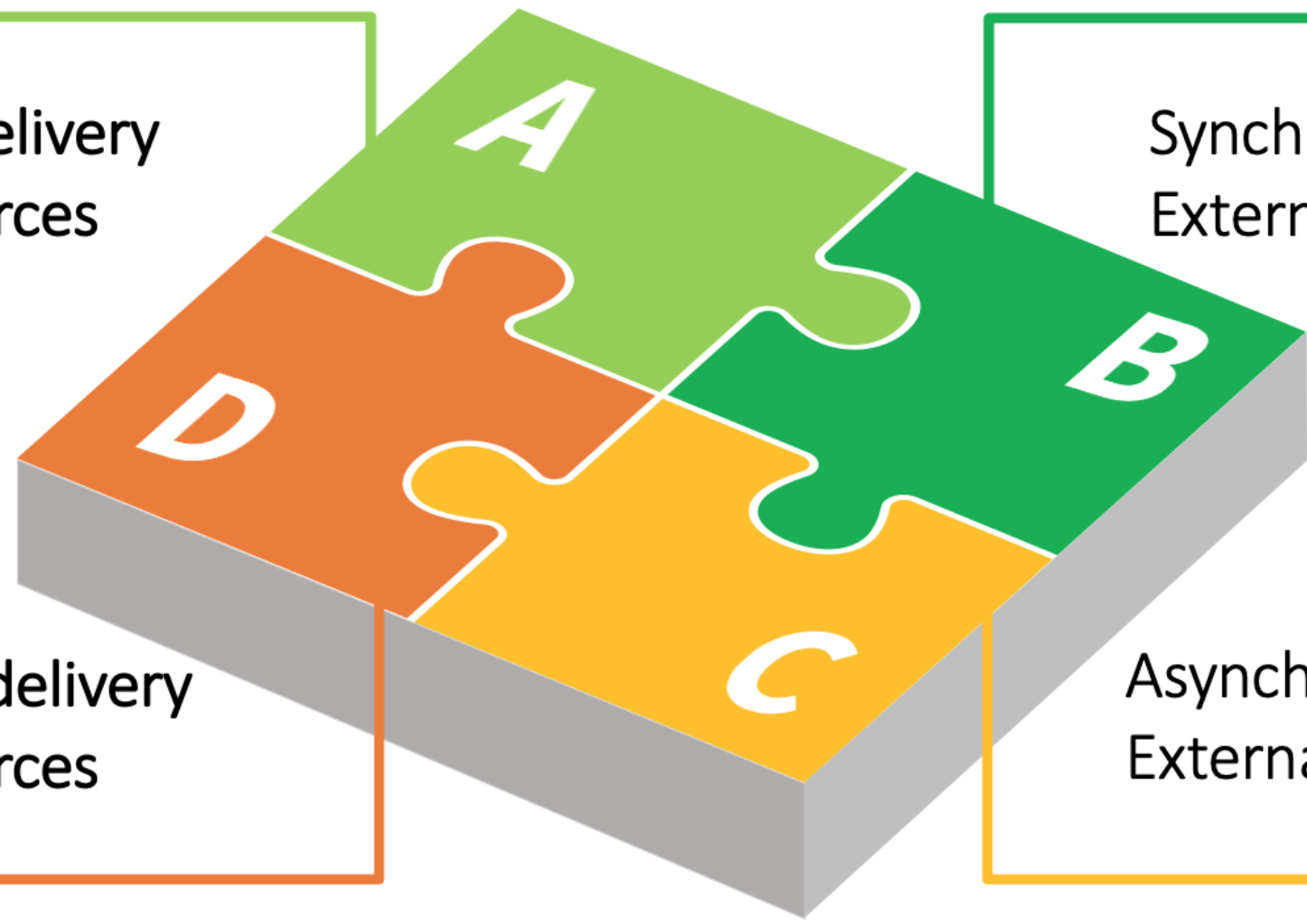
DELIVERY & RESOURCES



Synchronous delivery
In-house resources



Synchronous delivery
External resources



Asynchronous delivery
In-house resources



Asynchronous delivery
External resources



Benefits



Asynchronous



- More polished product.
- Both teachers and students control their own schedule.
- Possibility of more sustained and complex assignments.

Synchronous



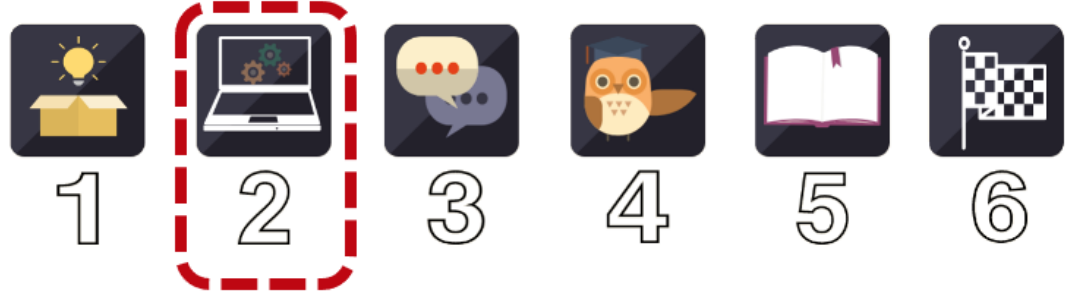
- Building and maintaining connections.
- Checking for understanding and responding to error in real time.
- Allows for greater engagement.

Limitations

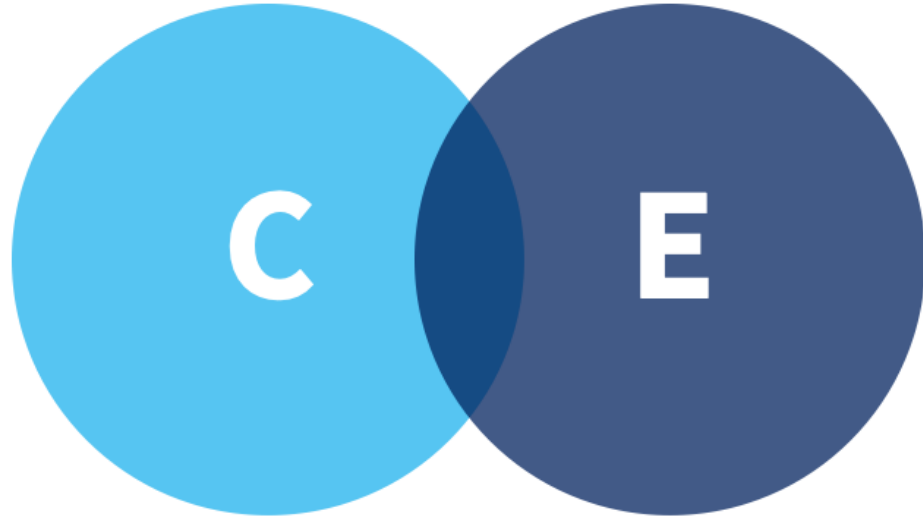


- Cannot access engagement in real time.
- Less connection and less accountability.
- Disparate impact with struggling students suffering more.
- Screen fatigue.
- Decreasing attention.

- Coordinating schedules.
- Technology issues.
- Screen fatigue.
- Decreasing attention.

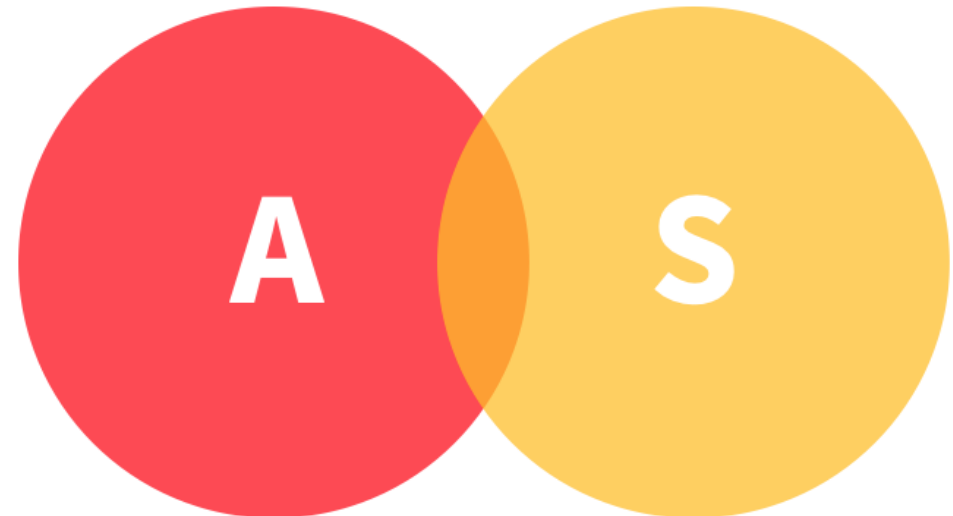


DELIVERY & RESOURCES



- Asynchronous
- Synchronous

Types of Delivery



Asynchronous Delivery

- Connection
- Engagement



1



2



3



4



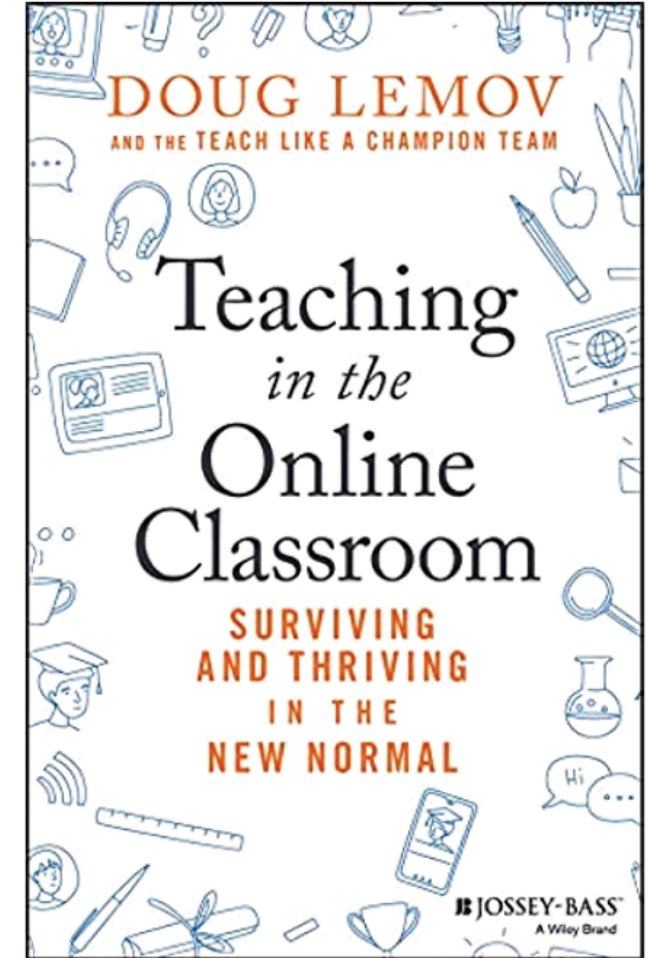
5



6

DELIVERY & RESOURCES

“Finding ways to maximise the synergies between asynchronous and synchronous instruction will likely yield the most successful learning outcomes for the greatest number of students. The trick is finding a way to get the most out of both and exploit the natural synergies between the two types of learning.”

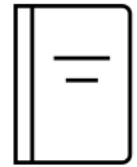


Lemov, D. (2020, 35-36)



HOW TO TEACH REMOTELY

Possible key



Stop and jot down own notes



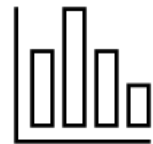
Chat



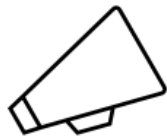
Access electronic notes



Discuss using breakout rooms



Polling



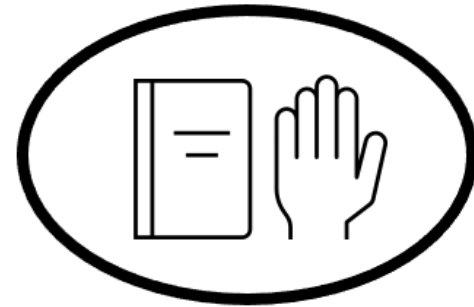
Cold-calling



Hands up

What are the advantages of nuclear energy?

Scenario 1



Scenario 2



Adapted from Lemov, D. (2020, 89)



1



2



3



4



5



6

3



**EXTERNAL
RESOURCES**



Main resources

1 Padlet

2 EdPuzzle

3 Kahoot

4 Kialo

5 Flipgrid



Others

6 Genially

7 NearPod

8 Plickers

9 Quick Key

10 Quizlet



1



2



3



4



5

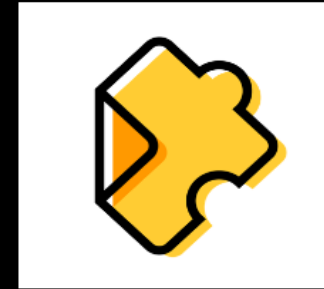


6

ED PUZZLE

<https://edpuzzle.com>

Edpuzzle is a web-based interactive video and formative assessment tool that lets users crop existing online videos and add content. Teachers can search the extensive library or upload their own videos to customize them with voice-overs, audio comments and assessment questions.



Teacher device



Student device



Website-based

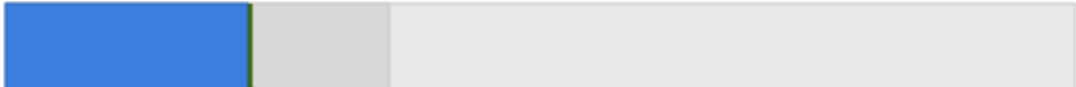
Back



A YouTube video player with a black background. The equation $3(8-6) = 3($ is written in white. The number 3 is pink, 8 is yellow, 6 is green, and the second 3 is red. A red arrow points to the second 3. The YouTube logo is in the bottom right corner.

0:01 / 0:08

SOUNDCLOUD



Open **Test** ✕

Add your question below

1.

Done **Add next question**

Contact us! +





1



2



3



4



5



6

QUICK KEY

<https://validatedlearning.co>

Quick Key's mobile grading app makes measuring learning objectives effortless. Use a mobile device or school-issued tablet to grade exit tickets, quizzes, formative assessments, or unit exams. Give students instant feedback, and get instant data.



Teacher device



Student device



App-based



1



2



3



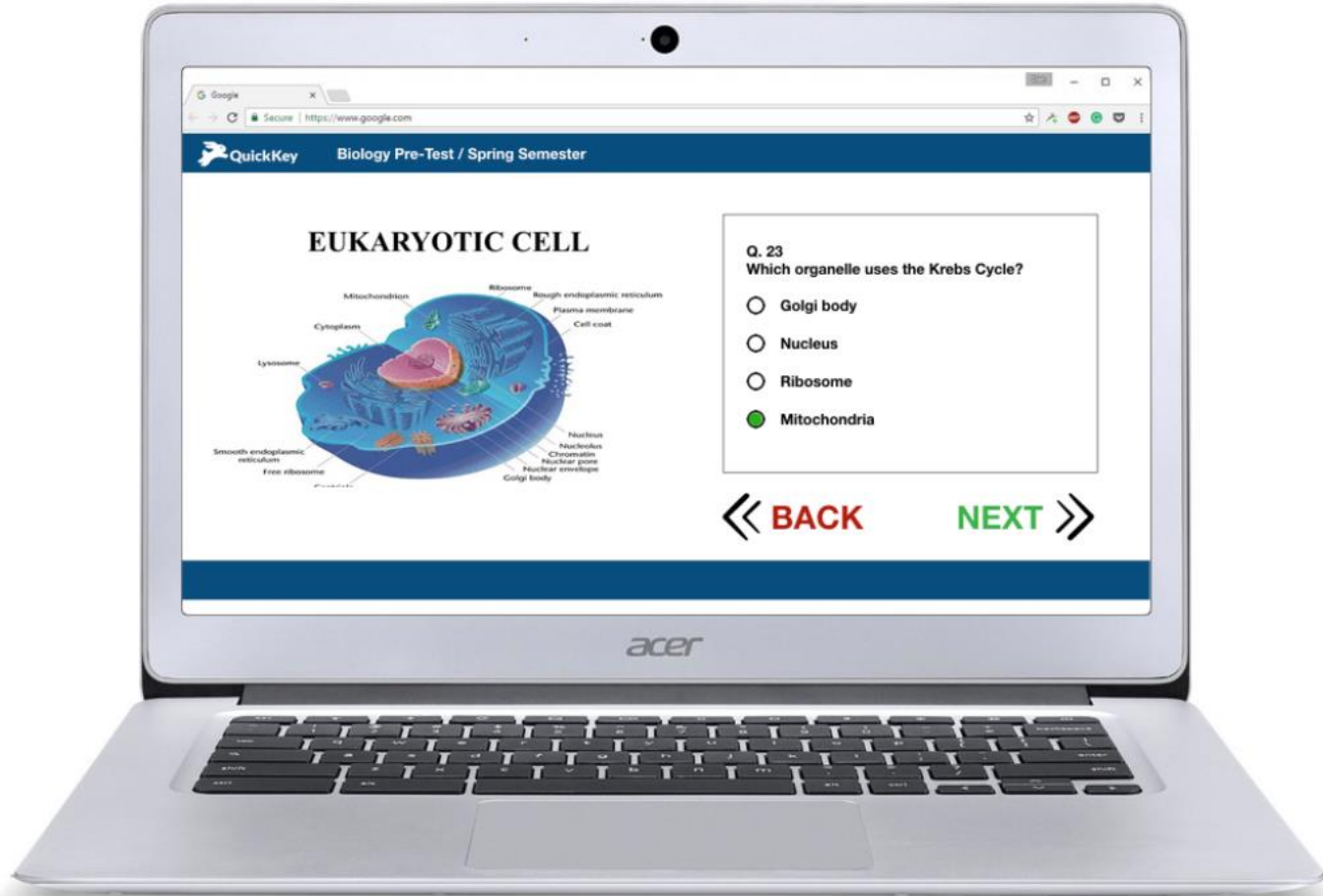
4



5



6



Student

Quiz

Date/Notes

Student ID				A B C D E					A B C D E					A B C D E					
0																			
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
21																			
22																			
23																			
24																			
25																			
26																			
27																			
28																			
29																			
30																			



Fill bubble completely.
Do not cross-out bubble rows or put marks on bounding boxes
Make sure all bounding boxes, QR codes print black and not faded or broken

Free blank answer forms at
www.quickkeyapp.com



Student

Quiz

Date/Notes

Student ID				A B C D E					A B C D E					A B C D E					
0																			
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
21																			
22																			
23																			
24																			
25																			
26																			
27																			
28																			
29																			
30																			



Fill bubble completely.
Do not cross-out bubble boxes or put marks on bounding boxes
Make sure all bounding boxes, QR codes print black and not faded or broken

Free blank answer forms at
www.quickkeyapp.com

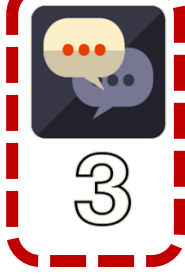




1



2



3



4



5



6

CHEMIST

<http://thix.co/chemist>

CHEMIST is an app-based simulator which displays data of chemicals and related reaction equations in real-time.



Teacher device



Student device



App-based



1



2



3



4



5



6



O ₂	<0.1	O ₂	<0.1
H ₂ SO ₄	16.4	HCl	11
O ₃	0.1	O ₂	0.1
H ₂ O	11.8	H ₂ O	10.9



O ₂	0.4	O ₂	0.3
CaO	14	KMnO ₄	28





1



2



3



4



5



6





1



2



3



4



5



6

PLICKERS

<https://get.plickers.com>

Plickers allows you to poll your students without the need for student devices. Just give each student a card and use your phone to scan the room and receive live feedback on their answers.



Teacher device



Student device



App-based



1

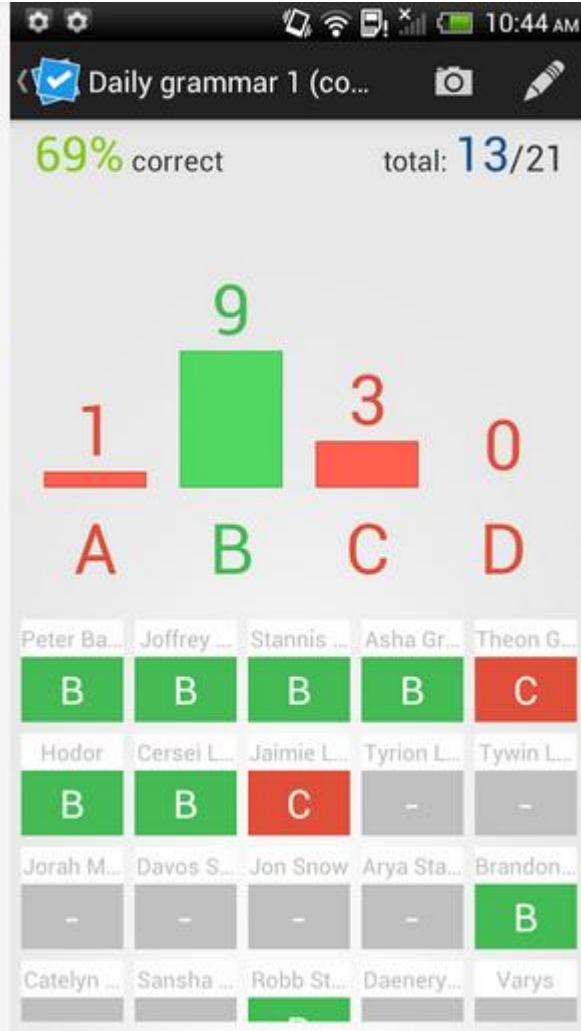
2

3

4

5

6





1



2



3



4



5



6

PADLET

<https://padlet.com>

Padlet is a free online tool that is best described as an online notice board. Padlet can be **used by** students and teachers to post notes on a common page. The notes posted by teachers and students can contain links, videos, images and document files.



Teacher device



Student device



Website-based

Lilian Soon +1 1m

Padlet user group forum

Made with ♥

Two Padlets to Share

Hi everyone,

I only just started using Padlet prior to our session. (The session was great despite the awkward room.) I thought I would share the two Padlets I've created for two different modules.

The Environmental Psychology Padlet is for the assessment which is a 'reflective essay'. I found that I spent a lot of time discussing different aspects of the assignment and the material was spread throughout the VLE. I used Padlet to bring it all together in one place (embedded in VLE and sent link via announcement). I also posted answers to questions sent to me via email.

https://uniofyork.padlet.org/natalie_ko_pytko1/EnvPsychSustainReflect2018

♥ 0

Add comment

Seminar Discussions Megacities and Urbanisation

The second Padlet is for Megacities and Urbanisation module. I have a column for the assessment. I predominantly wanted to use it for seminars. For one, it provides a 'recording' of material for students who are unable to attend seminar. I typically have 4 groups in each seminar working on a different topic or city case. I wasn't convinced that students were absorbing the material presented by the other students. I also found the quality of work was decreasing in each of the groups. I hoped that this was a way to keep the students focused. The Week 9 seminar was the first time I used it.

https://uniofyork.padlet.org/natalie_ko_pytko1/Megacities2018_19

♥ 0

Add comment

A tool to share conference presentations

https://padlet.com/carmen_alvarez1/1NNOCONF16

Thank you for a great session

Sorry I had to rush off!

♥ 1

From Lorena

https://padlet.com/lopezyork/Leeds_York_Task1



(Task 1) Writing a cover letter for a job appli... Here you will write an application letter and T... lorena

♥ 0

Add comment

Can students be collaborators?



♥ 0

Add comment

Many thanks to the contributors and organisers.

1 query though. We have more and more students with SSPs (and slow thinking process) , so our resources need to be as accessible as possible.

A little something for Christmas

https://padlet.com/carmen_alvarez1/Sp1navidad



Spanish 1 Christmas: revision & further prac... ¡Feliz Navidad y próspero año nuevo a todos! carmen alvarez-mayo

♥ 1

Add comment

Thanks for a great session!

I've now created my first padlet and I'm so very excited to use it :)

♥ 0

Add comment

Benjamin Poore's use of padlet

<https://drive.google.com/open?id=1cfgMfywpjMkTxQ-nG5SJMLPMGG51A4yp>

♥ 1

Padlet example number 3

https://uniofyork.padlet.org/carmen_alvarez_mayo/Sp1_Thursdays



Nuestra clase de español de los jueves Vamos a continuar aquí hablando y practican... carmen alvarez-mayo

♥ 0

Add comment

Good start by Sue Russell for Statistics support

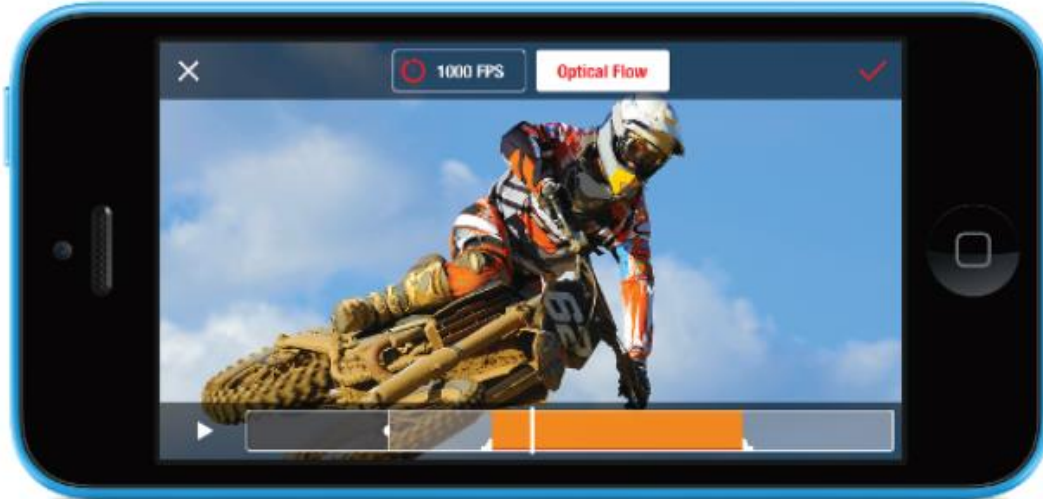


SLOPRO

sloproapp.com



SloPro allows you to set multiple speed settings on a single clip. Snap from fast motion to slow motion or vice-versa. You have the control to make truly amazing videos.



*THE #1 SLOW MOTION
VIDEO APP ON ITUNES*



GET IT FREE ▶





1



2



3



4



5



6

YOUR OWN PRACTICE/ SETTING



Which of the resources have you used /
could you use?

01

In what context do they become useful?

02

What conditions need to be met in order for these to
work in the classroom / as homework?

03



1



2



3



4



5



6

KAHOOT

<https://kahoot.com/schools/>

Kahoot! is a game-based learning platform, used as educational technology in schools. Its learning games, "kahoots", are user-generated multiple-choice quizzes that can be accessed via a web browser or the Kahoot app.



Teacher device



App-based



Website-based

1 Quiz

Determine what type of knowledg...

20



Input fields for question 1.

2 Quiz

Replace this with a simple questio...

20



Input fields for question 2.

3 True or false

Replace this with a quick true/fals...

20



Input fields for question 3.

4 Quiz

Add question

Question bank

Import from spreadsheet

Determine what type of knowledge you are trying to assess. Replace this with a simple introductory question.

20 sec

Points

1000



Remove

Image reveal

Original	3x3
5x5	8x8

▲ Plausible answer

◆ Correct answer

● Silly answer

■ Incorrect answer



1



2



3



4



5



6

KIALO

<https://www.kialo.com>

Kialo is a free tool used by educators world-wide to teach critical thinking, facilitate rational classroom debate and explain controversial issues.



Student device



App-based



Website-based



There is no free will.



Human actions are determined by cause and effect of the physical world.



Thought and consciousness exist in humans, and are immaterial; as such not subject to physical laws.





1



2



3



4



5



6

FLIPGRID

<https://info.flipgrid.com>

Flipgrid is a simple, free, and accessible video discussion experience for PreK to PhD educators, learners and families. This is the most complex system to set up (out of those covered here), so you may need to invest longer in order to explore its full potential.



Student device



App-based



Website-based

Student Video Portfolios

Flip Code: [d7696c](#)

 [Add CoPilots](#) to your Grid

Active 

 Share Grid

Grid Actions 































6 Topics 0 videos 0 views

6 Topics

[+ New Topic](#)

[Export Data](#)

Pin	Topic Name	Flip Code	Display Date ↓	Engagement	Activity
	Ideas 0 videos 0 views			-	Inactive  Actions  
 	Student 1: Shawn 0 videos 0 views	31611b	Jul 10, 2018	-	Active  Share  Actions  
 	Student 2: Greg 0 videos 0 views	1d4e21	Jul 10, 2018	-	Active  Share  Actions  
 	Student 3: Emily 0 videos 0 views	11442b	Jul 10, 2018	-	Active  Share  Actions  
 	Student 4: Harper 0 videos 0 views	65a2a8	Jul 10, 2018	-	Active  Share  Actions  



1



2



3



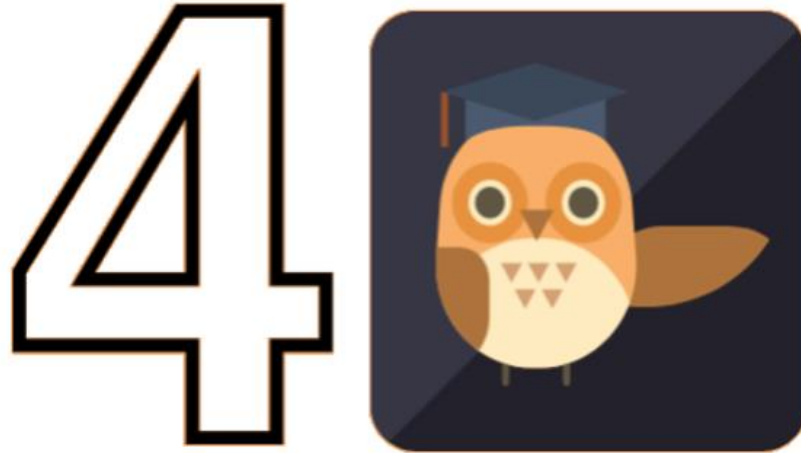
4



5



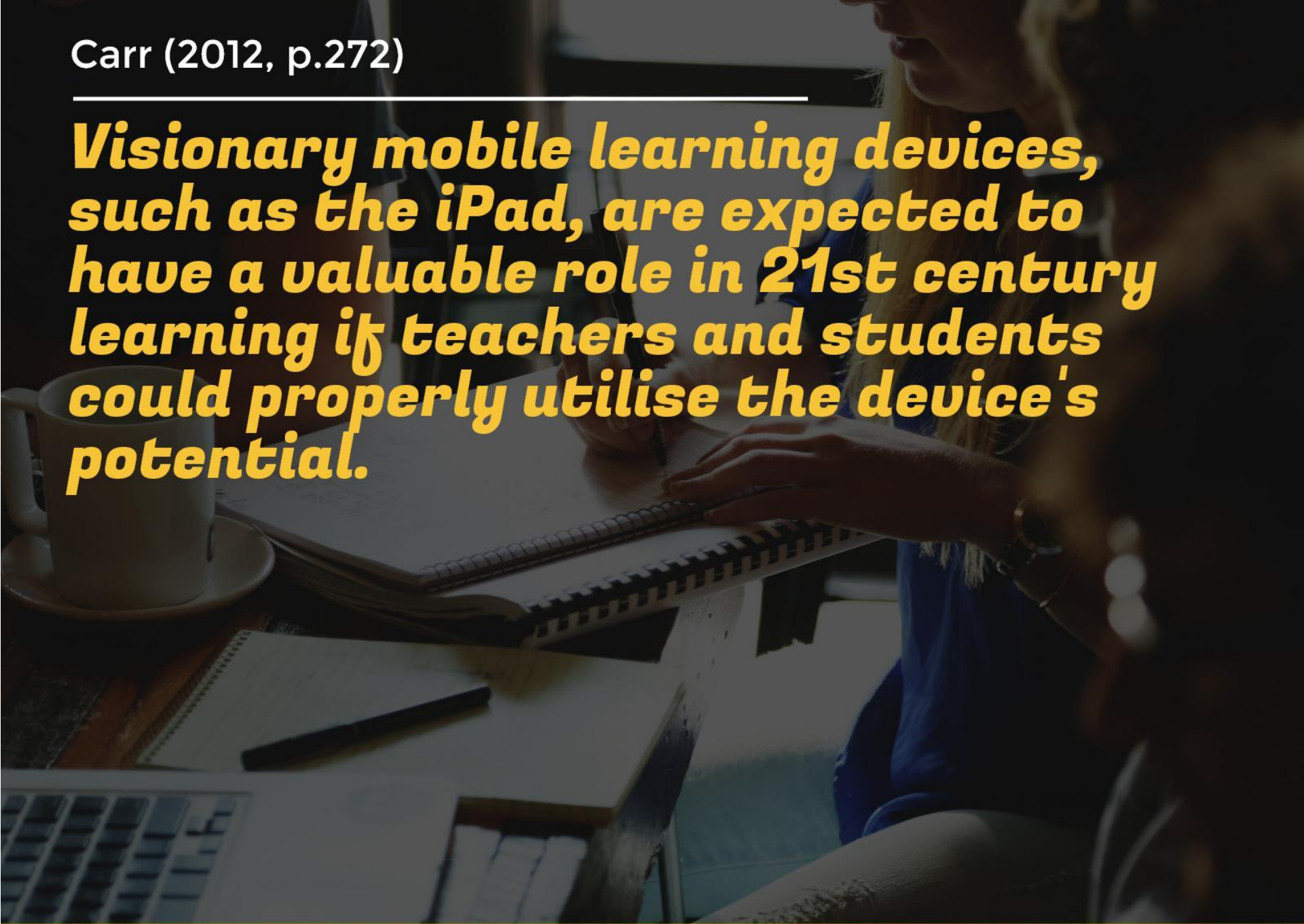
6



USE OF MOBILE DEVICES IN CLASSROOMS

Carr (2012, p.272)

Visionary mobile learning devices, such as the iPad, are expected to have a valuable role in 21st century learning if teachers and students could properly utilise the device's potential.

A person is sitting at a desk, using a mobile device. The desk has a laptop, a coffee cup, and several notebooks. The background is dark and out of focus.



1



2



3



4



5



6

VIEWS ON IPAD TEACHING

Views	Staff	Students
Positive	<p>"Source of knowledge which students can use to expand their knowledge."</p> <p>"Educational games and Apps are useful to review the lesson contents and it can break up the lesson with more variation."</p> <p>"Improved motivation for some."</p> <p>"Allowed all students to make progress within a lesson... Happy Ofsted!"</p>	<p>"I take quite a lot of information in [when using the iPads]."</p> <p>"Because sometimes there are experiments you can't do and it gives you an idea of what would happen."</p> <p>"When we were playing games and doing simulations, most of us stayed on tracks [sic] and I think most of us really enjoyed it."</p>
Negative	<p>"They are not compatible with laptops."</p> <p>"Students have been banned from printing from iPads due to misuse."</p> <p>"It is difficult to save the students' work and keep it safe without others deleting off the device."</p> <p>"Mostly American curriculum educational software available."</p>	<p>"We spent almost ten... no... fifteen minutes trying to email our work to our teacher."</p> <p>"There's camera, internet, so a lot of distractions if they are not controlled."</p> <p>"Sometimes you couldn't find your work on the iPad and you could see the work from other classes instead."</p>



NEVER

should the relevance of learning be dictated by the use of iPads in the classroom but rather their deployment must

ALWAYS

be led by the relevance of learning.



1



2



3



4



5



6

5



FINAL

CONSIDERATIONS



1



2



3



4



5



6

FINAL CONSIDERATIONS



Teaching quality is more important than how lessons are delivered.



Ensuring access to technology is key, particularly for disadvantaged pupils.



Gather feedback as you go along, from your students and your colleagues.



Try one thing at a time. Gauge its usefulness before moving on.



Don't forget that teaching online is an investment for the future.



1



2



3



4



5



6

BIBLIOGRAPHY

- Breslin, T. (2021) *Lessons from lockdown. The educational legacy of COVID-19*. (1st edition). Routledge.
- EEF (2020). *Remote Learning: Rapid Evidence Assessment*: https://edtechhub.org/wp-content/uploads/2020/04/Remote_Learning_Rapid_Evidence_Assessment.pdf (accessed on 8th Nov 2022).
- Howard, K. Hill, C. (2020) *Symbiosis: The curriculum and the classroom*. (1st edition). John Catt.
- Lemov, D. (2020) *Teaching in the online classroom. Surviving and thriving in the new normal*. (1st edition). Jossey-Bass Publications.
- Oster, E. (2020) Covid-19, Learning Loss and Inequality. *Parent Data*: <https://emilyoster.substack.com/p/covid-19-learning-loss-and-inequality> (accessed on 8th Nov 2022).

External app- and web-based classroom tools have their own websites on their respective slides within this presentation.