JERSEY COLLEGE for Girls

Impact Report 2023

Transformative power of digital technology on learning

Aspire · Inquire · Excel · Belong

Table of contents

Foreword

When we started on this journey, we knew we would need the engagement, patience and resilience of our staff and students. We also knew our success relied on the trust and support of our parents. We are grateful that we received it all and more.
The transformation of our use of technology, kickstarted by necessity through Covid lockdown, has propelled the College into a new era of how we teach and learn. It has also refined our operational and environmental efficiency. Such a revolution needed defining, assessing and measuring hence this Impact Report.

This report is not meant to be a summary. Its detail is by design in the hope that others can learn what we did, how we did it and the impact it has had.

The headlines:

1. Learning is faster and more focused
2. No work is lost
3. No time is wasted copying into an exercise book
4. Student notes are significantly better organised
5. Students are significantly better prepared for revision
6. Paper consumption is substantially reduced
7. Improved efficiency for teachers - reduction in workload
8. AI is used to provide individualised extension learning and gap analysis
9. The school bag is lighter

Of course, there are things that haven't gone as planned and things that weren't planned have happened. We learn as we go.
We also know we have only just scratched the surface of the potential gains of using technology to enhance learning.

Yours,

Carl Howarth
Principal

Section 1 – Context

One strand of our Four-Year Strategy focuses on ensuring that our educational experience fosters an innovative, reliable, and beneficial use of technology to enhance the digital proficiency of both our staff and students. To achieve this goal, our main priority has been to support staff to use technology to make gains in efficiencies and to be more creative with their pedagogy, and for students to develop the digital skills they will need for the future.

Covid lock-down and our staggered return to school provided a springboard as well as an insight into how we could use technology more efficiently to bridge gaps in learning, support students absent from lessons and enhance the teaching and learning experience. During this time, we saw a rapid growth in the digital skills of our teachers and gaps in the skills of our students - the 'digital natives'.

In the past, we have tried to engage students with digital tools to make learning more accessible, but without a dedicated one-to-one device the use of technology is one sided resulting in limited engagement from students. We required a 'Tech Partnership' between teachers and students to make the most of using technology to enhance learning.

In September 2021, we launched a Digital Literacy project through which we asked all Year 7 Students to come to college with a digital device: a device with a camera, track-pad keyboard and digital stylus. We identified the iPad with Logitech combo-trackpad keyboard and Apple Pencil as the most robust and suitable combination.

Due to the success of the project with Year 7, in September 2022 we expanded the project to include students in Years 10 and 12. We currently have four Year groups with a one-to-one digital device.

We were able to embed this initiative successfully because of the infrastructure we had in place including a strong technical support team (appendix 1).

Inevitably, the initial launch in September 2021 had some teething problems, which we worked hard to address (please refer to appendix 2 for details).

Initially, we had a strong focus on writing and typing all notes on the device to embed the change within the classroom. Now that digital technology has become part of our everyday practice, we have adopted a blended approach, where there is a mix of paper and digital based written tasks. We are cognisant that, currently, students will complete their GCSE / A level exams on paper. We need to ensure that they do not lose the skill and muscle strenght of writing quickly, neatly and for long periods of time.

Summary: Key findings

The following narrative provides a context to the qualitative data collected and outlines the most significant gains and/ or efficiencies identified by teachers and students. The data evaluated comes from teacher and student surveys, one to one discussion, work scrutiny, assessment data and lesson observations.

Section 2 – Teacher Perspective

For participating teachers, the most significant gains have been achieved in making certain tasks more efficient and easier to complete, thereby saving valuable time, reducing cognitive load (allowing greater focus on the nuances of pedagogy), and accomplishing things that would have otherwise been nearly impossible to achieve.

It is difficult to quantitatively measure the impact on student achievement, as much of the evidence is anecdotal and numerous interacting factors are at play; however, the efficiencies gained have enabled teachers to be more creative and support student learning in ways not previously easily achieved. This will improve teaching and learning, which is the key driver of student achievement in any school setting.

> “I no longer worry about accessing the photocopier (wasting time and paper). I can check student progress much more easily (via Class Notebook), making sharing of exemplar student work so much easier.
>
> Collaborating on essay plans, essays and revision resources has helped improve the student experience and allowed them to see what quality can look like from other students.
>
> I can create more engaging resources and work sheets without worrying about the printing costs. Lessons have more focused activity, and less copying from the board, as I can provide students with the information needed on OneNote.
>
> Learning time is no longer wasted collecting and returning laptops at the start and end of the lesson.

Digitially-distributed work with OneNote

The ability to digitally distribute work has had significant impact in many ways:

- Using digital worksheets for classwork, homework and exam questions, has saved time and significantly reduced our carbon footprint.
- The quality of resources has also improved: more favourable layout of content, use of colour images, links to videos, and bespoke tasks for individual students promoting personalised learning

Using Class Notebook, the Maths department have provided students with two digital versions of the same question, one with increased scaffolding. This gives students greater autonomy and opportunity to take responsibility for their own progress.

40 % of teachers have made effective use Class Notebook to distribute targeted work to students requiring additional support.

> I can make the lessons more engaging for students and I can use different strategies.
>
> I like the ability to click back to a previous lesson quickly to reiterate a learning point. Sharing work and sending students worked solutions - difficult to type these in Maths so much easier to write on Onenote and share.

- Quality and ease of setting cover-work has become less onerous and more manageable. All tasks are digitally shared with students, and student work can be monitored, reviewed and annotated by the absent teacher in real time or at the very least before the student's next lesson. The cover-work is more meaningful, targeted and content rich including video and/or audio explanations and self-marking low stakes assessment quizzes. Prior to returning to work the teacher has already assessed what students have learnt, reducing the impact of teacher absence and disruption to learning.

  One member of staff commented they were able to "check on their students' progress with cover-work in real time whilst they were waiting for an appointment".

  In a Year 10 Maths cover lesson on 'Proportions', the students independently watched a short YouTube video, read a brief bullet point summary of the key concepts and successfully completed a deliberate practice activity to consolidate their learning. There was little intervention required by the covering teacher to keep students on task.
- Digital cover-work has also reduced the workload and stress of heads of subject and the covering teacher as there is no need to photocopy resources and run around various classrooms to deliver materials.

Remote learning

Teachers and students have made effective use of Microsoft Teams for remote learning:

- Teachers taught lessons from home when absent due to isolation or when asymptomatic with the Covid virus.
- Absent students attended and continue to attend lessons remotely, where they were able to see lesson content in real time and contribute to discussion.

> 76% of teachers have used technology to support students absent from lessons and reduce the impact of missed learning.

Marking, Feedback and Assessing Progress

The work scrutiny process carried out by the Science faculty (Feb 2023) and feedback from other faculties on monitoring digital work observed the following:

- There was considerable evidence to show that students were more engaged with feedback. As the whole process is digitised (work is submitted digitally, marked online, feedback online, reviewed online), it is faster, and simplified, and students can respond to advice within a more meaningful time frame. Importantly, work is not lost, misplaced or forgotten as it moves backwards and forwards between the student and teacher. This of particular benefit to the pace of learning in subjects which have only one lesson per week and thus enabling the College to offer a broad curriculum at Key stage 3.
- Students using a device had good opportunities to demonstrate knowledge and understanding through deliberate practice. There was also evidence that students acted upon advice given and reworked their answers. However, it is suspected that students erased incorrect work, rather than just correct it. Colleagues from other subject disciplines have also made similar comments. To avoid this problem in the future, and to help students see the benefit of reviewing mistakes, the digital pages could be 'locked', and corrections completed on a copy of the page. However, if teachers continue to model 'learning from mistakes', students will learn to see the benefits of self-corrected work.

> "I have created many more resources, especially interactive ones, to help create student learning more varied and independent. This has resulted in students being able to work at their own pace without being held back.
>
> My marking became faster and more efficient, and I was able to keep on top of class work as didn't have to collect books. Even a quick tick within the lesson to acknowledge I have seen it allows students to see that their work is being regularly monitored.

- The careful 'modelled' organisation of class notebook by teachers had assisted students with the organisation of their own notes. The careful use of hyperlinks allows easy access to topic specific exam questions.

> "I like it for planning an entire topic and getting ahead of the game with uploading resources. It has streamlined my lesson planning and makes it easier to keep up with the fast pace of topics I teach each week.

- The monitoring and completion of NEA (coursework) has been more efficient.
  * Using a one-to-one device has helped students organise, manage and meet coursework deadlines. Teachers have monitored coursework progress through Class Notebook, this has been especially useful to help students stay on track with their English coursework.
- Deliberate practice and use of Artificial Intelligence.
  * The Maths department have shown a positive correlation between Year 7 Students performance in end of unit tests and time spent working on Century Tech, an artificial intelligence platform, which presents students with material and assessments to bridge individual learning gaps and provide individualised extension learning. The A.I, through adaptive learning has been particularly useful in providing meaningful personalised extension work, allowing students to access new learning that would be impossible within a 'typical' classroom setting, work that would normally be learnt in Years 8 or 9. The data collected identifies students who are excelling and those requiring intervention to in specific topics.

Total Study Time (hrs)	NA2 Score
10.79	47
12.38	44
30.01	43
10.85	43
12.18	42
16.46	42
12.49	42
11.25	41
12.2	41
11.2	41
12.69	40
11.86	39
15.34	38

5.54	19
12.23	17
9.72	16
7.47	16
7.64	16
9.07	16
9.02	13
7.75	12
8.25	10

- The Learning Analytics
    * Interrogation of the data collated from Century Tech has the potential to provide interesting insights into the learning habits of our students: students who are risk adverse, students who are perfectionists, students who enjoy a challenge, students who are working hard and not making expected progress. The data below shows two students from the above table who have spent a similar number of hours studying Maths using Century Tech, but who have significantly different outcomes triggering an intervention or at very least a mentoring conversation.

Total Study Time (hrs)	Unique Nuggets Completed	Nuggets at 100%	Total Nuggets Completed	Nuggets Repeated	Questions Answered	Questions Answered Correctly	NA2 Score
12.18	148	106	248	100	2405	2172	42
12.23	63	9	89	26	727	437	17

How technology has made the impossible possible

Teachers have used video, audio and low stakes self-marking tests to make learning more visible.

- In core Physical Education lessons students have used video to evaluate and improve their performance in different sporting activities. Students have worked collaboratively, analysing video footage to identify areas to work on, and set targets to improve skill acquisition. All students are engaged and able to improve their performance regardless of their starting point.

> “The use of iPads in PE has empowered our students to analyse their performance and draw meaningful comparisons to the skills and techniques demonstrated by elite athletes. This approach has been a source of inspiration for our students and enhanced their overall sporting ability.

- Media Studies students, by using a more flexible digital device, have created media podcast content in two days, which would have previously taken two weeks to complete.
- In English, MFL, Media studies and Design Technology teachers have been using audio feedback to support student learning, the feedback to be more detailed, personalised and quicker.

> “I ask students to annotate their work using my audio feedback and then redraft their work using colour coding and annotations to show what they have altered and why.
>
> I can give far more feedback by recording my comments than I can when giving written feedback or general targets.
>
> Great for essay feedback and individual targeting. It can be replayed and saves time.
>
> I use it for speed as I can talk faster than I can write. The students tell me that they can grasp more from verbal feedback as they can sense tone, the way you say what is said and they can grasp expression and passion in your voice.
>
> I think it helps the students to hear me reason through the mark scheme aloud.
>
> It is useful in MFL as I can translate passages aloud and include a question in my audio feedback that the students have to respond to.

- 69% of teachers across many disciplines use technology to create self-marking low stakes quizzes to assess student learning and boost retention through retrieval practice. Teachers use a range of platforms for low-stakes quizzes including Kahoot, Book widgets, Satchel One and MS Forms.

- Class Notebook allows teachers to confidentially and instantly share exempla student work or misconceptions with the whole teaching group and thereby increase the pace and relevance of learning.
- Online marking and use of online quizzes has increased the pace of learning at KS3 in option subjects and the separate sciences, particularly with respect to feedback on homework. These subjects have one lesson per week. Before the adoption of devices, the process of setting, collecting and marking of homework could span three weeks; now feedback can be given before the lesson and misconceptions addressed in the next lesson.
- The use a one-to-one device managed through Apple School manger has removed the need of students in Years 7 and 8 to carry a mobile phone during school hours. as access to the Homework app and Office365 apps can be achieved using the iPad.

Section 3 – Student Perspective

100% of students in Years 7, 8 and 10 use a device in all their lessons where appropriate. In Year 12 there a few students who do not wish to use a device during their lessons. This has not been an issue given their option choices.

Students identified the following as the major benefits of using personal device

- Improved organisation – notes all in one place.
- Fewer books (exercise and textbooks) to carry (weight of bag)
- Fewer books to remember to pack.
- Less lost work or work filed in wrong place.
- Easier to submit work.
- Easy to catchup on missed work.
- Improved typing skills
- Digital textbooks always available – not left at home or locker or lost, easier to take screen shots, annotate add to notes.
- Colour overlay easy to setup.

> “If you were absent, you can see what happened while you were gone.
>
> It’s easier to use digital textbooks than paper ones and it’s good to be able to write quick notes and use the internet for research in lessons.
>
> You don’t have to write as much and you can delete something if the teacher changes a question without making a mess of the page.
>
> I find I can complete my work quicker and focus on the actual questions instead of writing them down.
>
> I haven’t lost any of my work but when I have a piece of paper I lose all my work often.

Easier to make readable colourful notes for studying.

I find it easier as I don't need to remember all my books for that day and I find it just a better way of learning by having all the resources all in one place.

I enjoy using it for writing long stories as it is much easier to go back and edit your text.

It is usually quicker and more efficient meaning we do more in lessons.

Most students like a mixed approach to learning, using a blend of paper activities and online notetaking.

Although working digitally has been embraced by most students, there are two or three students in Year 12 who prefer to do most work of their work on paper; in line with our flexible and blended approach, these students can still submit their work online for assessment and marking.

Section 4 – Outcomes for the Environment

Reducing our carbon footprint

Reduction in photocopy and shipping/print costs of textbooks means we have been able to reduce our carbon footprint and paper consumption and repurpose funds for other educational projects with a direct impact on student learning.

Photocopying/Printing: Reduction in sheets of paper

To help visualize the impact photocopying and printing has on our consumption of paper, paper used is expressed as to number of trees that has gone into making the paper[1]. One tree makes approximately 80,500 sheets of paper[2].

By comparing our printing needs for the time period July 2018 – July 2019 (Pre-covid and Pre 1:1 digital devices) and July 2022- July 2023 (four out seven year groups with 1:1 device) we can clearly see the impact of 1:1 device on our paper usage.

517,980 less sheets of paper consumed, saving 6.43 trees.

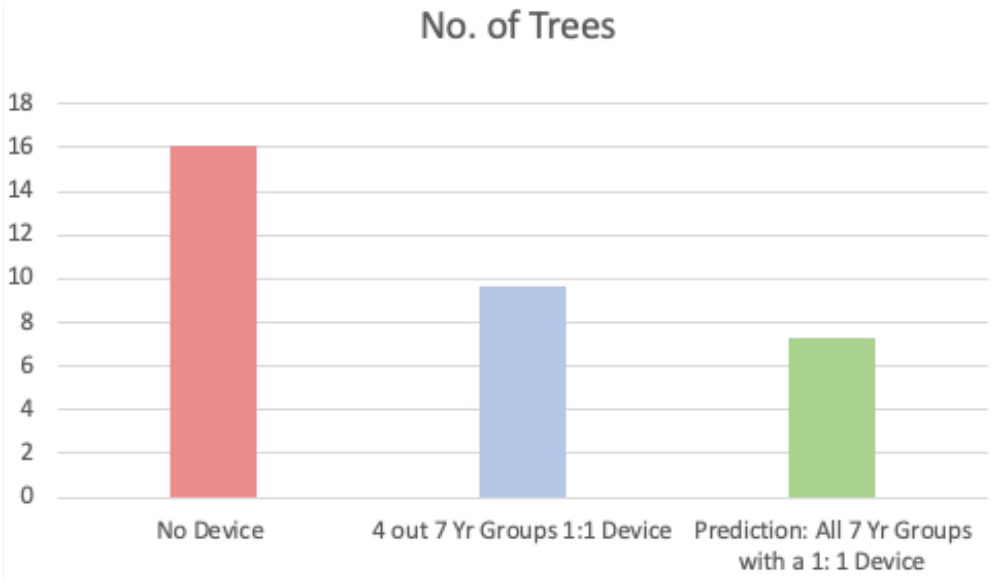
Device	Sheets of paper	No. of Trees	Cost £
Pre-Covid Pre-Device	1,298,171	16.12	34,312
Post-Covid 1:1 Device	780,191	9.69	32,997
	517,980	**6.43**	**1,315**
	39.90%	**39.90%**	

From September 2023 all year groups (Yrs 7-13) will have a 1:1 digital device. Therefore a sensible photocopying target/ forecast for the academic year 2023 – 2024 would be a further 25% reduction in the number of sheets of paper used, equating to a saving of 8.85 trees compared to 2018-19.

Forecast 54.9% reduction in sheets of paper used (trees required) for the academic year 2023-24

Year Groups with a device	No. of Trees	% Saved trees compared to no device
No Device	16.12	0
4 out 7 Year Groups 1:1 Device	9.69	39.9
Prediction: All 7 Yr Groups with a 1: 1 Device	**7.27**	**54.9**

1 *PaperCut MF – Print Management Software (https://www.papercut.com) Reports*
2 *Soder's Calculations - https://www.papercut.com/blog/insights/sustainability/how-many-trees-has-papercut-saved/ (July 2023)*

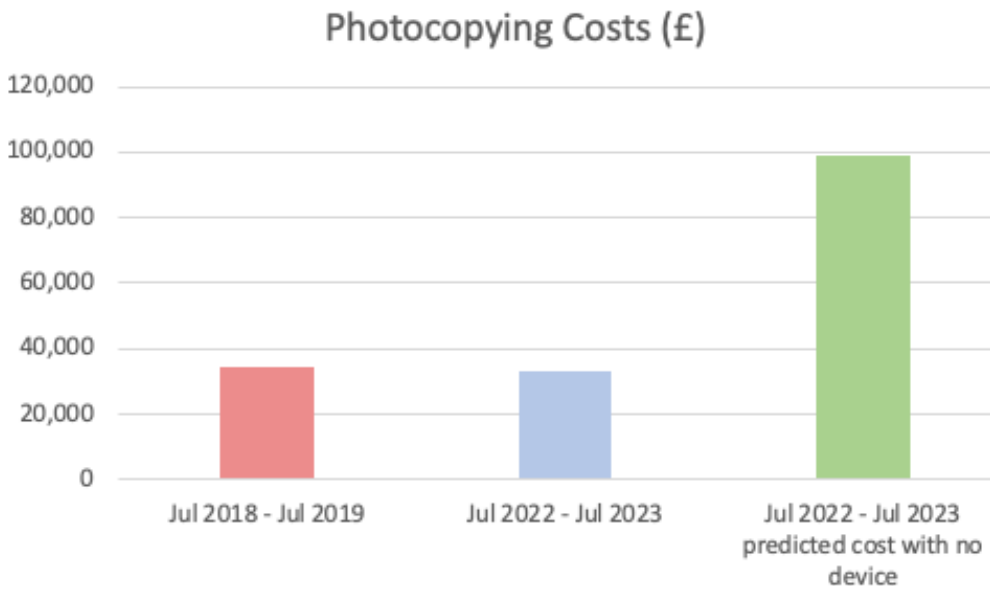


Increased costs

Due to global issues, there has been a significant increase in paper and photocopying costs. Therefore, despite a 39.9% decrease in number of trees used this not reflected in actual costs.

Compared to 2018-19, our paper/photocopying costs have increased three-fold. Had we continued to photocopy at the same rate as in 2018-19 the additional costs would have been significant: from £34,312 to an estimate of £98,991.

Time Period	Cost £
Jul 2018 - Jul 2019	34,312
Jul 2022 - Jul 2023	32,997
Jul 2022 - Jul 2023 predicted cost with no device	**98,991**



In providing digital texts for students, we have reduced our carbon footprint with respect to use of paper/printing and shipping. For the purchase of a device there is a one-off shipping cost, compared to multiple shipping orders for printed textbooks from a variety of publishers.

Section 5 – Next Steps

Technology has already transformed many of our processes in addition to enabling new ways of teaching and learning.

From September 2023, with all students having a one-to-one device, all teachers will be able to use technology for learning in more creative and innovative ways within their specialism with all students.

We have only just scratched the surface of the potential gains of using technology to enhance learning. Our next steps involve taking the innovative use of technology demonstrated by individual teachers and departments across the whole curriculum, scaling up the valuable lessons already learnt throughout the College.

What next...

Expanding our use of technology within or into the following areas:

- Artificial intelligence to provide personalised learning and real time feedback across the curriculum – expanding our use of Century Tech.
- How best to use ChatGPT and similar A.I. software for both teaching and learning
- Adaptive learning technology to adjust the content and pace of learning to the needs and abilities of individual students.
- Technology within Digital Art, 3D Design, Music, PE and Drama.
- Mixed media lesson content and audio feedback
- Low stake quizzes with instant feedback, e.g. Bookwidgets for interactive worksheets / puzzles (transforming paper-based worksheets)
- Flip the classroom for preview/ review home learning and cover lessons.
- Expand our use of e.g. Exam.net software for online end of topic tests and end of year internal exams.
- Collaboration tools to facilitate communication and collaboration between students and teachers regardless of location.
- Learning Analytics to provide teachers with insights into student learning and behaviour, allowing teachers to personalise learning /implement intervention strategies for individual students.

To support our growth with digital devices, we identified the need for the following:

- Additional IT Technician – recently appointed. We now have a team of three.
- Student loan equipment: iPad, battery chargers and digital pens
- Charging lockers for student loan equipment, students use a smart card to access the lockers and borrow equipment.
- Tables with charging capacity/ powerHubs – for common areas, eg. Library and student café.

What we will not be purchasing:

- No more student loan laptops / desktop PCs other than the desktop computers for the Computer Science and Design & Technology classrooms.

Section 6 – Appendixes

Appendix 1 - Infrastructure

Digital Infrastructure

All staff have tablet laptop with digital pen (moved away from Desktop machines)

All classrooms have a Smartboard which were updated to ensure user experience was the same in each classroom.

All MS Teams and Class Notebooks are pre-populated with students before the start of term.

Upgraded our Internet Router and Access Points to meet needs of increased number of users.

Used Apple School Manager to setup devices and distribute apps. Thereby removing the need for younger students to have a personal AppleID.

Professionally learning for teachers

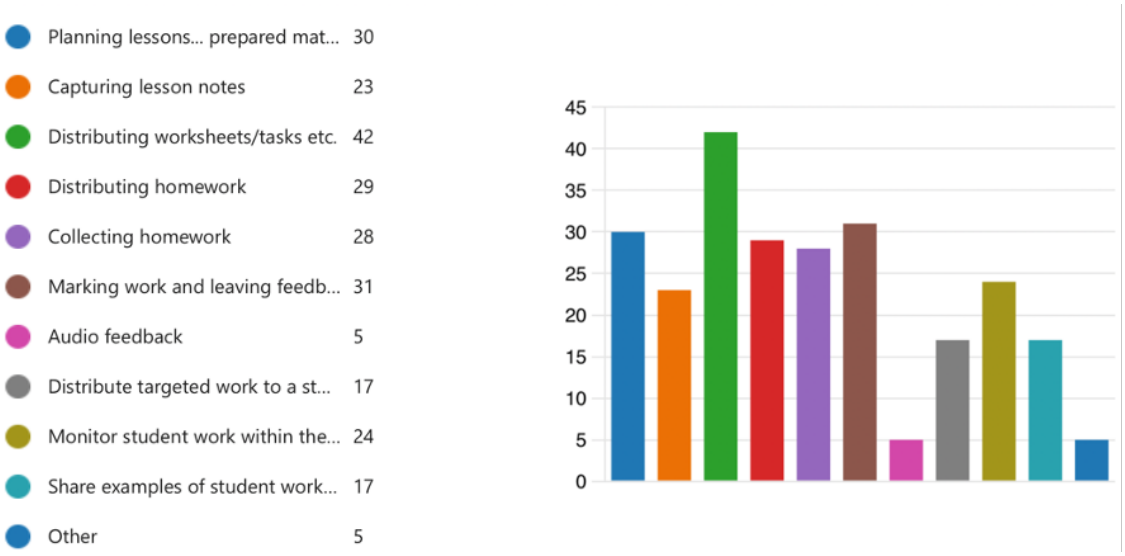
Before the launch of one-to-one devices, the majority of staff were unfamiliar with using Office365 and Class Notebook.

Professional Learning (INSET) dedicated to using technology for learning in February 2021: carousel of workshops led by teachers for teachers.

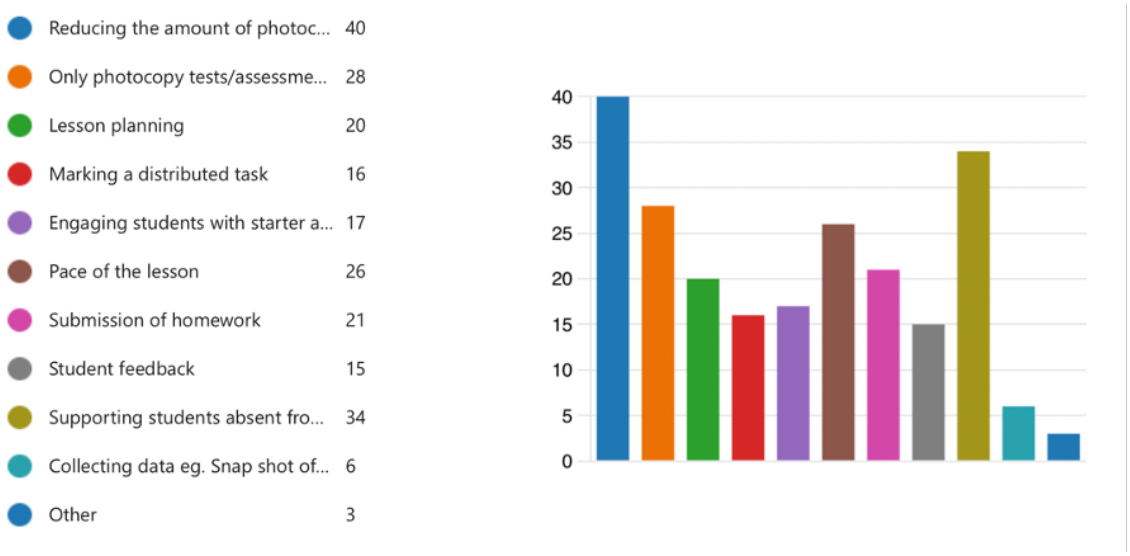
Additional support sessions offered during the lunch hour and at faculty meetings or when required.

The varied use of Class Notebook, low stake quiz apps and other apps is strong evidence to suggest that teachers feel confident and supported in their use of technology for learning.

How teachers have used Class Notebook:



Teachers have identified the following improvements as a result:



Digital Literacy Programme

The Year 7 igital literacy programme is planned and delivered by a team of three teachers and two IT technicians. An IT Technician is on hand in every lesson to support student learning.

Year 7 – Timetabled weekly Digital Literacy lesson, where students learn how to use their device for learning. This provision prevents technology from being a barrier to learning in main curriculum subjects, enabling teachers and students to focus on learning and not the technology.

Year 9 (One to One device After May half term) – Timetabled weekly Digital Literacy lesson in second half of summer term to support students as they transition to studying their GCSE Options in the Summer Term. Starting their GCSE options early releases curriculum time for Technology lessons.

Year 12 (One to One device September) - Four Digital literacy lessons delivered within the first two weeks of the Autumn term. Digital literacy lessons are timetabled to coincide with their study periods.

Strategies to reduce cost of purchasing the device

Parents can place an order through the College via our online shop – this allows us to pass on our educational discount (approx. £90) and offer various payment plans if required.

The College pays for the digital device for all students eligible for financial assistance and/or for Jersey Premium funding.

The College provides students with digital textbooks, thereby giving parents the option to buy printed textbooks, rather than a requirement.

Through Apple School Manager we can purchase and distribute subject specific apps e.g. Procreate, Photoshop, Chemistry keys and Notability with no additional cost to parents.

Appendix 2 - Teething Problems

Problems encountered

- As a result of Covid, and Brexit, there were delays with orders placed through the College: delays in both manufacturing of products and shipping. *
- Some students did not want to use the device we specified, iPad, Logitech track-pad keyboard and digital Crayon**. This made the delivery of the Digital literacy challenging, as students with a different device needed a bespoke lesson. In addition, the students were more likely to struggle with OneNote in their other lessons.
- Additional IT support required.

* Delays are still an issue due to global events

**We originally suggested the Logitech crayon as it was cheaper than the Apple Pencil. However, due to long delays with shipping and build quality (not suitable for prolonged use), we opted for the Apple pencil. Logitech have since sent replacements for faulty crayons.

Solutions

- We place orders earlier – Year 7 and 12 students receive their device well in advance of the start of the new academic year.
- In Years 7 and 9, we stipulate the use one type of device – iPad. The one type of device combined with the use of Apple School Manager has enabled students to use our faster internet connection, have all the apps necessary for learning and links to digital textbooks, and ensure their device is regularly updated.
- We order more devices than we need - for the few students who forgot to purchase or who are late admissions to the College.
- Year 12 students have more flexibility with their choice of device but, for most subjects, our recommended device is the most suitable and sustainable option.