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Students, academic reading and information literacy in a time of COVID

Jane Secker, Senior Lecturer in Educational Development, City University of London. jane.secker@city.ac.uk. ORCID: [0000-0002-3047-1212](https://orcid.org/0000-0002-3047-1212). Twitter: [@jsecker](https://twitter.com/jsecker)

Elizabeth Tilley, Head of Education and User Services, Cambridge University Libraries, University of Cambridge. eat21@cam.ac.uk. ORCID: [0000-0002-6495-1935](https://orcid.org/0000-0002-6495-1935). Twitter: [@LibTil](https://twitter.com/LibTil)

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Abstract

Reports on a panel discussion held at LILAC 2022 on student academic reading during the COVID-19 pandemic. Draws on data from two surveys, but also discusses the implications of this research for teachers and information literacy (IL) practitioners. In summary, students carried out almost all their academic reading in electronic format, due to the restrictions in place. However, in common with research conducted prior to the pandemic, their preferences for reading in print format remained. Students also report doing less of their assigned readings, feeling more tired as well as reporting other negative health benefits from excess use of screens and devices. The study has implications for librarians, learning developers and for academic staff assigning course readings to students. Ongoing research in this area is recommended.

Keywords

academic reading; COVID; e-books; higher education; information literacy; students; UK

1. Introduction

Since the outbreak of the COVID-19 pandemic there has been a huge focus on increasing access to electronic readings in higher education. Problems purchasing titles in electronic format became apparent in 2020, leading to a high-profile campaign being launched to highlight the licensing problems associated with e-books¹. However, more fundamental questions remain about student attitudes towards online reading during the pandemic and going forward. This short report is based on a panel discussion held at LILAC22, composed of academic librarians and a lecturer who discussed the user experience of reading and studying online since the pandemic (Secker et al., 2022). The panel drew on data collected as part of a continuation of an international survey of students' preferences for academic reading. It also presented additional data from a student survey and focus group held at the University of Cambridge. We summarise the discussions held at the conference by the panel. At LILAC we were particularly interested in the implications of the findings for information literacy practitioners. However, the data may also be of interest to acquisitions librarians, who provide access to digital readings for students,

¹ Known as "eBook SOS": further details about the campaign to call for an investigation into eBook licensing models can be found here: <https://academicebookinvestigation.org/>

either through e-resources, or by digitising core readings under the Copyright Licensing Agency's Higher Education Licence².

The data we present in this report was primarily collected through an online survey. Three members of the Academic Reading Formats International Survey (ARFIS) team devised a follow up survey in 2020 during the COVID-19 pandemic to understand how students' academic reading habits might have been impacted by the crisis. This study was launched concurrently at UCLA and across several academic libraries in the UK in early 2021. Around the same time, research was carried out at the University of Cambridge by the Cambridge Colleges Libraries Forum (CCLF) who were investing heavily in e-books and wished to carry out a survey of their students' reading habits.

This paper focuses on the ARFIS findings but it was clear at the LILAC panel that the CCLF survey and additional qualitative focus group comments were consistent with the survey findings. Qualitative data from the surveys and the additional focus group of Cambridge students held specifically for the conference supports the extensive quantitative data from the ARFIS and CCLF surveys.

2. Research questions and aims of study

The LILAC panel was interested in discussing a range of issues including:

- Does the lack of format choice and reliance on digital reading for academic work during the pandemic impact on students' print and electronic format attitudes?
- Do students report changes in their reading and learning behaviours?
- How do the format preferences and behaviours of students in this survey compare to findings from studies before the COVID-19 restrictions?
- How do attitudes and behaviours compare between students in the US and UK?

However, given the focus of LILAC we were also interested in considering the implications of these findings for teachers and information literacy (IL) practitioners.

3. Previous research on academic reading

The following is just a snapshot of some previous research to provide some brief context for the project report. Extensive research into students' academic reading habits was conducted prior to the pandemic through the creation of a multi-national study known as ARFIS (Academic Readings Format International Study). Findings from country specific and the multinational study have been presented at several academic conferences and written up in peer reviewed journals (for example Mizrachi et al., 2018, Mizrachi et al., 2021). Across the world the evidence from these studies is clear: that despite the investment in e-resources, students typically preferred reading for academic purposes in print, especially if they were required to do in depth reading, to annotate the text or were using it for their studies. In subsequent work Mizrachi & Salaz (2021) have developed the Reading Event Analysis Model (REAM) which was presented at the conference and provides a way of understanding when students might prefer to read online and when print is more helpful.

Similar findings were found in a more recent study carried out using focus groups with students in the UK (Hargreaves, 2022). The research concluded that "print reading promotes a more comprehensive and in-depth quality of reading than reading digitally" (p. 15). This study also found that 18 of the 20 students who took part in a focus group carried out the majority of their academic reading using digital texts. These students were aware of some of the benefits of

² See <https://www.cla.co.uk/higher-education-licence>

reading in digital format, for example when navigating long documents, scanning texts and being able to make connections between texts. However, the authors found that advice to students from learning developers about how to undertake reading using digital texts and the affordances of print versus electronic formats is currently very minimal. It was concluded that more advice could be offered to enable students to make better use of digital texts. (Hargreaves et al., 2022, p.15).

4. Methodology

The LILAC panel drew on two data sets relating to students' preferences for academic reading during the pandemic. Firstly, the panel referred to the international survey which was devised partly drawing on the questions asked in the original ARFIS study to enable comparison with some of the previous data set. Several new questions were created to understand how students' reading practices might have changed during the pandemic. The final survey obtained ethical approval from UCLA and then the research team launched it as an online survey in March 2021. It remained open until June 2021 and it was circulated in two key ways. It was publicised widely to students at UCLA via the library website. Meanwhile in the UK, a message was sent to the SCOUNL mailing list asking library directors to promote the survey to students in their own institution. They were free to do this in any way they felt suitable. Approximately 17 UK institutions agreed to promote the survey to their students using their own communication channels.

The result was that over 600 responses were received in total, including 373 responses from UK students. The remainder were US students and the findings from this part of the study have been previously published (Mizrachi and Salaz, 2022) enabling a comparison to be made. The full data set was downloaded from Qualtrics and uploaded into Tableau to enable further analysis and patterns to be observed.

Secondly, the panel drew on The Cambridge survey, which was devised by the Cambridge Colleges Libraries Forum (CCLF) (CCLF, 2021) to explore preferences in use of e-books. Focused on just one institution it provides key data for understanding student preferences and needs and received over 700 responses from students. It is important to note that 64% of students who completed the survey had spent some time off-campus during the pandemic and reactions and feedback are necessarily impacted by that. Clear preferences emerged with use of e-books where items such as chapters were prioritised as suitable for reading electronically. The authors summarise the results by referring to the students' ability to understand how to make the best use of digital and print as many students "emphasised the importance of being able to access both print and electronic books to leverage the advantages of both formats."

5. Results from the UK COVID reading survey

In this section we present some of the data from the UK students. The results from the US students were presented in a recent article by Mizrachi and Salaz (2022). In the interests of open data sharing the full data set has also been made available publicly.³

5.1 Student attitudes to academic reading

The survey asked students about their feelings towards reading and working online. Table 1 illustrates students' attitudes in comparison to before COVID in percentages. While it is very clear that UK students missed being able to use the library (83%) it was a smaller percentage who were still missing their academic reading in print format (65%). This suggests that the

³ The full data set is available to interrogate here: <https://public.tableau.com/app/profile/osc.cambridge/viz/COVID-19ReadingFormatsStudy/Dashboard>

concept of 'library' as a place (Kim, 2016) to study seems to be more than just the provider of print texts.

Table 1: student attitudes towards digital reading

Rates of agreement with feelings statements	Responses		
	Agree/Strongly Agree	Neutral	Strongly disagree/Disagree
I get really tired of doing so much academic work electronically	77% (n = 289)	9% (n = 35)	14% (n = 51)
I miss being able to use the library	83% (n = 311)	11% (n = 40)	6% (n = 24)
I miss reading academic assignments in print	65%(n = 243)	15% (n = 56)	20% (n = 76)

Tiredness was a factor seen time and time again in the qualitative feedback, for example comments included:

- “It's really hard to concentrate and makes my eyes hurt.”
- “It is tiring and straining.”
- “Staring at a screen all day gives me dry eyes.”

5.2 Likes and dislikes about print and electronic formats

Figures 1 & 2 illustrate students' attitudes towards e-reading in comparison to before COVID by percentages. Results for UK students are consistent with those reported in the same study from US students (Mizrachi and Salaz, 2022). Higher percentages in both figures show that students' experience of e-reading did not result in an overwhelming preference for e-reading in the post-COVID world.

Qualitative statements from students from the survey emphasise the exhaustion they felt with constant e-reading in the pandemic but indicate the nuances of these percentages: for example, the type of text being read, the device used, the impact on the environment, the portability of print books and the impact on the student's ability to remember and learn all contributed to the student's reflections about their COVID experiences:

- “There are so many it can be hard to find one that specifically addresses the area that you are interested in. I also find working on a screen can be easily distracting due to streaming platforms, accessibility to music and notifications from social media.”
- “I do prefer core study textbooks in physical format.”
- “More environmentally friendly and cheaper!”
- “Easier to “control f” to search and to sync highlights and notes automatically.”

Also in the qualitative comments in relation to reading on screen we noted that 44% of UK students used the word 'easy' about screen use with 'access' being the most commonly used word combined with 'easy'. However, few students defined what they meant by 'easier access'.

Meanwhile 35.5% of UK students found using screens tiring with a very high percentage (31.5%) referring to medical impact on, for example, neck or eyes or posture. In addition, 25% specifically mentioned screen fatigue, 25% found that using screens was distracting (they were tempted to look at other things on the internet for example). Only one response referred to wellbeing/mental health which is noteworthy. We might speculate that if the survey was taken again whether this number would be much higher.

When we look at what students most like about print from the qualitative data, 40% said it was easier using print. Specific things mentioned were: 34% mentioning it was easier to annotate and highlight; 22% liked the physical tangible quality of a book; 13% specifically stated that they thought they learnt more/better using print. Around 20% mentioned fewer medical conditions.

When it came to what they least liked about print there were fewer clear trends in the qualitative data. Seventeen percent of respondents highlighted use of print books as having a negative impact on the environment. A further 17% focused on portability of print books: they are heavy, they require visiting a library, they impact the numbers of items accessible to a student. Other references were to print books being less accessible as there are not enough copies to go around, they felt that they were expensive, especially for printing (perhaps they meant copying); they were less accessible (for reading) and harder to search.

As an additional point, 21 responses actively noted that there was 'nothing' they didn't like about print. There was no corresponding reaction in the data about reading on screens which leads us to consider that there are still stronger ties to print than there are to electronic reading.

Further to the ARFIS survey, the Cambridge Colleges Libraries Forum e-books survey provides a useful qualification in its survey by asking students about their preferences on the type of reading material they used electronically versus in print (CCLF, 2021) which illustrates more complexity in student preferences. For example the survey highlights the different preferences of students when choosing print or electronic resources for either recreational reading, chapters from academic monographs or whole textbooks. Hargreaves et al. (2022, pp. 8-10) in their recent research bear out the distinction between the type of information the students are required to read and how likely they are to read it online, with a clear preference for articles and chapters to be read online, but with longer texts more commonly preferred to be read in print.

Figure 1: Student responses to statement about disliking e-reading more than before COVID
I now DISLIKE e-reading more than before COVID

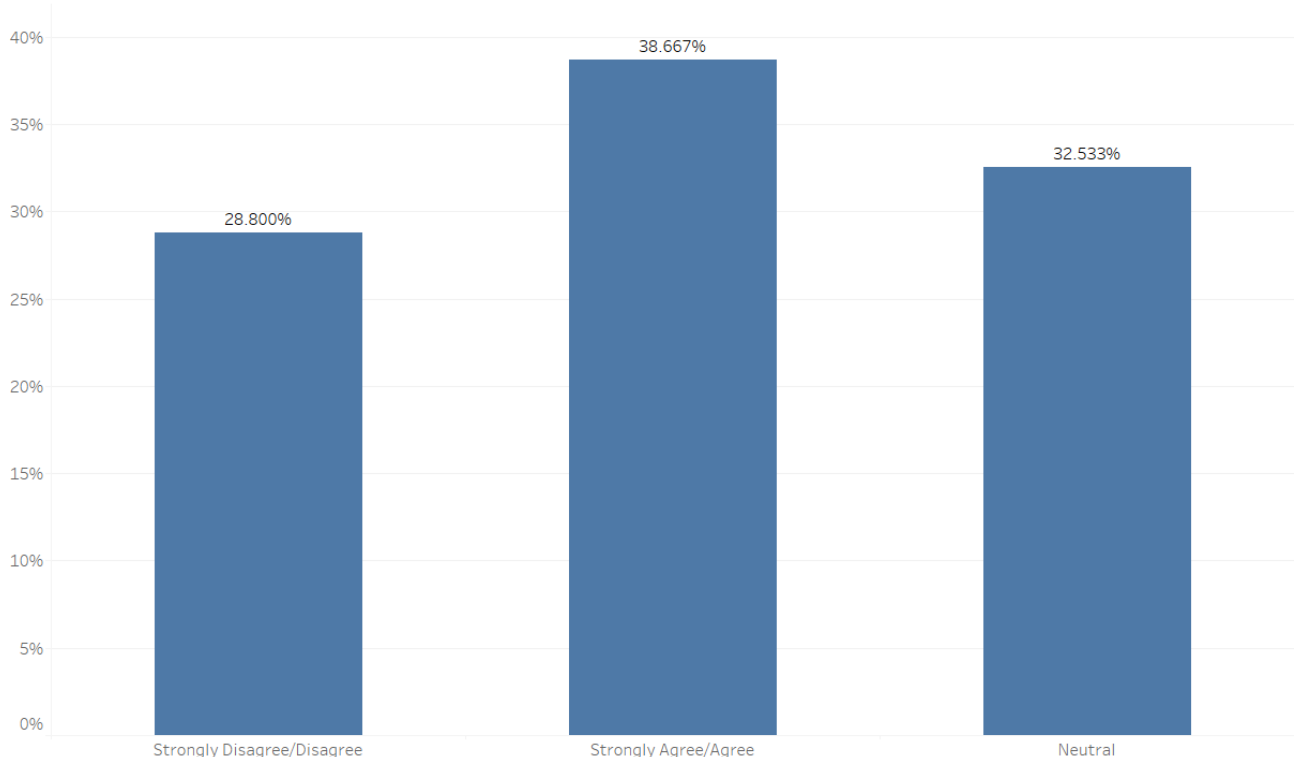
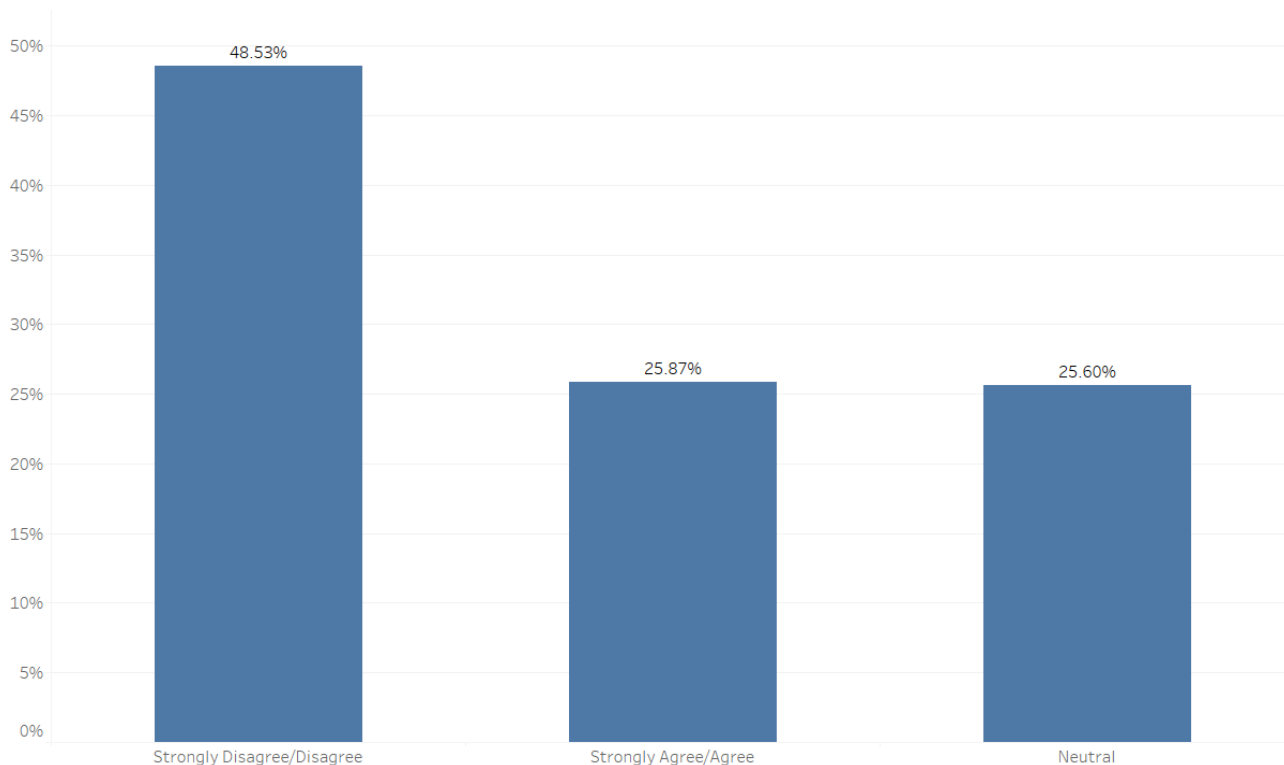


Figure 2: Student responses to statement about liking e-reading more than before COVID

I now LIKE e-reading more than before COVID



5.3 Ability to focus and remember

One of the key questions on the survey asked students to consider how well they felt they could focus on reading text using different devices (Table 2). A second question asked them to rate their ability to remember information from reading on the same devices (Table 3). Data collected for students from the US in both the original ARFIS study and the current study are consistent with the UK data, with some specific exceptions: fewer students in the UK use smartphones or e-readers for academic reading purposes than their US counterparts (Mizrachi & Salaz, 2022). However, smartphones are still rated as difficult to use by UK students, and computers (57%), as the hardest for focusing. Qualitative responses about use of electronic devices in general points to the problem of concentration and distraction as one student said:

“It’s so hard to focus on the screen and not get lost it’s also harder to remember what you’ve just read as it doesn’t go in as well.”

However there are also positive features of devices which are highlighted by UK students and these values are important when considering the importance of the chosen device:

“All stored on one device”

“Some electronic devices read the text to you.”

“Being [able] to save a research article directly from finding it and accessing it across multiple devices (eg tablet and laptop) using reference manager software”

“Portable, can open anywhere if you get it on your device”

The data indicates that students do not feel that they are optimising their learning when e-reading at the level they were required to do in during COVID. Hargreaves et al. (2022, p. 9) however also point to this potential problem as we emerge into a post-pandemic environment from a Learning Development perspective. In their study students focus less on the activity of

reading when online, and they express an inability to remember/learn as well as when reading print. However, there are many factors that must be taken into account to help us understand this assessment by students. For example, the following comments were collected in relation to note-taking and making annotations:

“Physicality of holding a book and knowing where I am in the text. Being able to physically mark my notes with Post Its for easy reference.”

“Making notes in the margins (of photocopies or of books that I own) can help me to stay engaged.”

There are a number of benefits that electronic reading brings to the learning environment, such as the type and format of material being used, the acknowledged usefulness by students of search functionality, and the clear benefits to accessibility of online resources. All of these contribute to efficient and effective ways of working. As students said:

“You can highlight the text without destroying the work for someone else. You can copy and paste quotations directly, thus ensuring accuracy in essays.”

“Ctrl+F. I can also save them to my computer and don't take up physical space.”

“Easy to annotate, highlight and copy and paste.”

“Accessibility/ease of access: Instant access to multiple resources in many formats within seconds. I can have multiple tabs open and download documents. It's so quick and expands the scope of my reading and research!”

“More accessible, text size, change colours”

Table 2: Students' ability to focus using different reading formats

Students' ability to focus using different reading formats				
Device	Easy to focus/somewhat easy to focus	Somewhat hard/hard to focus	Don't use for academic reading	Neutral
Computer	28% (n = 105)	57% (n = 212)	1% (n = 3)	15% (n = 55)
E-reader	18% (n = 68)	15% (n = 57)	58% (n = 216)	9% (n = 34)
Print	86% (n = 321)	5% (n = 18)	2% (n = 9)	7% (n = 27)
Smartphone	9% (n = 32)	40% (n = 151)	44% (n = 164)	7% (n = 28)
Tablet	17% (n = 64)	25 % (n=94)	47% (n = 175)	11% (n= 42)

Table 3: Students' ability to remember information using different reading formats

Students' ability to remember information using different reading formats				
Device	Easy to remember/somewhat easy to remember	Somewhat hard/hard to remember	Don't use for academic reading	Neutral
Computer	42% (n = 159)	30% (n = 114)	1% (n = 4)	26% (n= 98)
E-reader	16% (n = 61)	13% (n = 48)	58% (n = 216)	13% (n= 50)
Print	78% (n = 292)	5% (n = 17)	2% (n = 8)	15% (n = 58)
Smartphone	14% (n = 51)	28% (n = 104)	44% (n = 164)	15% (n = 56)
Tablet	17% (n = 63)	20 % (n=75)	46% (n = 175)	16% (n=62)

5.4 Comparing UK students to the US data

One area where we were interested in drawing comparisons was the responses from the UK and US students using findings from Mizrachi and Salaz (2022). Overall US students seem slightly worse affected by COVID, with fewer completing all their readings in any format (37.7% in the US compared to 33% in the UK). Reading in electronic format also has some differences: for example 55% of UK students said it made no difference to their reading habits compared to 49.8% of US students. Meanwhile 18% of UK students were more likely to do all their reading during COVID, compared to only 13.7% of US students.

Attitudes to reading show some interesting differences, for example, 62% of US students strongly agreed with the statement they were more tired doing electronic reading, compared to 53% of UK students. However more UK students said they missed reading in print—(64.8% either agreed or strongly agreed with the statement) compared to 62% of US students.

Focusing on academic reading on a computer was considered difficult by more US students—56% of UK students said it was hard, or somewhat hard to focus compared to 64% of US students. However 57.6% of UK students said print was easy to focus on compared to 48% of US students.

Physical effects of online reading were experienced by students in the UK and US with no real discernible differences. High numbers reported eyestrain (80% in the UK compared to 84.5% in the US). Other physical effects to their neck and back were experienced by 71% of UK students compared to 78% of US students.

Reading format during COVID clearly shows the shift to online reading: 47% of UK students said all their reading was in electronic format compared to 55% of US students. During COVID a high number of students in both the UK and US said they did not read in print format (44% in the UK and 51.9% in the US).

Remembering academic readings in electronic format is clearly more difficult than remembering them in print - 35.7% of UK students said remembering readings in electronic format was

'somewhat easy' compared to 30% of US students. In contrast 45.6% of UK students said it was 'easy' to remember print readings, as did 44% of US students. Many did not use a smartphone or a tablet to do their readings.

6. Limitations and further research

Drawing direct comparisons between the US and UK data is not without problems for a number of reasons. Primarily because only one US institution (UCLA) was surveyed, preventing a deeper dive into a broader spectrum of types of tertiary students in diverse personal and socio-economic circumstances. The findings also cannot definitively conclude that COVID restrictions impacted on students' attitudes to reading formats: other factors may be at play, such as the amount of time spent on computers given the rise of remote learning in general in March 2021. We therefore suggest that a follow-up study in one-two years after return to physical instruction would help inform lasting impact on student attitudes.

One of the discussion points raised in the LILAC panel opened up the debate on institutional purchasing policies for e-books and how this may be impacting student learning. It is clear that the pandemic would have had a substantial impact if institutions had not had readings available online, but further research might establish in the future what impact online reading has on changes in learning habits of students.

7. Implications of the research for IL librarians

During the panel discussion we highlighted a number of issues emerging from our data of interest to IL librarians.

7.1 Resource discovery

The reality is that libraries must still take care of print collections so that they remain a choice for students but, in addition, should be mindful of environmental concerns and portability of print as well as the number of copies available. Existing print collections should be kept new and lively despite so much more being available online: we need to be wary of print collections starting to seem irrelevant or hard to access. There could be a risk of our print collections becoming the wallpaper of our physical spaces. We can reach out and collaborate with other support services to ensure that students consider critical processes for accepting or discarding a print versus a digital book. Hargreaves et al. (2022) point to resources to assist students with this development of critical awareness, such as the Learn Higher resource.

An important role remains for librarians, teachers and IL practitioners to help students navigate all the library's collections and to understand whether a print collection in a library is relevant or not. Libraries may need to provide more overt clues that are easily accessible for students and fit their searching styles. Students have had to transfer their browsing habits online, so as librarians we may see fewer students struggling to find print items in a physical library. However, to what extent are librarians really aware of whether that struggle exists in the online environment? Hargreaves (2022) notes the importance of skills training as students arrive at university. Informed contextualised support from academics working with libraries may improve students' ability to understand what is available and how to make their own informed choices about format within the relevant discipline.

7.2 Managing information

IL practitioners regularly grapple with the need to help students scaffold their understanding of information formats; students find information online and don't necessarily understand what it is and where it comes from. What makes a journal different from a chapter and what makes a website platform such as JSTOR different from an individual article is often unclear to students.

All of these dilemmas have existed for some time and have implications for academic/scholarly practices such as good academic practice, referencing and plagiarism. The online/digital environment contributes to the blurring of understanding as it is removed from physical format. The time for library intervention is typically at the independent research project stage, but there is much more that librarians could do to introduce students to the creation of academic and non-academic formats and styles as early as possible to help them join in the scholarly environment as confidently and as soon as possible.

7.3 Devices

The ARFIS study and the CCLF study gives useful insights into the impact of the devices that are used for online reading. Mizrahi et al. (2021) have noted specifically the importance of devices in impacting the perceived ability of students to focus and learn. US student data was marginally different from UK data and further research would assist library staff in providing advice and support for students as they arrive at university. Whilst much is being done to improve tips and techniques for accessible reading on screens, further work on recommended devices would enhance this.

8. Reflections as teachers

The panel also reflected on their experiences as teachers during the pandemic and one panel member who taught extensively during the pandemic shared some adaptations they had made to their teaching, partly in recognition of some of the challenges they sensed students were facing with academic reading during COVID. These seem helpful things to consider if the majority of academic reading continues to be provided to students in digital format. They include:

- Balancing student reading with other activities - for example teachers might provide students with just one essential reading per week / per topic but also some pre-class work that might involve watching a video or listening to a podcast to vary the format.
- Clearly signpost to students why a specific text needs to be read, provide questions for them to answer while reading and discuss these in class to explain the relevance of the text.
- Be aware of which readings on their reading list are available online vs which are in print format only in case access to the library is a problem for students.
- Include links to journal articles rather than whole books as these will be easier for students to access and easier to read as they are often shorter and more focused.
- Provide students with feedback from assignments including clearly signposting additional reading that is required, where the library can offer further support and guidance related to IL.

Other adaptations may be appropriate depending on the nature of the subject and the preferences of the student cohort. However, overall teachers are recommended to discuss academic reading with their students and signpost additional support offered for example by librarians or learning developers, who can assist with developing students' practices.

9. Conclusion

Academic institutions focus on providing an excellent environment for teaching and learning. At the end of the panel questions remained about whether we should, as teachers and IL practitioners, be concerned that students do not feel that they learn as well with e-reading than with print or that their preferences clearly point towards using print in many instances? Libraries are providing digital resources in line with the move in all areas of life towards the digital experience. The pandemic tipped many staff and students over the line in terms of relying, often exclusively, on online resources. Our surveys suggest that there was a noticeable swathe of

students who came out of that experience exhausted and frustrated. But, as with all change, there have been the early adopters and those who have rarely experienced the academic environment without online reading as the cornerstone to their academic endeavour. They are finding their way through the complexities of using online material - print was a relatively easy device, if cumbersome and frustratingly out of reach on occasion.

Hargreaves et al. (2022) point to the responsibility that we in support services now have to help students scaffold their academic reading practices so that they learn early on how to make the most of the mixed economy they are working within, and how they can 'game the system' to benefit their learning. They have much more available to them than they did 30 years ago, but libraries need to be at the forefront of supporting students to appreciate the variety and depth of resources available to them. The ARFIS survey and continuing research from the team has provided a valuable research tool that gives us information to develop resources and advice relevant for different needs. Clearly students are not a homogenous group, and their preferences and behaviours will vary as our research shows. Consequently, ongoing research into student academic reading preferences is recommended as we emerge from the pandemic and develop new hybrid ways of working.

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