RLUK Research Libraries UK

New Frontiers of Digital Access

The development and delivery of Virtual Reading Rooms and Virtual Teaching Spaces amongst collection-holding institutions

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The RLUK Special Collections and Heritage Network (SCHN) is a professional peer network for colleagues leading cultural and heritage activities within RLUK member libraries. The SCHN is a forum for discussion, harnesses RLUK members' collective experience and expertise, and leads the development and delivery of programmes of work in direct support of RLUK members' activities around special collections, archives, and heritage and cultural materials.

The SCHN is committed to supporting RLUK members as they explore new and innovative ways of providing access to the amazing collections they hold, of promoting the role of staff as research partners and pioneers, and of encouraging and enabling cross-sector collaboration. The SCHN will continue to support members in their development and delivery of Virtual Reading Rooms and Virtual Teaching Spaces, showcasing their experiences, and convening colleagues from across the RLUK community, and beyond, to explore collaborative and collective opportunities.

Joanne Fitton and Daryl Green
Co-convenors of RLUK Special Collections and Heritage Network (SCHN)

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ACKNOWLEDGEMENTS

This document provides the findings of an international survey regarding the development and delivery of Virtual Reading Room (VRRs) and Virtual Teaching Services (VTSs) conducted in May and June 2021 by RLUK's Special Collections and Heritage Network (SCHN). The survey was supported and distributed by a number of RLUK's national and international partners.

RLUK would like to thank the members of a working group who have directed and informed RLUK's ongoing work around the development and delivery of Virtual Reading Rooms (VRRs) and Virtual Teaching Spaces (VTSs), including:

- Judy Burg, Head of Collections (University of Durham)
- Siobhan Convery, Assistant Director, Collections Strategy and Keeper of the Hunterian Books & Manuscripts (University of Glasgow)
- Joanne Fitton, Head of Special Collections and Galleries (University of Leeds) and co-convenor of RLUK Special Collections and Heritage Network (SCHN)
- Daryl Green, Head of Special Collections, Deputy Head of the Centre for Research Collections (University of Edinburgh) and co-convenor of RLUK Special Collections and Heritage Network (SCHN)
- Ian Johnson, Head of Special Collections and Archives (University of Newcastle)
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- David Prosser, Executive Director (Research Libraries UK)
- Jill Taylor-Roe, Director of Academic Services and University Librarian (University of Newcastle)
- Liz Waller, Director of Library and Collections (University of Durham)

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- Jo Elsworth, Director, Theatre Collection, and Director of Cultural Collections, University of Bristol
- John Hodgson, Associate Director (Curatorial Practices), The John Rylands Research Institute and Library, The University of Manchester
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- Association of Research Libraries (ARL)
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- Canadian Association of Research Libraries (CARL)
- Council on Library and Information Resources, Digital Library Federation (CLIR DLF)
- Consortium of National and University Libraries (CONUL)
- Association of European Research Libraries (LIBER)
- International Federation of Library Associations (IFLA)
- OCLC, Research Library Partnership (OCLC, RLP)
- The National Archives, UK, Higher Education Archives Programme
- The University Museum Group and The University Museum Group in Scotland
- Jisc
- SCONUL

Finally, RLUK would like to thank all of those colleagues who completed this survey and provided such valuable and rich insights into their experiences of developing and delivering Virtual Reading Room and Virtual Teaching Space Services.

EXECUTIVE SUMMARY

Context

Academic and research libraries have been making their collections available in digital form for decades. The digitisation of archives and special collections, alongside museum and gallery objects, has enabled remote access to research materials by students, scholars, and communities from around the world. The UK and Ireland have some of the most significant digital research collections internationally, mirroring their physical collections. Digitised content sits at the heart of a wide variety of inter- and multidisciplinary research and has opened up new frontiers of study through the digital humanities and heritage science.

The creation and provision of digital surrogates of analogue materials provides many exciting opportunities for remote access to collections, for a larger number of people, for a greater variety of purposes. The provision of digital access to geographically dispersed collections enables connections to be made between them, for new and unknown links to be discovered, and provides a curated entry point into national collections. It also offers opportunities for formal and informal education at all levels, providing content and case studies for scenario-based learning, analysis, critical thinking, and collections-related skills such as palaeography, curation and interpretation.

The provision of digital access to collections through digitisation comes with challenges. Digitisation is expensive, not only in the creation of digital surrogates but in their presentation and preservation. Digitisation is resource intensive, in terms of staff time, skills, and equipment, especially when undertaken at scale. Digitisation is often project based, associated with individual research questions, people, topics, or collections. It has often been perceived, and funded, as a by-product of the research process rather than significant research infrastructure in its own right. As a result, digitised collections vary in their extent, focus and original purpose, with a bias towards high-use, or name and location rich content. Although cumulatively significant, most collection-holding institutions have only digitised a modest portion of their analogue collections, meaning that the majority of the content they hold is only available in physical form.

New frontiers of digital access

Many collection-holding institutions have been actively exploring new and innovative ways through which digital access can be provided to their collections. This need has been enhanced by the onset of the Covid-19 pandemic. The closure of libraries, archives, and museums to researchers during the height of the pandemic, restricted access during successive periods of national lockdown, and social distancing rules, have significantly disrupted the ability of scholars to conduct research.

This disruption is likely to continue for the foreseeable future, associated with the potential arrival of successive waves of infection around the globe, ongoing and periodic restrictions in international travel, and due to the reduction in research budgets (as many institutions implement tighter financial controls). The seriousness of the climate emergency will also question the viability and ethical basis of international travel. These factors combined mean that research libraries, archives and special collections, and museums and galleries, need, as a community, to collectively consider alternative means of collection access through which original research can be conducted.

In response to these challenges, institutions have been experimenting with the provision of geographically remote digital access to heritage and cultural collections through the creation of Virtual Reading Rooms (VRRs) and Virtual Teaching Spaces (VTSs). VRRs and VTSs provide human-mediated remote digital access to collections which do not depend on digitisation. Through the use of live streaming via visualisers located within physical reading rooms, scholars, teachers or members of the public can view and digitally engage with an institution's heritage and cultural collections, asking for these to be positioned and interrogated by a member of staff, to enable their research.

Over 2020-2021 RLUK members have invested in ceiling-mounted and desktop visualisers to enable the creation of virtual reading rooms and classrooms. A survey of RLUK's Special Collections and Heritage Network (January 2021) highlighted the infrastructural and staffing requirements of the creation and operation of VRRs and VTSs. The survey revealed that these were a pragmatic response to the physical closure of buildings and the inability of students and researchers to complete their studies on site due to travel and access restrictions associated with Covid-19. The creation and deployment of VRRs and VTSs required the pivoting of existing staff from delivering in-person reading room support, and that, within many organisations, there were concerns that such a level of service would be unsustainable once physical reading rooms have reopened, without dedicated and specific resourcing.

The survey conducted in January 2021 also revealed the potential scope and reach of VRR and VTS services. Whereas these were initially targeted at researchers and postgraduate students working within the library, archive or museum's own parent institution, they were increasingly being opened to external researchers and students. The survey also demonstrated the potential application of such services to a variety of purposes from individual research, group teaching, to community and public engagement. The latter was particularly the case amongst some university museums.

As a result of these findings, and the continual growth and expansion of these services, both in their number and application, RLUK undertook a second, more extensive survey of the development and delivery of VRR services in May-June 2021. Unlike its initial survey, this was extended beyond the RLUK membership and was extensively promoted by RLUK's national and international partners. This report presents the headline findings and results from this second, more extensive, survey.

Dr Richard Oosterhoof delivering a virtual seminar at the Centre for Research Collections, 2020, courtesy University of Edinburgh.

HEADLINE FINDINGS

Responses were received from 32 institutions which either had, or were intending to create, VRR or VTS services. These organisations varied in their size, orientation, geography, and stated mission and remit. A full discussion of the results of this survey are included below in sections 4-7. Based on the analysis of its findings, this report has eleven headline findings:

1. **Emerging services:** A small but increasing number of institutions are developing VRRs and VTSs. These are spread across a variety of organisations including major museums and galleries, research libraries within large research-intensive universities, and smaller charitage and independent organisations. These are emerging services and questions remain regarding their use, audience, scalability, and sustainability. There is a mixed economy of approaches for developing and delivering a VRR or VTS service, and institutions are developing solutions which fit their specific requirements. This includes the use of mobile or fixed visualisers, the creation of dedicated spaces, and allocation of staff.

2. **Shifting status (VRR):** VRR services were initially developed to offer remote access to collections for a small number of internal researchers or users during periods of national lockdown when staff were permitted to enter buildings, but users were not. Following the lifting of many lockdown restrictions, these services are increasingly becoming established as bespoke research services that offer another form of remote access to collections alongside digitisation, for both internal and external researchers. User numbers are modest, but are growing steadily as awareness grows of these services. They have shifted from being a pragmatic response to a defined challenge, to an increasingly established research service. In doing so, they provide an additional means of digital access and mitigate some of the risk of future pandemics and periods of closure on the accessibility of collections.

3. **Shifting status (VTSs):** whereas VTS services were initially seen as a pragmatic alternative to onsite teaching during periods of lockdown, these have now become more established within their institutions, both for supporting student learning but also widening participation and community engagement. Whereas these were initially delivered virtually, a number of institutions are now creating hybrid learning environments where some students are physically present within a space and others join remotely via the VTS.

4. **Diversification of audience:** The audience for these services are growing and diversifying, extending beyond 'institutional' users. External researchers and groups now represent the largest user group for VRR services and these are largely drawn from SHAPE subjects (social sciences, humanities, and arts), although other disciplines are making some use of these. VTS services are engaging beyond an institution's student population and are being used to support wider community engagement and widening participation.

5. **Diversification of application:** The application of VRRs is diversifying, with a wider variety of collections being presented through these services, although the bias is still towards archives and special collections to underpin arts and humanities research. Museum, art, and 3D items are being presented via VRRs and VTSs, and these are sometimes combined with data visualisations via shared-screen functionality, demonstrating a cross-collection and format application. Some restrictions are placed on the types of material that can be viewed via these services due to the size, condition, or contents of items (e.g. if they contain sensitive personal information), and due to copyright restrictions. The copyright and licensing implications of these services are still emerging.

6. **Motivations and relationship with physical research:** VRRs, in particular, represent a bespoke service to a relatively small number of users who are unable to view a collection physically or if their research question does not warrant a dedicated journey. Many requests are investigative and enable users to virtually assess whether a physical visit might be warranted in the future, to check references, or to examine whether it would be pertinent for an item to be digitised. VRRs are being used by a

number of small organisations as an alternative means of offering digital access to collections without the need for digitisation, which they perceive as impractical, whereas the use of VRRs is helping to inform digitisation elsewhere.

7. **Staff / researcher dynamic:** the delivery of VRR sessions requires a close working relationship between staff and researcher. They require staff to become more embedded within the research process as collaborators and this relationship is seen to be mutually beneficial in enabling the exchange of ideas and knowledge between researcher and staff member. The use of VRRs is cited as enabling and encouraging collaborative research. Whereas VRR services are being delivered by collection-orientated staff in a variety of roles, VTS services are often delivered by members of the education and outreach teams. Skills development and training is currently informal between colleagues, due to the emerging nature of these services.

8. **Requirements:** A spectrum exists in terms of the technical complexity and resource requirements of establishing a VRR or VTS service. For some institutions, they have had a low technological baseline and make use of inexpensive, readily available visualisers (webcams), video-conferencing packages, and existing equipment and space which enable a basic service to be offered with ease. Other institutions have invested in dedicated and more sophisticated, hi-resolution, and site-specific equipment to fit their needs which represents a more significant investment in hardware, software, and space. There is a preference for the use of mobile visualisers which enable the greatest flexibility in terms of the delivery of VRR and VTS services, although a small number of institutions are using permanently fixed visualisers. In general, VTS services require a greater variety of space and equipment due to the multifaceted nature of teaching and learning, and the emergence of hybrid teaching.

9. **Sustainability:** VRRs are a bespoke service which require a high level of staff support and engagement. Institutions are exploring how these can be made sustainable as buildings and onsite services reopen. This includes finding permanent locations for these services, purchasing new and tailored equipment, and dedicating staff resources. Very few institutions are currently charging for these services or are considering doing so in the future, but many reflect that this will be determined by future demand.

10. **Potential applications:** VRRs and VTSs were created as pragmatic responses to the coronavirus pandemic in enabling remote access to collections during periods of physical restriction. Since their creation, institutions have begun to realise additional, unforeseen applications for these services. These include the possibility of digitally reuniting collections dispersed over many institutions (in serendipitous ways and without the need for digitisation), the potential to connect collections with geographically remote communities, and to provide quick and responsive access to a wide variety of materials at one institution in the event of the damage or destruction of a collection at another (e.g. through fire or natural disaster).

11. **Collaboration:** these services provide collaborative opportunities between institutions around skills, knowledge sharing, and agreed standards for their use and development. Institutions perceive potential benefit in coordinated approaches to the development and delivery of VRR and VTSs and would be interested in a networked approach to support discoverability and interoperability.

Cross-sector conversation

RLUK would like to use these findings to initiate conversations with institutions and stakeholders with an interest around the development and delivery of VRR and VTS services. RLUK will be holding a series of virtual events to follow the publication of this report and will also be hosting case studies to showcase the institutional experiences of their use and development.

This report, therefore, offers both a summary of the findings of RLUK's recent research into the development and delivery of VRRs and VTS services, and acts as an invitation to institutions and stakeholders to join RLUK in discussions regarding their use and development, and the opportunities posed for collaborative approaches.

SURVEY ANALYSIS

Survey parameters and methodology

An international survey regarding the development and delivery of VRR and VTS services was opened by RLUK between 14 May-11 June 2021. The survey's questions were established through a co-creative process between members of RLUK's Special Collections and Heritage Network, and representatives from RLUK's external partners who agreed to distribute the survey to their members.

The survey sought to establish:

- The extent to which research libraries, archives, and museums (termed as collection-holding institutions) were creating Virtual Reading Rooms and Virtual Teaching Spaces, within the UK and internationally.
- The experiences of collection-holding institutions in the creation of these services, their current use, and requirements.
- The opportunities and challenges these services have presented for institutions, staff, and users.
- The institutional context in which these services operate including how they were funded and how they sit alongside onsite physical services and digitisation.
- The opportunities that the development and delivery of VRR and VTS services provide for collaboration between collection-holding institutions.

The survey asked detailed questions regarding the technological, spatial, financial, staffing and skills requirements of both VRR and VTS services. It also asked about the use of these services by researchers and user groups, how these were resourced by institutions, and the motivation for creating and maintaining them.

The survey concluded with a number of questions regarding the possibilities for collaboration between collection-holding institutions around the development and delivery of VRR and VTS services, including in relation to the creation of a national or international network between them, the exchanging of skills, and the creation of agreed standards for their development and use.

The headline findings of this survey were presented and discussed at a dedicated workshop at DCDC21 which included a demonstration of a number of VRR services which feature in this report. A full PDF of the survey questions associated with this research accompanies this report on the RLUK website.

Definitions and meaning

The survey stated that:

> *VRRs and VTSs provide human-mediated remote digital access to collections which do not depend on digitisation. Through the use of live streaming via hi-res visualisers positioned within physical research spaces, scholars, teachers or members of the public can view and digitally engage with an institution's heritage and cultural collections, asking for these to be positioned and repositioned by a member of staff, to enable their research. These are emerging and bespoke services which provide another means of user-responsive access to collection materials.*

A demonstration of a VRR service was included within the survey preamble to illustrate this definition: John Rylands Research Institute and Library, University of Manchester (RLUK21 Conference).

Institutions responding

32 responses were received to the survey from 32 institutions. A number of these wished to remain anonymous reflecting that they were at an early stage of the development of their VRR and VTS services.

Those institutions which have or intend to create a VRR or VTS service and gave their permission to be cited in this research are:

Cambridge University Library (UK)
Cardiff University (UK)
Durham University (UK)
Haverford College (USA)
Imperial War Museums (UK)
Leeds University Library (UK)
Newcastle University (UK)
Rijksmuseum Amsterdam (Netherlands)
Royal Voluntary Service (UK)
San Bernardino County Historical Archives (USA)
Staatsbibliothek Bamberg (Germany)
The Huntington Library, Art Museum, and Botanical Gardens (USA)
The John Rylands Research Institute and Library (UK)
University College London (UK)
University of Birmingham (UK)
University of Bristol Library (UK)
University of Bristol Theatre Collection (UK)
University of Edinburgh (UK)
University of Glasgow (UK)
University of Huddersfield (UK)
University of Nottingham (UK)
University of Reading (UK)*
University of Southampton (UK)

Of those nine institutions which did not wish to be cited, only two of these had launched a VRR or VTS service by the time of the survey and the remainder were intending to do so in the coming months. Two of these were in the United States, one in the Republic of Ireland, and the remaining six from within the UK.

* The University of Reading: uses the term Virtual Reading Room to refer to their digitised content platform, which is accessed through a registration wall. Although this applies a different meaning to the term 'virtual reading room' to that used within this survey, the University's responses have been included within the analysis due to their launch of a Virtual Teaching Service. The application of the title 'virtual reading room' to different platforms reflects that these are still emerging services.[1]

Note on analysis

Responses: 32 responses were received from 32 separate institutions. Two responses were received from the University of Bristol, one from its Theatre Collection and one from the Special Collections (including the University Archive). Although both are part of the University they are classed as separate institutions within the analysis, reflecting that the Collections, and their VRR and VTS services, are in different parts of the university (physically, structurally, and organisationally (e.g. in terms of staffing, collection development and reporting).

Compulsory fields: very few fields were compulsory in this survey in order to enable the utmost flexibility in responses. As a result, not all 32 respondents completed all the questions. When a chart or graph is presented within the analysis, the total number of respondents responding to that question is given within the graphic.

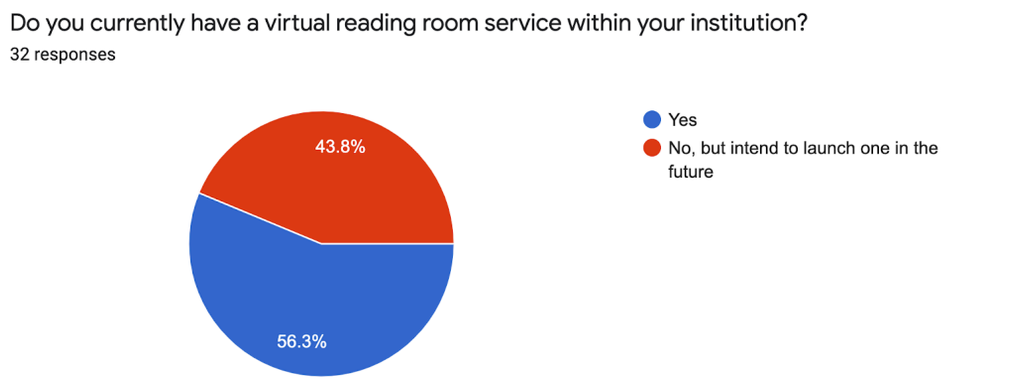
Percentages/value: the analysis below gives the value (number of respondents selecting an answer) and the percentage that this represents (of total responses to that question). All percentages are rounded to the nearest whole number within the text.

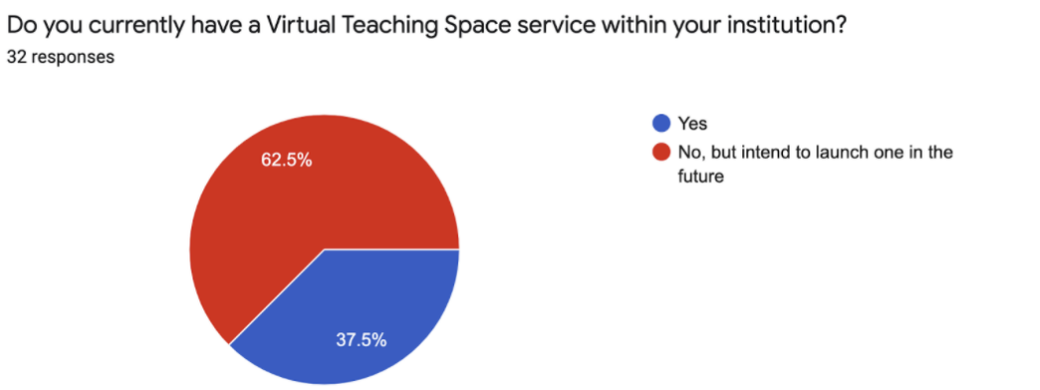
1 Further information regarding the University of Reading's Virtual Reading Room service is available here: https://vrr.reading.ac.uk/ (accessed July 2021).

HIGH-LEVEL ANALYSIS OF RESULTS

Responses received: 32 responses, from 32 institutions, of these:

- Have a Virtual Reading Room: 18 institutions (56% of responses)
- Intend to create a Virtual Reading Room: 14 institutions (44% of responses)
- Have a Virtual Teaching Service: 12 institutions (38% of responses)
- Intend to create a Virtual Teaching Service: 20 institutions (63% of responses)

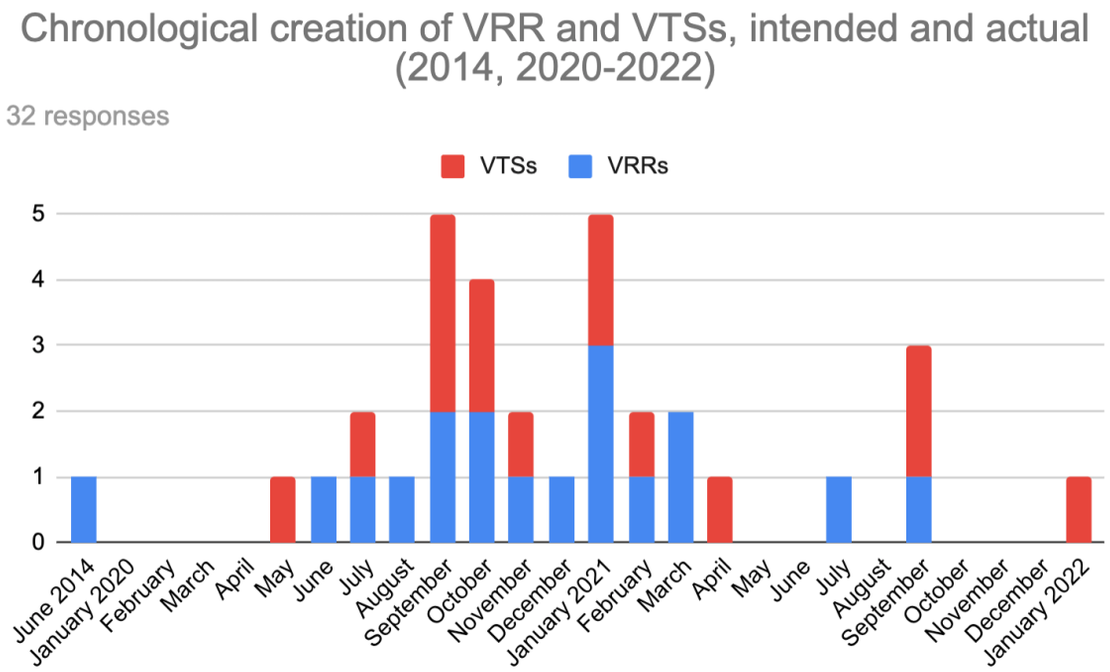




Emerging services

The survey results revealed that Virtual Reading Rooms and Virtual Teaching Spaces are emerging services. Of the 32 survey respondents, 18 (56%) had created a VRR and 14 (44%) intended to launch one in the coming months. In terms of Virtual Teaching Spaces, 12 (38%) had created a VTS service and 20 (63%) intended to create one.

The majority of the VRR services had been created from July 2020 onwards and were dispersed throughout the year. Slight concentrations were seen in September and October of 2020 (when four institutions launched services) in the early stages of the academic term, with a further three institutions launching services in January 2021. Only one service pre-dated the pandemic and was launched by the San Bernardino County Historical Archives in 2014 to support geographically remote genealogical research. VTSs predated VRRs slightly in their launch, with these being developed and delivered from May 2020 onwards, with a slight concentration in the months of September and October, also to coincide with the start of the academic year (5 institutions creating VTSs in these months in 2020).



Within the UK, the majority of VRR and VTS services were created and launched during periods of varying national lockdown. Although this remains the case, institutions have continued to develop and launch these services beyond lockdown periods, reflecting that access limits remain in place but also, appearing to suggest, that the motivations for creating these services stretch beyond the immediate constraints and limitations of lockdowns

Institutional placement

VRR and VTS services are being created by a wide range of institutions and units including within archives, special collections and museums belonging to universities, charities, schools, and voluntary organisations. Although many of these belong to large, research-intensive organisations, a number have been developed and launched within smaller, independent and charitable organisations. Their adoption by such a variety of institutions reflects their relatively low technological entrypoint (in order to provide a baseline service) and the relative ease with which these can be created using existing resources.

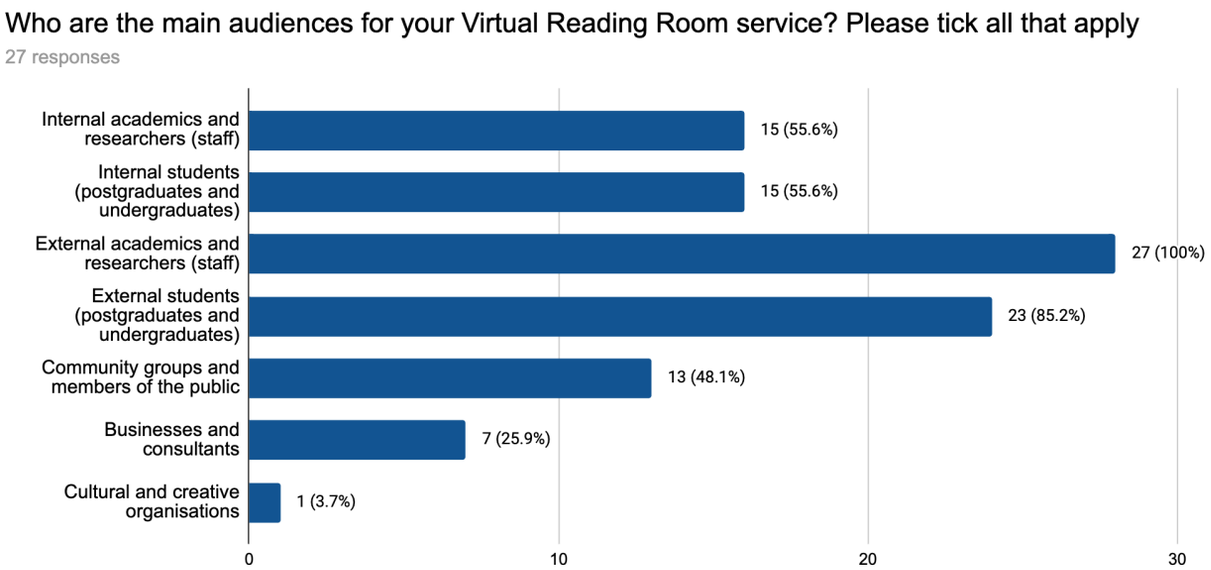
Whereas most organisations hosting a VRR or VTS have cited that their creation has enabled them to deliver core functions remotely (i.e. research and teaching services), small and charitable organisations have provided other motivations for their development and delivery of VRR services. This includes that VRRs provide remote and digital access to collections without the need for digitisation, which is something they feel unable to undertake due to the short-term resource needs and long-term preservation requirements of digitisation and in the absence of a digitisation strategy. As a result, they perceive VRRs as a flexible and responsive way of providing digital access to collections without the need to invest in digitisation.

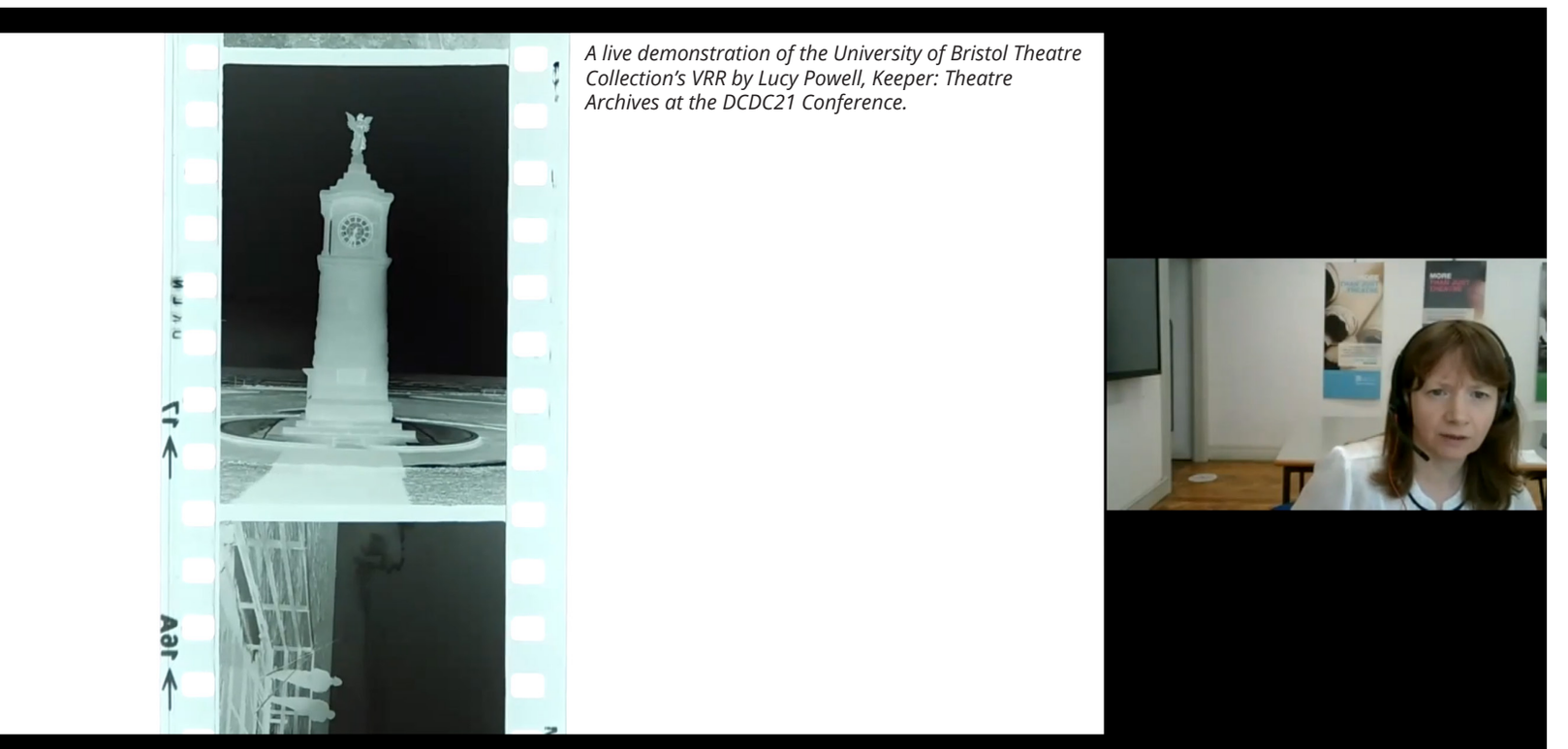
FOCUS ON VIRTUAL READING ROOMS (VRRs)

External audience

In addition to seeing an increase in their number, 2020-21 also witnessed a diversification in the audience for VRR services. Initially, a key audience for these services were internal academics and students working within an institution, and these services were created to meet a specific research or curriculum need when access to buildings was still restricted. This included providing access to collections for those students undertaking time limited studies, particularly masters students, and supporting undergraduate and postgraduate teaching as core collection-based elements of the curriculum.

Once this internal demand was met, VRR services were opened to external researchers and groups from outside of the organisation. External academics and researchers and external students (postgraduate and undergraduate) now constitute the largest audience for these services within the majority of respondents.



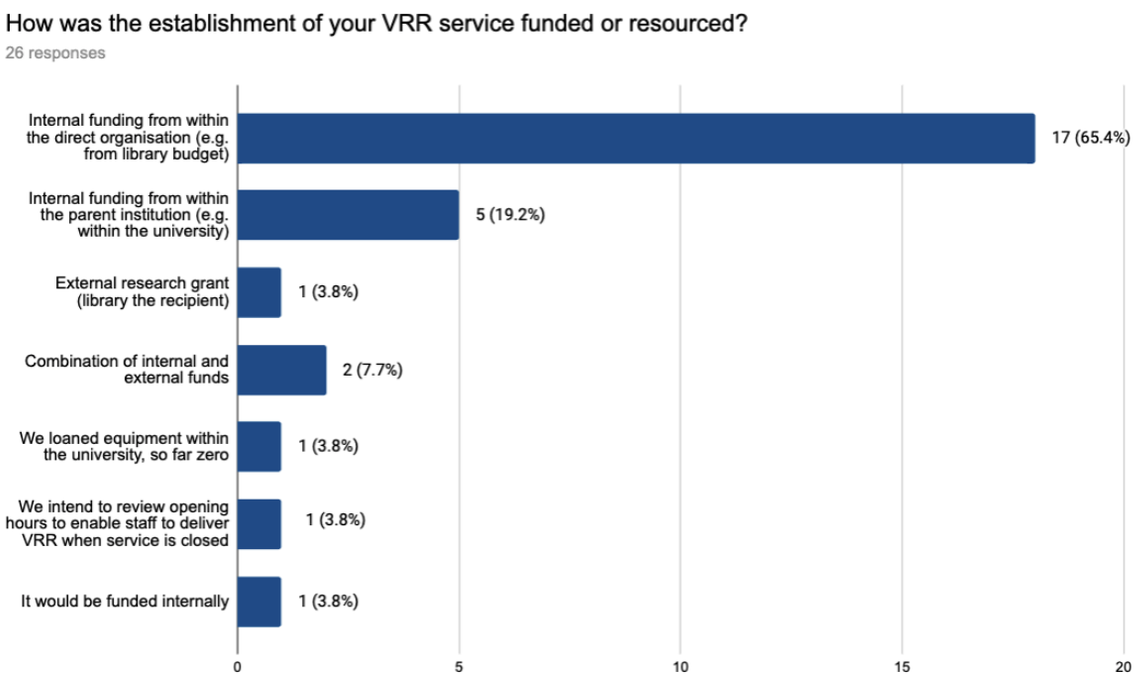


A live demonstration of the University of Bristol Theatre Collection's VRR by Lucy Powell, Keeper: Theatre Archives at the DCDC21 Conference.

Funding

VRRs and VTSs have a low technological entrypoint, can make use of relatively accessible and affordable technology, and rely on readily available technological skills. The majority of those institutions creating virtual reading rooms have funded, or intend to fund these, via existing library budgets (17, 65%) or through their parent institution e.g. university (5, 19%). This reflects the relative spontaneity with which these were created, that they can have a relatively low cost threshold (in terms of hardware), and that the majority of the costs associated with the provision of these services comes from staffing.

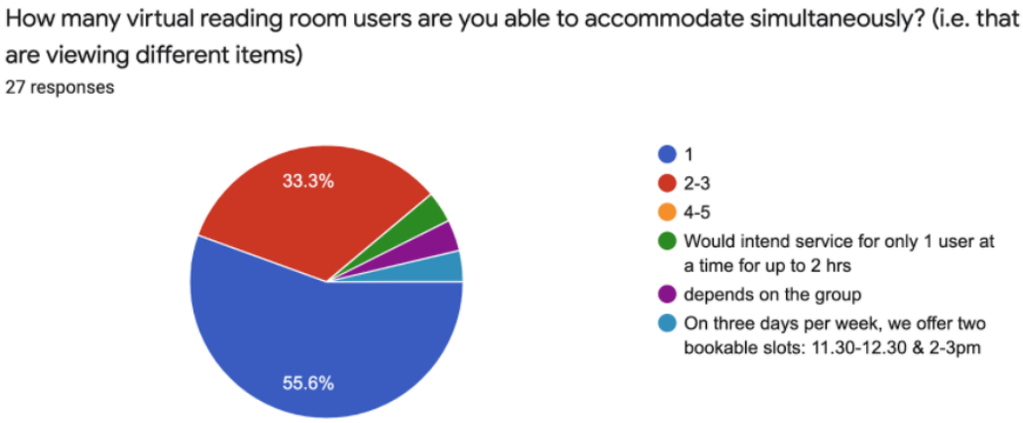
Relatively few have funded the creation of these services via external routes alone (1, 4%) or through the combination of internal and external funds (2, 8%).



A number of respondents commented that the availability of internal funds reflected the relatively low start-up cost of virtual reading rooms and that the majority of those created have utilised existing equipment, staff resource and space. Staff provision has been identified as the largest sustained cost. Alternatively, a number of institutions invested in more sophisticated equipment, particularly hi-resolution visualisers, which would enable the presentation and visual manipulation of a larger variety of items, in greater detail. The majority of respondents (23, 85%) do not, or are not intending, to charge for the use of their VRR services. This appears to reflect the current small scale of these services. Those that are or are intending to charge (3, 11%) do so on the basis that VRRs are a research service and they charge accordingly.

Bespoke service

Virtual Reading Room services are currently a bespoke service, supporting a small number of researchers. The majority of those delivering or developing these services are able to host 1 user at a time (15, 56% of respondents) or 2-3 users simultaneously (9, 33%) via multiple visualisers. A number of institutions have commented that a single member of staff can support several virtual readers simultaneously, but their ability to do so depends on the nature of the researcher's inquiry and the collections being viewed.

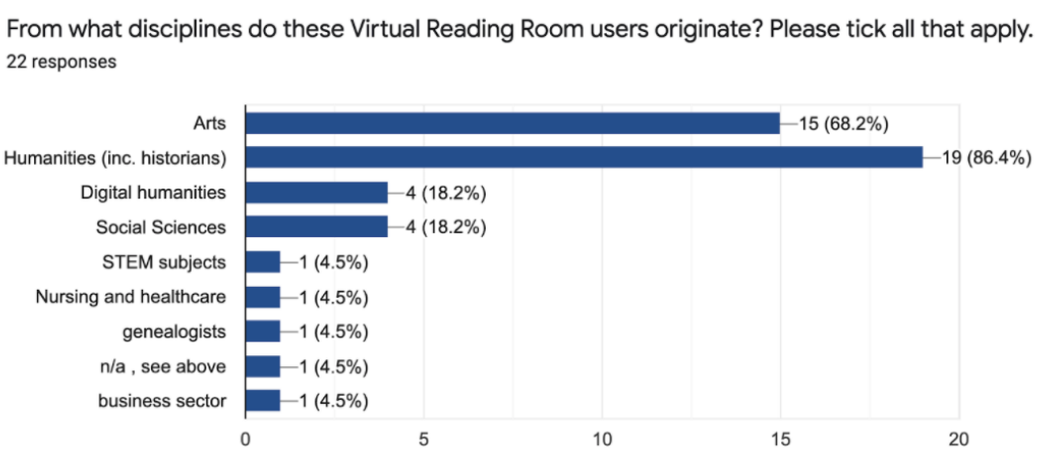


Respondents to RLUK's survey reported that VRR sessions are currently relatively short in their duration, with 74% (17) reporting that the average VRR session lasted one hour or less. This reflected the fact that these sessions were being used to address a specific or focused research question or to view a single or small number of items. The majority of respondents felt that they were currently meeting demand and that expanding their service significantly would pose challenges due to the need for staff engagement with readers. The total number of users who have made use of these services varies across institutions. A number of institutions reported that they were now offering between 30-50 VRR appointments per month which represented a sizable portion of their (>20%) interactions with researchers in normal times.

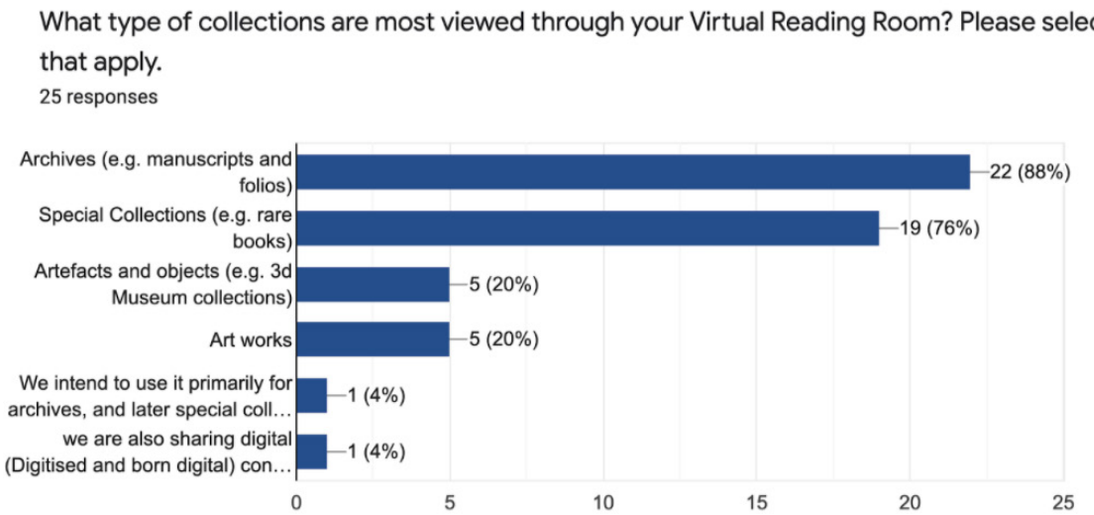
Respondents cited a disparity between the current level of 'interest' in VRR services compared to relatively manageable levels of actual demand as represented by bookings, once again reflecting that these are new and emerging services, and few institutions are actively promoting their VRR services.[2]

Users and their motivations

The majority of users of VRR services currently belong to SHAPE disciplines (Social Sciences, Humanities, and Arts) and are using these services to view archival and special collections material, which has not been digitised, with a smaller proportion using these services to present museum collections.



2 As of June 2020, John Rylands Research Institute, University of Manchester, hosts an average of 50 VRR users a month, which constitutes 20% of their physical, onsite users, in normal times (further information: https://www.staffnet.manchester.ac.uk/library/news/display/?id=24759). The Huntington Library is seeing around 30 users a month for their service (further information: https://libanswers.huntington.org/virtualservices/index). Other institutions vary between 1-30 recorded users a month, often reflecting the early stages of the development and delivery of their VRR services.



There appear to be a variety of motivations as to why researchers are using VRR services. The survey results present five overarching motivations regarding why a researcher would make use of a VRR, namely:

Geographical: A researcher was unable to view a collection in person due to lockdown restrictions or, if this was possible, travel was either difficult or inconvenient due to current conditions or an underlying personal reason. This was particularly the case for international researchers, but also applied to domestic researchers.

Convenience: A researcher used a VRR to view an item virtually where a physical visit is possible, but might be unwarranted (e.g. only a single item needs to be viewed).

Investigative: A researcher booked a VRR session to examine materials virtually in order to assess whether a physical visit might be warranted in the future.

Reference checking: A researcher booked a VRR session to specifically check whether an individual item contained certain information.

Digitisation: A researcher used a VRR session to examine an item virtually before requesting its digitisation, whether for research or teaching purposes.

Relationship with digitisation

As cited above, a number of smaller organisations have created VRR services to enable remote and digital access to collections without the need for digitisation (which they perceive as being beyond their resources). Elsewhere, and particularly within large research-intensive institutions, VRRs are being used to inform digitisation by enabling researchers to consult an item virtually and then to request its digitisation.

The availability of a digitised copy of an item is an important determinant of whether a VRR appointment is appropriate or required for a researcher. Where possible, this requires both the researcher to be aware of what is already available digitally and collection staff to undertake a search to confirm that a VRR appointment is the best means of providing digital access to an item. As a result, in some instances, institutions have used VRR appointment requests to highlight the existing digital collections available to researchers. A number of institutions have also undertaken "opportunistic" digitisation of individual items when they are being produced for a VRR.

"Opportunistic digitisation"

The majority of responding institutions (87%, 26) offered digitisation on demand services, and over three-quarters of respondents who had a VRR (77%, 14) offered "opportunistic" digitisation of items consulted within their Virtual Reading Room, thereby taking advantage of an item being produced within a VRR environment to digitise it at the same time.

The creation of VRR services have only, so far, had a modest impact on the digitisation or cataloguing priorities of those institutions responding to this survey. Where it has, the impact only appears to have been slight with one respondent reflecting that their VRR had only led to a small increase in demand for their high-end digitisation via the studio. A number of respondents did comment that if the same items were ordered repeatedly for VRR viewing they would consider digitising an item, but this had not yet been the case. Further research will be required to establish the impact of VRRs on the direction of digitisation within individual institutions and whether they provide any benefits in supporting the more targeted allocation of resources.

Restrictions

The majority of institutions are placing (or intend to place) restrictions on the use of material viewed via Virtual Reading Rooms (24, 89%), with these mainly relating to the physical characteristics or the condition of items. This includes placing restrictions on items that are judged too bulky or large to place in front of a visualiser, items that are in conservation or are too fragile, or the characteristics of individual items (e.g. tightly bound books being difficult to display via a visualiser). A number of institutions are using a combination of visualisers (both ceiling mounted and mobile) to enable a wide variety of collections to be viewed, including large items, although this varies by institution.

Respondents also cited that they applied the same access restrictions on items displayed via a VRR as they would the physical item, including in relation to restricting access to personal or sensitive information. Copyright and Intellectual Property issues were cited regularly by respondents as reasons for restricting access, with one respondent also suggesting that presenting material via a VRR might constitute broadcasting.

Role of staff within the research process

One of the key features and requirements of delivering VRR services is the requirement for significant levels of interaction between researcher and staff member. The majority of respondents reflected that it is too early to tell whether the development and delivery of virtual reading rooms will have a significant impact on the role and remit of staff.

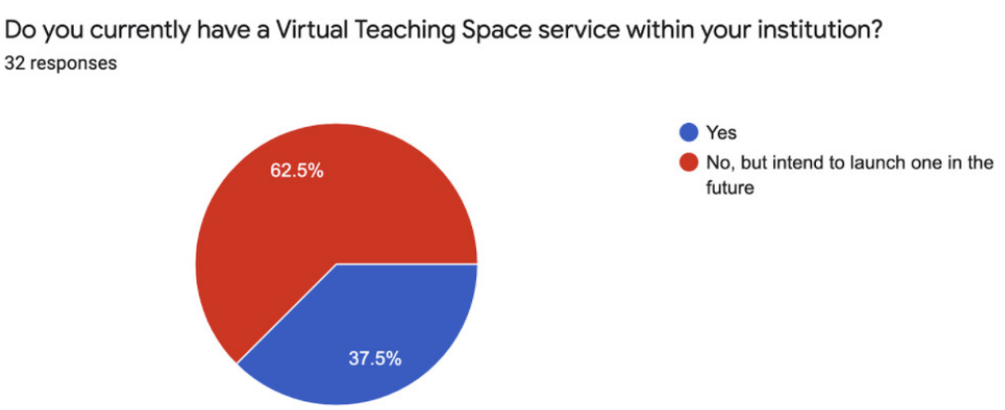
Respondents cited that VRRs provided a highly tailored and personal service, and that these provide staff with a greater insight into the research needs and interests of users. They cited that VRRs provided greater opportunities for interaction and conversation about collections with researchers, that this was mutually beneficial (e.g. staff understanding more about how the collections are used in order to tailor services), and that it was embedding library expertise more firmly within the research process. Respondents highlighted that the use of VRRs lent themselves to more collaborative research with scholars and that the role of staff was something between a search room and research assistant. Although the technical skill requirements of staff to provide these services are relatively low, mainly relating the operation of the visualiser and familiarity with video-conferencing software, respondents have cited that these services require a high-level of intimacy with the collection and curatorial expertise.

FOCUS ON VIRTUAL TEACHING SPACES (VTSs)

The extent to which Virtual Reading Rooms and Virtual Teaching Spaces are separate and distinct services varies between institutions. In a number of instances these services utilise the same spaces, equipment and staffing as one another. The main difference between them is their use, application, and audience, VRRs being a bespoke research service between individuals, whereas VTSs allow the delivery of content to groups within a learning or teaching environment.

Within other institutions, particularly those associated with universities, these services are more distinct and separate. Although similar in their use of equipment, they might be housed in different spaces and be staffed and supported by different groups of colleagues.

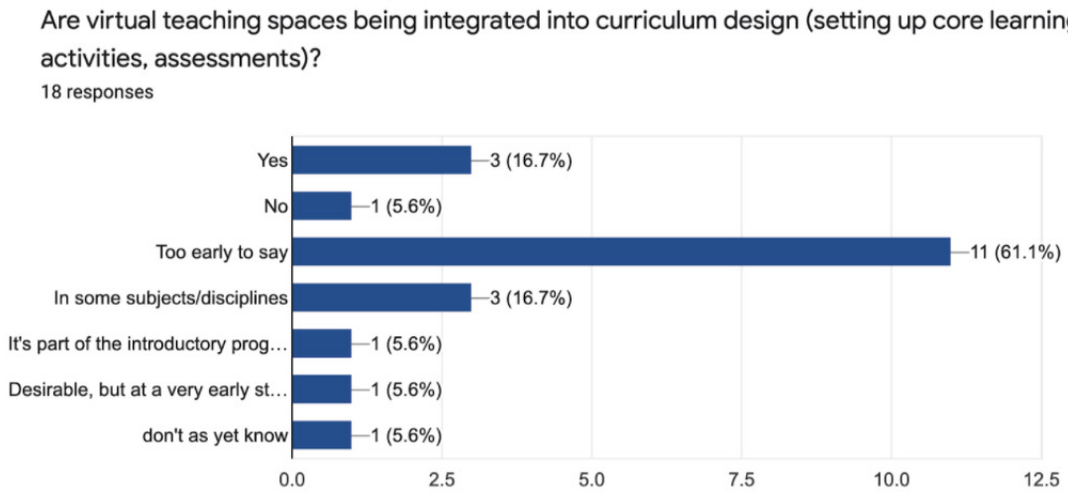
The survey results highlight a number of differences between the use and delivery of VTSs in comparison with VRRs. Most notably, this includes that there are fewer VTSs (38%, 12) in comparison to VRRs (56%, 18), in part reflecting that not all institutions responding to the survey had a strong teaching remit. Where they were being used, VTSs have played a significant role in the delivery of teaching and learning content during lockdown, and have become an established method of engaging with increasingly diverse groups.



Use within the curricula

Respondents reported that they are now delivering multiple sessions a month via their Virtual Teaching Space and that the majority of these support teaching within the arts, humanities, and social sciences. Some practice-based sessions were delivered virtually, including in support of conversation courses, museum studies courses, and education degrees.

On the whole, respondents suggested that it was too early to tell (11, 61%) whether virtual teaching spaces were being integrated into curriculum design and assessment and only 3 respondents (17%) confirmed that this was the case. Respondents cited that the use of VTSs were a valuable addition to their teaching and curriculum support offer, that their use was enabling them to engage with both larger numbers and a greater diversity of students, across a range of disciplines, and that these offered an enhanced learning experience, especially when linked to online content available after sessions. A small number of respondents (3, 20%) also cited that they were using their VTS to engage with school and community groups or intended to, and that there was real potential to use VTSs as engagement tools. In particular, colleagues cited the potential to engage with groups outside of their immediate geographical vicinity.



Respondents cited that VTS services were enabling them to engage with a larger number of students at an earlier stage of the curriculum, and that this would bring benefits in their awareness and understanding of the collections that the institution holds.

Resourcing

Colleagues cited that the provision of engaging and well-structured virtual teaching sessions is resource intensive in terms of staff time, both in relation to planning the session and in its actual delivery. This is especially the case with the delivery of hybrid sessions, where parts of the group are physically present within the learning space and others are joining remotely. Although VTS content can be reused and repurposed in future, the initial outlay in staff time and resourcing was cited as significant by a number of respondents.

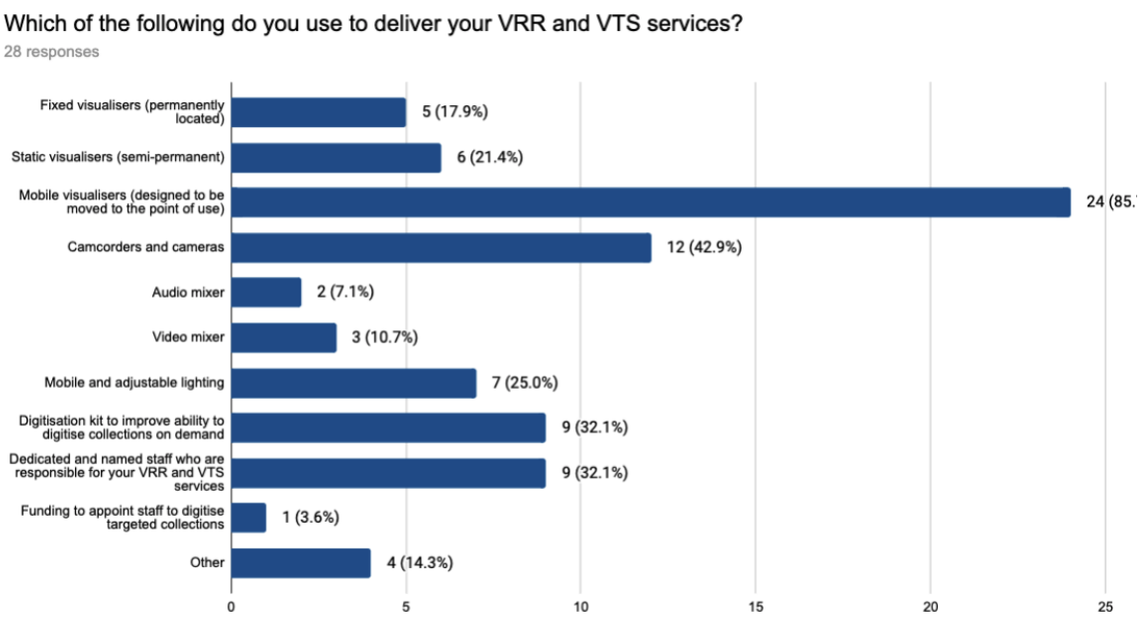
The John Rylands Research Institute and Library, courtesy of The University of Manchester

INFRASTRUCTURAL IMPLICATIONS - THE TECHNICAL AND SPATIAL REQUIREMENTS OF VRRs & VTSs

Technological requirements

The majority of respondents reflected that there was a relatively low technological threshold in terms of both the hardware and software requirements of their VRRs and VTSs. This included the use of existing visualisers and readily available video conferencing packages such as Zoom or Skype.

Preference for mobility: 86% (24) of responding institutions cited that they were using mobile visualisers to offer their VRR and VTS services, which enabled them to deliver these services at a range of locations and to offer maximum flexibility. The desire for flexibility extended to the additional equipment used to support sessions, such as mobile lighting which was being used by almost a quarter of responding institutions (25%, 7). In contrast, fixed and static visualisers were only being used by 5 and 6 responding institutions respectively (18% and 21%).



Associated hardware: Institutions reported that they were also utilising a variety of hardware in addition to visualisers, which included tablets, laptops, iPads, and mixers.

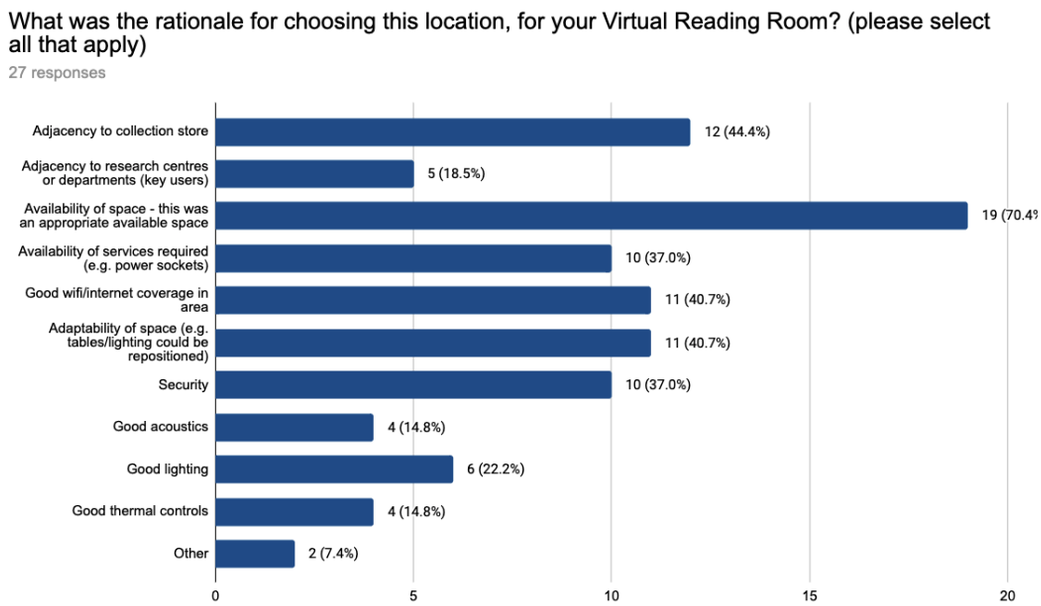
Specially purchased hardware: although the majority of responding institutions already had the necessary hardware and software to deliver VRR and VTS services, a number supplemented these with the purchase of additional items including additional visualisers, webcams, and microphones.

Video conferencing systems: both Zoom and MSTeams were recorded as the most popular platforms being used for VRR and VTS services, with a smaller number using Blackboard Collaborate (within HE institutions) and one using Skype.

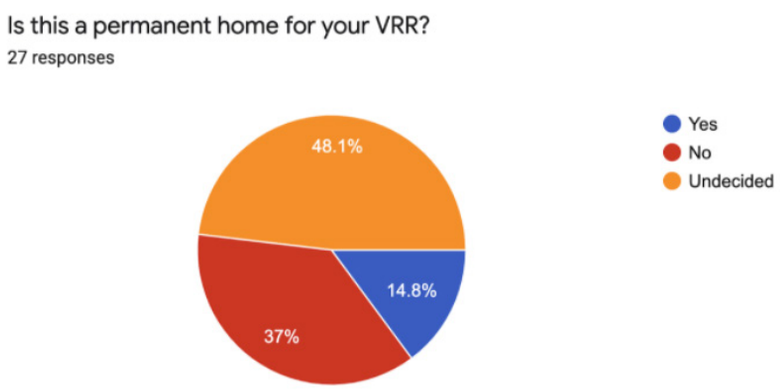
No substantive difference was noted in the types of hardware or software used for the delivery of VRR and VTS services, although responding institutions did note methodological differences in how they used these depending on the service being offered. One respondent noted, for example, that they often used screen sharing during the delivery of virtual teaching sessions to illustrate key messages or to share data, and that these sessions used the hardware and software in a greater variety of ways than when compared to a Virtual Reading Room session.

Location of VRR services

A variety of locations are used for VRR services, which in part reflects a preference for mobile visualisers to enable flexibility. Responding institutions noted that these were housed or going to be housed 'at multiple locations, as required' (41%, 12 institutions), within their existing reading rooms (24%, 7 institutions), or within a repurposed space (10%, 3). Reflecting the relatively unexpected emergence of VRR services in response to lockdown, responding institutions reported that the largest determining factor regarding the location of their VRR services was the availability of space (70%, 19), followed by proximity to their collections store (44%, 12) and good wifi or internet coverage in the area (41%, 11). Additional factors deciding the location of these services included the adaptability of the space (41%, 11) and its security (37%, 10), good lighting (22%, 6), and good acoustics (15%, 4). Balancing the needs of the collection, the need for good connectivity, and presentational considerations were all important.

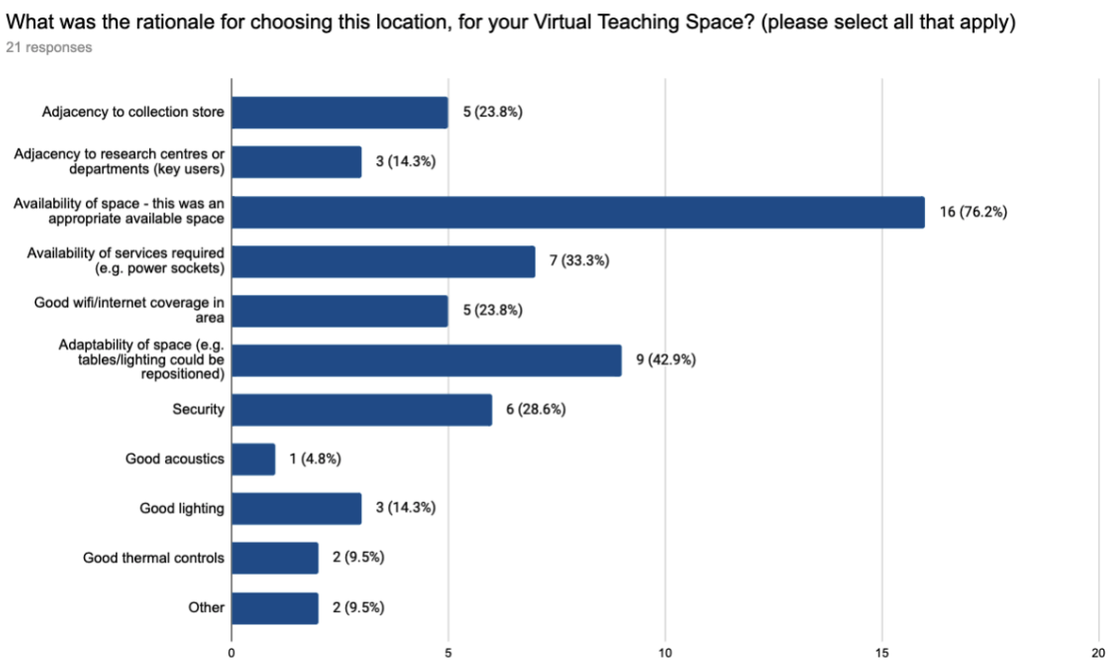


Once again, reflecting the relatively unexpected development of these services and the availability of space (owing to the closure or low physical use of buildings during the Covid-19 pandemic), over half of responding institutions had not decided whether these spaces would be the permanent location for the VRR services and only 15% (4 institutions) had identified a permanent location.



Location of VTS services

As with VRR services, institutions reported that their Virtual Teaching Spaces were located in a variety of spaces. These included within the same space as their VRR (24%, 5) or in the same space as their existing teaching space or classroom (29%, 6 institutions) or in multiple locations as enabled by mobile visualisers (24%, 5 institutions). A similar picture existed in relation to the location of VTS services, with the availability of space being the key determinant (76%, 16), the adaptability of space (43%, 9), and the availability of good wifi/connectivity (24%, 5) all being identified as considerations. The provision of power outlets was also cited as a determinant for 7 institutions (33%).



As was the case for VRRs, there remains uncertainty regarding whether these locations will be the permanent home for their VTSs, although those institutions that have located these within their existing teaching spaces and classrooms have a greater degree of certainty that this is where they will remain in the long term.

Spatial considerations for both VRR and VTS services

The majority of respondents note that they have enjoyed relative flexibility in allocating spaces to these emerging services due to buildings either being closed or at low occupancy during periods of lockdown and travel restriction. A number of respondents noted that finding a permanent location through which these services can be delivered will depend on the demand for space once a degree of normality returns. The relative flexibility, and mobility, of these systems is an advantage and respondents have reflected that they sometimes offer these VRR consultations from their own desk within communal office spaces.

Blended options

Four institutions cited that they had delivered, or were planning, hybrid teaching sessions, where a portion of the class is onsite whereas other members were joining remotely. Respondents cited the importance of having large and flexible spaces to enable this to happen, especially with social distancing, and that such sessions required a significant amount of staff preparation and facilitation. One respondent cited that they were planning on using a combination of 'live streaming' and 'pre-recorded' elements to support these.

Staffing and skills

The delivery of VRR and VTS services involve colleagues across libraries including search room and reading room staff, curatorial colleagues, and education and outreach teams. There appear to be relatively few roles dedicated to VRR services, with these responsibilities being shared between teams who have a degree of familiarity and expertise in the collection. In comparison, although VTS sessions do involve staff from a number of departments, there is a bias towards those in the teaching, education, and outreach teams.

Responding institutions cite that the main skills associated with the delivery of VRR and VTS sessions are generic, and include a confidence in public speaking and document/object handling. Respondents cited the importance of staff having a familiarity with the collection and that, for VRRs especially, collection and curatorial staff are often performing these services. The digital skills baseline for these services appears to be obtainable for most colleagues and the majority of skills requirements are being met through informal training and skills sharing opportunities between colleagues.

User skills

Responding institutions reflected that the use of VRRs is relatively intuitive and that the main requirements are an ability to use Zoom/MS Teams, basic computer literacy, and an ability to communicate clearly. Currently the needs of users are being determined through individual and informal conversations, reflecting the bespoke nature of VRR services, and no responding institutions had conducted comprehensive user surveys of their VRR users to date.

Infrastructural requirements

VRRs and VTSs have a variety of requirements in terms of their equipment, hardware, software and skills. Many of these have been met by existing resource, with institutions making use of available visualisers, spaces, and staff skills. This resource realignment to VRRs and VTSs has been aided by the fact that physical onsite services remain below their usual level in terms of use and this has permitted staff to dedicate more resource and time to these VRR and VTS services than would be the case during 'normal times'. The overall potential and sustainability of these services will become apparent once buildings reopen and onsite services reach a degree of normality. RLUK intends to undertake further research into the changing nature and use of VRR and VTS services during this transition.

COLLABORATIVE OPPORTUNITIES

Although a pragmatic response to the closure of search rooms during the Covid-19 pandemic, the creation and rollout of VRRs and VTSs have the potential to have a significant impact on the undertaking of collection-based research across disciplines. In enabling scholars, students, and members of the community to engage in original research and teaching, using physically distributed collections, and to interact with these in a responsive and humanly mediated way, VRRs and VTSs offer exciting opportunities for collection-based research. They also offer new collaborative opportunities between researchers and institutions.

Skills development: the creation of collaborative approaches to skills development for staff and users.

Knowledge sharing: of best practice and lessons learnt around different approaches and uses of these services.

Benchmarking: regarding the use (both quantitative and qualitative) of these services, the types of users using them, and documents and items viewed.

Common standards: creating common and agreed standards regarding what constitutes a VRR or VTS service, especially regarding their discovery and use.

Troubleshooting: creating a community of practice through which problems could be shared, collectively discussed, and solutions identified.

Combined sessions: explore the development and delivery of combined sessions, allowing users to simultaneously compare documents held at multiple institutions via their VRRs.

Networked approaches: explore the possibility of linking VRRs with one another, between different institutions, to support their interoperability.

A networked approach

Respondents were interested in the possibilities of a more coordinated approach regarding the development and delivery of VRR and VTS services between institutions. There was a recognition that, as emerging services, the current time presented a good opportunity for collaborative and consortial approaches. This was especially the case around the development of agreed standards and frameworks regarding what constitutes a VRR or VTS service, potential common approaches to their discovery (e.g. an international directory of those institutions which currently offer such services), and whether the linking of services might be possible, which would enable a single user to be present in several VRRs simultaneously.

The possible advantages of creating an international network of VRR services was explored in the survey, with respondents citing that this would support the discovery of VRR services by users and would enable the virtual unification of collections between multiple institutions within a VRR environment (e.g. a researcher being present in a number of VRRs simultaneously). For a VRR network to be created, respondents cited the importance of including a range of institutions within the network (67%, 20), the benefit of agreeing technical standards for VRRs (60%, 18), adopting consortial approaches to training (50%, 15), and the availability of dedicated funding from national funders for the development and delivery of VRR services (47%, 14). RLUK, working with its national and international partners, will convene and facilitate a series of conversations to explore these collaborative opportunities further.

SUMMARY AND CONCLUSION

Virtual Reading Rooms and Virtual Teaching Spaces are emerging services which have largely grown out of the coronavirus pandemic. Although a pragmatic response to the closure, or partial closure, of buildings during various local, regional, and national lockdowns, VRRs have become established as bespoke research services and VTSs as valuable routes through which archives, special collections, museums and galleries can engage with diverse groups through virtual learning sessions.

Both VRRs and VTSs benefit from relatively low technological thresholds and the majority of institutions have created these services utilising affordable hardware, readily available software, and pre-existing spaces. The establishment and growth of VRR and VTS services have benefited from the fact that onsite services (as of June 2021) are still operating at below 'normal' pre-pandemic levels. The ultimate scalability and sustainability of these services will only become apparent as onsite services return to a degree of normality. The growing number of such services, their creation outside of periods of lockdown, their application to a greater variety of collection types, and diversification of their user base, would suggest that VRRs and VTSs will continue to develop as valuable research and teaching services into the future.

Staff time and expertise are the largest attributable resource required for the delivery of VRR and VTS services. The success of these services depend much on the skills and expertise of staff, particularly their familiarity with the collection and ability to work closely with researchers. As a result, these services offer many opportunities to showcase the knowledge, skills, and expertise of library staff, and the valuable contribution that they can make to the research process, both as service providers and research partners. They also present opportunities for combining collections held at multiple institutions virtually (both nationally and internationally), without the requirement of digitisation, and offer new collaborative opportunities between researchers and institutions.

This report has been the result of a relatively small survey undertaken at the early stages of the development of VRRs and VTSs. RLUK will continue to work in this area and will undertake further research to establish the varying levels of maturity of these services and their ongoing development and delivery. In particular, RLUK looks to work with its national and international partners to explore collaborative approaches to the creation and use of these services and the collective benefits which might be realised through a networked approach and through the adoption of agreed frameworks. This report is an invitation to like-minded institutions and organisations to join RLUK and its members in this process.

FURTHER INFORMATION

Below are a selection of links to further information regarding individual VRR and VTS services. These links are correct as of July 2021 and only provide a sample of those services available or emerging.

Haverford College: https://www.haverford.edu/library/quaker-special-collections/using-materials

Huntington Library: https://libanswers.huntington.org/virtualservices/index

Rijksmuseum: https://library.rijksmuseum.nl/cgi-bin/koha/opac-main.pl?lp=virtual_consult

Royal Voluntary Service: https://www.royalvoluntaryservice.org.uk/about-us/our-history/heritage-collection/virtual-reading-room

University of Cambridge: https://www.lib.cam.ac.uk/using-library/zero-contact-services/ask-curator

University of Durham: https://durham-uk.libguides.com/asc-overview/virtual

University of Glasgow:
https://www.gla.ac.uk/myglasgow/archivespecialcollections/consultingourcollections/
https://www.gla.ac.uk/myglasgow/archivespecialcollections/supportforteaching/

University of Leeds:
https://library.leeds.ac.uk/info/1504/using_collections/78/plan_a_visit
https://leedsunilibrary.wordpress.com/2021/03/24/supporting-researchers-remotely/
https://library.leeds.ac.uk/info/1607/projects/195/special_collections_research_centre

University of Manchester, John Rylands Library and Research Institute:
https://www.staffnet.manchester.ac.uk/library/news/display/?id=24759
https://medium.com/special-collections/accessing-physical-collections-f2054406040a

University of Newcastle: https://www.ncl.ac.uk/library/special-collections/use/virtual-reading-room/