Research4Life 2020 User Review: Final report of findings

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It has been a pleasure to work on this user review on behalf of Research4Life. We appreciate the friendly support and openness of the Research4Life team and are grateful to all who took the time to share their thoughts in the survey, interviews, focus groups and workshop.

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We look forward to following the next steps with Research4Life as the initiative seeks to address the information access challenges that continue to be faced by so many researchers, doctors, policymakers and others throughout low- and middle-income countries.

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Executive summary

A review of Research4Life user experiences was conducted during 2020 using a combination of interviews, surveys and focus groups.

The findings of this review broadly align with the recommendations in the 2015 review. Over the past five years there have been some technical developments with Research4Life, especially regarding searching and authentication, and longer-term users of Research4Life have generally seen these developments as positive. However, the underlying issues around low levels of awareness and usage remain similar.

- **Relevance** - All data sources confirm that Research4Life is a relevant resource for users who are aware of it, have had appropriate training for it and have infrastructure to support it. For these individuals, the non-availability of Research4Life would leave a significant gap. However, overall usage remains limited. The most significant factor in usage seems to be awareness of the initiative. Level of demand and confidence to use the programmes are also factors.
- **Effectiveness** - Most people who use Research4Life rate this resource as effective – delivering the objectives it is intended to deliver. The majority of participants in this evaluation expressed satisfaction with Research4Life on a range of issues, including its training, platform and contents. However, there are challenges in all these areas because of awareness, reach and technical issues.
- **Impact** – Where Research4Life is used in institutions, it has made a real impact for its users. It has contributed to the quantity and quality of their work as well as improving the research skills of its users.
- **Learning** – The three data sources of this review have collectively generated some key learning about: constraints that affect wider use; capacity for adaption; areas for further development; and additional learning about delivering the Research4Life initiative in the context of a pandemic.

Recommendations from this study focus on seven key areas:
1. Define **processes and outcomes**
2. Build **awareness, communication and community**
3. Expand and reconceptualise **training**
4. Improve **support networks**
5. Ensure platform and technology supports effective usage
6. Address gaps and sudden changes in **content**
7. Explore potential **new avenues for work**

These findings and recommendations were supported by a cross-section of Research4Life stakeholders at a workshop in December 2020. Workshop participants particularly highlighted the need for a theory of change to define a shared set of goals and roadmap for Research4Life and the importance of building further awareness. They also emphasised the importance of strengthening local networks and community engagement in underpinning several of the recommendations. Local community engagement would help ensure that Research4Life is communicated to those who need to be aware of it and that those users then have the local training and support that they need to make the best use of the resources available.

1. Introduction

Since 2002, Research4Life has worked to address the information access gaps faced by researchers in less well-resourced parts of the world. At approximately five-yearly intervals, Research4Life has commissioned independent user reviews to investigate experiences of the Research4Life programme and develop recommendations. In 2020, the user review was conducted by a team led by UK-based NGO INASP.

Past user reviews have charted changes in the challenges faced by users as internet capacity and coverage have increased, as publisher permissions have changed and as countries have moved from Group A to Group B. A 2020 Research4Life landscape review also highlighted the wider research, publishing and international development contexts within which Research4Life operates and which influences researchers, librarians, publishers and others involved across the Research4Life countries. In particular, recent studies have shown a drop in usage of Research4Life over the past five years.

In additional to the wider context shifts and overall Research4Life experiences, this current review occurs in the unusual context of a global pandemic. This posed unique challenges to the research process but has enabled some additional insight to be gained into the impact of major disruption on the usage of Research4Life programmes. This may help with understanding the impact of more localised disruption caused by, for example, natural disasters or conflict as well as public health crises.

2. Evaluation objectives

The 2020 Research4Life user review aims to gather evidence on the experience of users of Research4Life's five programmes across a range of countries, institutions and individuals. It then aims to use this evidence to, in conjunction with key Research4Life stakeholders, formulate recommendations to inform the initiative's strategic decisions about its future.

To this end, the 2020 user review is researching, identifying and analysing:

- Reasons for the patterns and trends in usage of Research4Life content (from 2015 – present) – to understand its **relevance**

- Perceived value of Research4Life's training and outreach, its platform and contents by users – to understand its **effectiveness**

- Impact of the programmes on scientific and workplace productivity of users – to understand the **impact** it has had

- Constraints affecting the wider use of the Research4Life programmes, particularly relating to technical problems or the quality of the user experience – to identify **key learnings**.

3. Evaluation design

To address the evaluation objectives, the 2020 Research4Life user review includes four main stages:

1. Inception: document review and project design
2. Evidence gathering: interviews, case studies and survey
3. Synthesis: summary of findings, development of personas and initial recommendations
4. Collaborative analysis, reflection and validation

3.1 INCEPTION

As detailed in the inception report for the 2020 Research4Life user review, we conducted a review of previous studies conducted into Research4Life experiences and usage and the wider landscape in which it operates. The purpose of this desk research was to identify key themes and issues for exploration in the 2020 user review.

The findings of that document review were shared in the inception report and are shared again in Appendix 1 of this report. The key themes and issues identified were summarised and used to refine the methodology set out in our initial proposal, identify an appropriate balance of stakeholders to consult and develop questions for the interviews.

3.2 EVIDENCE GATHERING

Three approaches were used in gathering evidence from users and enablers of usage of Research4Life. The first stage was interviews, with initial learning from interviews feeding into the design of a survey and case studies in two countries. Individual reports have been shared for each of these elements of primary research, with further details of the methodologies and discussion of challenges encountered, especially around low response rates for each of the three approaches. However, key aspects of the approaches are also summarised here:

3.2.1 Interviews

During June and July 2020, we conducted in-depth interviews via Zoom, Skype or phone with 64 users or enablers of Research4Life across 11 countries and 30 institutions. As far as possible we aimed to ensure that interview participants represented an appropriate mix of authentication methods, languages, gender and job roles to enable a diversity of user experiences.

The interviews, which generally lasted around one hour, were conducted in a range of languages (Arabic, Bangla, English, French, Portuguese, Russian, Spanish, Ukrainian and Vietnamese) to ensure greater inclusion and representation of different perspectives and experiences.

The full findings from the interviews are presented is Appendix 2.

3.2.2 Case studies

During August 2020, we undertook case studies of the usage journey and experience of a range of users in more detail. To enable exploration of a range of experiences relating to Research4Life, two countries on two continents with significant differences were identified in discussion with Research4Life.

The first, Kenya, is a large Research4Life Group A country, with English as an official language. Honduras, in Central America, is about a fifth of the size of Kenya in terms of both area and population and is a Group B country with its official language as Spanish.

The case studies were carried out through a mixture of interviews and focus groups, all conducted virtually due to the ongoing COVID-19 pandemic.

The two case studies are presented in Appendix 3.

3.2.3 Survey

Building on early insight from the interviews, we identified key issues for further exploration. These included the already-identified issues around usage, awareness, and experiences of the Research4Life training, platform and content. We also looked at new themes that emerged, including: possible responses to Open Access; what role community strengthening might have in supporting Research4Life; and the impact of COVID-19 on Research4Life usage. In conjunction with Research4Life, we developed a set of agreed questions.

The survey was conducted using SurveyMonkey from August to early October 2020 in English, French and Spanish. It attracted 1866 responses, 972 of which were from people who use or enable use of Research4Life.

The report of the survey findings is shared as Appendix 4.

3.3 SYNTHESIS

This report represents the synthesis stage of the project. In this document we draw together key themes and learning that emerged from across the interviews, case studies and survey. We also present some preliminary recommendations.

In addition, we have developed two personas or user profiles in conjunction with Research Consulting. These draw on the evidence from the three primary sources of data from the research. These personas are intended to illustrate common contextual factors, needs, and experiences of Research4Life's programme users.

The personas are shared in Appendix 5.

3.4 COLLABORATIVE ANALYSIS, REFLECTION AND VALIDATION

Following submission of this report and the personas, a consultation workshop was held during December 2020. This final research stage brought together representative stakeholders from the Research4Life review administrators, programme managers, users, publishers and members of various Research4Life working groups, along with Research Consulting and INASP staff who acted as observers and note takers. Together, in a reflective exercise, the stakeholders discussed the indicative findings and recommendations.

The purpose of this workshop was to:
- Draw out key overall findings and broader learning
- Discuss and reflect on these findings
- Collectively agree the key actionable recommendations

A report of the workshop is included in Appendix 6, with key points summarised in the 'Recommendations' section. In addition, reflections on the findings from some people consulted during the study are presented in Appendix 7.

4. Findings

For people who use Research4Life, or enable others to use it, there is clear positive impact. During this study we heard from many people who clearly greatly value Research4Life and the research insight that they can gain through it. It is also clear that access to research information is essential for many people throughout Research4Life countries in order to do their jobs.

However, the study also makes clear that overall usage of and engagement with Research4Life is low, reflected previous studies' findings regarding drops in usage. A dominant factor in this is awareness. While central Research4Life developments often focus on technical improvements and expansion of content, user adoption on the ground seems to depend more on the extent to which Research4Life is known about and embedded in institutions and communities.

When developing recommendations from this study, it is important to consider how to increase awareness so that Research4Life can better help to meet the research access needs that users report. In particular, it is important to understand the elements that contribute, or could contribute, to successful integration of Research4Life within researcher workflows, including:

- Local champions of Research4Life within institutions
- National-level support for Research4Life
- Training and resources that are better aligned with local contexts, including language and communication approaches
- Strengthened communities around Research4Life
- Focused technical development on aspects of the initiative that support Research4Life use within wider research workflows.

This section summarises the findings from across the three evidence-gathering approaches, along with key factors influencing those findings, and implications for Research4Life.

4.1 RELEVANCE

All data sources confirm that Research4Life is a relevant resource for users who are aware of it, have had appropriate training for it and have infrastructure to support it. For these individuals, the non-availability of Research4Life would leave a significant gap. However, overall usage remains limited.

4.1.1 Patterns and trends in usage of Research4Life content (from 2015-present)

The findings of this review suggest that usage patterns of Research4Life have not improved over the past five years, echoing previous quantitative data about usage dropping. Usage of Research4Life is low across all eligible countries. Even in institutions where usage is high, it tends to be limited to some subject areas, departments or individual users. Survey data and interview responses indicate that engagement with Research4Life programmes is greatest for Hinari, followed by AGORA. Usage is higher in universities and research institutions than in government agencies.

Where Research4Life is used, usage patterns range from at least once a week to once or twice a year. This depends on the workflows of users and on the role of Research4Life within those workflows; for some, Research4Life is an essential component of their work, less so for others.

When used, Research4Life access supports general reading as part of experimental design, background reading when writing papers, and up-to-date data and information for use in teaching materials. It is also sometimes accessed for general interest.

Experience of Research4Life users ranges from less than a year to over 10 years and spans all levels of research experience.

Factors influencing usage:

- **Awareness** - The biggest factor affecting usage is awareness. Across the three data-gathering approaches we encountered low awareness. This was evidenced by low response rates to invitations to participate in the research and by some named contacts at registered institutions saying they were unaware of Research4Life. Even in high-use institutions, awareness is often limited to particular groups of people or individuals. Often even frequent users of Research4Life have only a partial understanding of what the initiative is.

- **Demand** - The demand for Research4Life tended to depend largely upon institution type and the role of the user. Unsurprisingly, institutions such as universities, which are focused largely upon research and production of academic papers, tended to express the greatest need for Research4Life resources. In the survey, almost one third of respondents who identified as either users or enablers of Research4Life worked in public universities. Demand was expressed for specific resources to support research work, but also, in a more general sense, there was a need for information to stay current in a particular area. Research4Life content is generally seen as high quality and trustworthy; in some cases, this is seen as a distinguishing feature between Research4Life and research information from other sources.

- **Statistics -** A trend that emerged, particularly from the focus group discussions in the two case studies, was a desire amongst librarians to know more about how the Research4Life resources are used in their institutions. They would like regular usage statistics to inform their engagement with users and ensure that engagement is effective in increasing awareness and usage levels.

Implications for Research4Life:

- The relevance of Research4Life is clearly supported by the data. The need for research information across the countries in which Research4Life operates is without doubt very real. Research4Life offers a resource required by a population of researchers who are mostly unaware of its existence.

- The relatively low levels of awareness and usage may lead many potential users to seek alternative ways of accessing required research materials.

- Without an increase in usage, driven by increased awareness, it is unlikely that Research4Life's full potential in support of its users will be realised.

- A multi-faceted approach centred on increasing awareness combined with enabling greater access and user capacity is needed to increase usage significantly.

4.2 EFFECTIVENESS

Most people who use Research4Life rate this resource as effective – delivering the objectives it is intended to deliver. The majority of participants in this evaluation expressed satisfaction with Research4Life on a range of issues, including its training, platform and contents. However, there are challenges in all these areas as a result of awareness, reach and technical issues.

4.2.1 Perceived value of Research4Life's training, its platform and contents by users

Access to a wide pool of trusted research information is essential for well-informed and up-to-date research and teaching materials. Survey findings indicate that 97% of people who used Research4Life rated it as very valuable to their career.

Training

Part of building awareness, as well as addressing some difficulties with using the platform, occurs through training. The survey found that 53% of respondents were satisfied with the training available for Research4Life. About one-third (32%) had participated in the Research4Life MOOC (29% of users and 40% of enablers), although it is important to note that past MOOC participants were a significant cohort within the total body of people invited to complete the survey and these percentages are not representative of the whole body of Research4Life stakeholders. The MOOC seems generally to have been well-received; in the survey, 61% rated the MOOC as excellent and 34% rated it good. Few interview and case study participants had done the MOOC but some mentioned that online training is a good idea.

There is a need for training to be contextual and tailored to the needs of the institution. While the development of generic products is useful and valued, qualitative evidence from all three sources points to a need for investment in local training capacity to design training approaches and tailor products that best meet institutional needs. In particular, some respondents in the case studies and survey pointed to the importance of training of trainers. There was a concern that sometimes training of an individual librarian or researcher occurs and then that expertise remains with the one person, meaning that if that key person leaves an institution they take their Research4Life knowledge with them.

Training resources enable greater access to and use of Research4Life. However, training resources on the Research4Life website are not particularly easy to find. Interviews and case study focus group feedback indicated that in situations where awareness, usage and understanding of Research4Life is relatively high, librarians and other enablers had developed ways to support training themselves. Examples included regular email updates, making videos in their own languages, producing leaflets that explain Research4Life, and running workshops.

Although the top-level interface of the Research4Life site is available in four languages, sub-levels in, for example, the training and news sections are in English and the majority of training and support resources are in English. In the survey, 46% said they would like more online support in other languages.

Platform

The Research4Life user experience is obviously shaped by their experience of the platform. In interview responses, long-term technology changes to the platform were generally judged positively. Comments and survey responses about the platform tended to focus on two key aspects: accessing the platform (authentication) and navigating resources within the platform (searching).

The survey revealed that 68% of users found logging onto the Research4Life platform very or quite easy. Issues with logging in and authentication via passwords included uncertainty about how and when passwords are valid, concerns about the extent to which they are shared or not within institutions and potential penalties. Some case study interviewees and focus group participants in enabler roles shared examples of losing institutional access to Research4Life as a result of misuse of passwords. Managing good practice around password use is clearly a challenge in large institutions and there are some concerns from users and country-level Research4Life contacts about librarians restricting who within an institution can get an Research4Life password.

However, there are also some challenges with IP authentication. These include institutions spread over multiple sites, IP networks were shared with organisations that are not registered for Research4Life, and users wanting to access Research4Life from home.

Although questions were asked about passwords versus IP authentication in the research, some interview responses suggested that users and enablers were often unfamiliar with there being more than one approach to authentication with Research4Life. This was especially the case if users are less familiar with the approaches used for other online resources or had not experienced a transition from password to IP authentication with the initiative. The findings cannot therefore be used to deduce a significant preference for authentication approach.

Overall, 67.5% of users in the survey found searching Research4Life content very or quite easy. The percentage was higher for Group A countries than Group B countries; interview and case study responses suggest that users in Group B countries found difficulties when they encountered paywalls or redirections to other systems.

Despite this generally being positive, some significant comments and suggestions about searching arose in the interviews and case studies. Some found that searches revealed too many results, while others did not find the results they needed. The adoption of the Summon discovery service across Research4Life was generally welcomed, although there are some comments about the order that search results are presented and that searches return results for content that users do not have access to. Some would find it useful to be able to include Research4Life in federated searches.

Registration
In focus group discussions for the case studies, some issues emerged about registering for Research4Life. Some people find the requirements of registering with Research4Life do not match the situation in their institution. The need for three or more contacts, which include a librarian and director, are not necessarily appropriate for all sizes of institution; in some cases, directors are far removed from the provision of information access while in others there is no library. The survey responses echo this, with 74% of respondents saying that a simplified registration process would be very useful.

Content
As discussed in the "Relevance" section, Research4Life content is generally seen as high quality and trustworthy. However, restrictions in the scope of research literature made available via Research4Life can be a barrier, especially for Group B countries and for countries where major publishers exclude their content from Research4Life's offering. Some people are unable to access material to which they had previously had access. In such situations there can be is a lack of clarity around how and why access changed.

The access to a wider range of books as well as journals was generally welcomed, although awareness of the inclusion of books is not universal and there is some frustration around inability to access entire texts.

Some users would like to see more local content, for example, more Africa-related content in Africa and materials appropriate to the context, such as insight into medical treatment in situations with limited equipment and drugs. There is some interest in expanding Research4Life into additional subject areas, including education, ICT and finance. There is also interest in Research4Life providing patent information.

Language in accessing the content is also a factor to consider. The majority of research content available via the platform is in English.

Factors influencing perceived value and overall effectiveness:

- **Local support available to the user -** The data from all three sources suggest that users value and need support – someone they can go to solve technical or search problems or other difficulties of use. In interviews with frequent users, supportive enablers within their institution were often a positive factor. About one in five survey respondents reported not being satisfied with the organisational support available to them.

- **Support from Research4Life -** Only a small proportion of survey respondents (20%) had contacted the Research4Life helpdesk but the support given was generally seen as positive.

- **Language -** Language is undoubtedly a factor affecting perception of value. There are clear limitations around access and use of Research4Life resources as a result of language barriers – within the content itself, navigating the programmes, and accessing training and support – by many non-English speakers.

- **Scope of content and publisher exclusions -** Publisher exclusions have undoubtedly had a negative impact on Research4Life's value by some users. Publisher exclusions of key content can have a detrimental impact on perceived value not just of that content but of Research4Life programmes as a whole.

- **Authentication -** For individuals within registered institutions to access Research4Life resources they need the appropriate login information and knowledge of how to log in with relative ease. While the majority of respondents found access to Research4Life easy, the survey data does reveal a significant minority (over one in 10 people) who found logging onto Research4Life, searching for content and finding what they need very difficult or difficult. It should also be noted that those who responded to the survey or agreed to be interviewed were biased towards people who are familiar with Research4Life; within the scope of this research we could not quantify how many people might abandon Research4Life due to difficulties with logging in.

- **Underlying infrastructure challenges -** Throughout the three evidence-gathering approaches it was clear that some of the challenges that users encounter with Research4Life relate not to Research4Life directly but to their own infrastructure and IT systems. In some cases, problems with accessing Research4Life were attributed to poor internet connections. In the survey, 66% of respondents reported that there are always computers available to access Research4Life resources but only 48% reported always having access to the internet. Over

half of users (58%) reported that the cost of internet access or mobile data limits their use. 71% of users said they could access Research4Life from home.

- **Confidence** - Interview data identified confidence as a factor influencing usage, suggesting less confident users of the resource were less likely to engage with it. While this was not specifically explored in the survey, levels of satisfaction and value were associated with greater experience in usage. Confidence can be built in individuals via a number of avenues, including locally relevant, hands-on practical training and overall support for users, at an institutional or regional level.

Implications for Research4Life:

- Research4Life is a valued, quality but underused product but the current content is not made full use of nor is its full benefit derived by users. Enabling its greater use will be an important objective of Research4Life if it is to maximise the potential of this product.

- Research4Life should recognise and celebrate the effectiveness of the Research4Life programmes where they are used but also recognise that some factors have negatively impacted perceptions of value and overall effectiveness.

- There is scope to positively affect usage by building on the identified strengths and systematically eliminating impediments wherever possible – directly or indirectly.

- Addressing underlying technical constraints particularly those that enable greater offline access to Research4Life content will further enhance value to the user.

- Publisher decisions to exclude content from particular countries or institution types negatively affect Research4Life. One possible way to mitigate this is to make information about what is excluded and included for particular countries clearly evident. However, there is also a need for a frank discussion with publishers about the impact of exclusions and changes to content offered.

4.3 IMPACT

Where Research4Life is used in institutions, it has made a real impact for its users. It has contributed to the quantity and quality of their work as well as improving the research skills of its users.

4.3.1 Impact of the programmes on scientific and workplace productivity of users

The evaluation findings from all data sources point to very positive impacts of Research4Life. In the survey, 87% of respondents report that the programmes improve the quality of their publications and 78% agree it improves their quantity. More broadly, 86% agree that access to Research4Life improves their overall research skills.

Respondents from Group A countries, where content is free, were more likely to report a positive impact of Research4Life on quantity, quality and research skills than respondents from Group B countries, where content is paid for. We also found that the level of impact on their work varied by role. For example, 87% of librarians claimed a large impact compared with 76% of researchers and only 65% of healthcare professionals. For librarians and other enablers, availability of Research4Life

increases the scope of materials that they can offer to their users, which has broader implications for the perceived role and value of the library within an institution.

Many interviewees and case study respondents shared examples of the impact on the quality and quantity of research produced institutionally. For example, one interviewee credited Research4Life as being a major contributor to the fact that his institution had increased their masters students and research staff by a factor of 10. A case study respondent noted that access to a large body of peer-reviewed literature helps them develop their skills as a journal peer reviewer and editor.

Beyond individual and institutional capacity, positive impact was discussed more broadly in terms of bridging the gaps in knowledge, democratising knowledge and supporting more equitable access to knowledge. Some pointed to the impact of Research4Life in addressing wider national goals, for example knowledge of the latest global standards feeding into country-level standards development and availability of up-to-date medical research information contributing to national healthcare goals.

Factors influencing perceived impact of Research4Life:

- **Content is trusted and seen as quality material -** Users trust the content they can access through Research4Life.

- **Content is free -** Users in Group A countries appreciate being able to reach full-text content without paying. This contrasts with experience of search tools and databases where they encounter paywalls.

- **Opportunity for capacity development -** Users feel that the provision of research materials via Research4Life significantly contributes to the development of their research skills and enables them to build their research and publications on top of trusted previous work and set their work in an international context.

Implications for Research4Life:

- Supporting the expressed ambition of many users in this review to "become better skilled researchers" as well as more proficient users of this resource could present an opportunity to make Research4Life more attractive and impactful to its users - and may even expand usage.

- Research4Life should continue to have conversations with publishers about ensuring availability of research materials for no or low cost.

- There is a need for Research4Life to stay current, connected with users, and build support capacity for users. This could be in partnership with other organisations.

4.4 LEARNING

The three data sources of this review have collectively generated some key learning about constraints that affect wider use; capacity for adaption; areas for further development; and additional learning about delivering the Research4Life initiative in the context of a pandemic.

4.4.1 Constraints affecting wider use

Payment issues
For Group B countries, the requirement to pay can create challenges. In the survey, 26% of enablers in Group B countries had experienced difficulty paying, with particular issues raised in Nigeria. Most difficulties revolve around issues to do with fluctuations in the rate of exchange, the availability of foreign currency and administration. These problems were also referenced in the Honduras case study.

Community engagement and sense of ownership
Across the evidence sets, an emerging theme was the role that community – or lack of community - can play in the level of Research4Life usage. Survey responses revealed that 96% felt that it was important to them to feel part of a research community. The survey also revealed that 87% already felt Research4Life was a community, although this may not be representative of all users; participation in the research implies a greater than average engagement with Research4Life.

Community engagement can happen at a range of levels, according to our findings. At an institutional level, researchers who were enthusiastic about Research4Life in interviews often mentioned a librarian colleague who is a strong champion of the programmes and keeps them informed of developments.

Beyond single institutions, there was also some talk of regional connections in the research. For example, in one case study, the role of a national library consortium in bringing together librarians from several institutions was discussed. However, we also heard of examples where the lack of inter-institutional networks around information management may inhibit sharing of, for example, translated training materials between institutions.

In one case study, higher levels of national usage and awareness of Hinari were attributed to ministerial-level buy-in and connections with local journals.

There was also discussion of Research4Life's role in community engagement. One approach that Research4Life is already using to engage with users and enablers is through social media. Some interviewees noted the value of Research4Life Facebook page for keeping up to date with the latest research information available. In the survey, 23% of respondents rated Research4Life's use of social media to engage users as excellent and 43% rated it as good.

The qualitative answers in the survey also indicated areas for further fostering community engagement. These included creating online spaces for users to interact and engage about issues related to access and content. Such platforms could include discussion groups and webinars. Some suggested that connections between users could be made within regions or research specialties, with the possibility to ask technical questions to experts in their fields.

Some people also talked about training as an approach to community building, including face-to-face training for fostering local connections and the use of the MOOCs for building international connections. Some went further and suggested partnering with other organisations to foster mentoring and research collaboration relationships.

4.4.2 Adaptation: How well has the Research4Life programme been able to learn and effectively adapt its approaches in light of changes in the broad operating context?

An essential component of a review such as the Research4Life user review is to consider the degree to which the project has continued to *iteratively* learn and adapt to create impact over its lifespan. This issue is even more crucial in this review given that Research4Life is looking to make strategic decisions about the way forward from the review findings. This current review is happening on the back of a number of previous reviews in 2010, 2015 and, most recently, a landscape review by Research Consulting in 2019. We would suggest that when programmes such as Research4Life have the scope, freedom and flexibility to iteratively learn and make continuous improvements, true sustaining and sustainable impact becomes achievable.

So, to what degree have previous findings been addressed by Research4Life? Many of the issues raised in previous reviews surface once again in this latest review. It is clear that many technological improvements have been made to the programme which have improved ease of access for many users. This is acknowledged across all three sources of data. However, the fundamental issue of usage is yet to be fully engaged with.

This could be due to a number of factors which impact the capacity of the programme to fully respond flexibly to some of these issues. We examine a few below:

Factors influencing capacity to adapt:
- Research4Life is not a single entity with its own staff.
- The structures of funding and governance of Research4Life may influence priorities and potential to adapt.
- Research4Life works in many countries and its potential user base is very large and varied.

Implications for Research4Life:
- Research4Life is relevant, effective and impactful, but if its usage continues to remain low then its potential capacity to address the significant global need for research information will remain marginal.
- Research4Life should continuously act on the key learnings generated from its reviews and adapt its programme accordingly on an ongoing basis.
- Developing a Theory of Change could help clarify Research4Life's intended outcomes and the processes required to reach those outcomes.
- Having a shared communication strategy, developed with and co-owned by in-country communications contacts, could help address the awareness challenge.
- Enabling greater local agency to identify and implement an approach to growing the reach and use of Research4Life is essential.

4.4.3 Open Access
Although not part of the original proposal, the future of any access initiative cannot be considered without also considering the role of Open Access in the overall research communication system.

Some interviewees and survey respondents (48%) equate the free-at-the-point-of-use availability of content through Research4Life as being the same as open access, while others see it as unrelated. For many, there is a role for Research4Life to play in helping enablers and users to navigate the Open Access landscape. In particular, 33% of survey respondents believe the most important role that Research4Life could play in this area would be developing technology solutions so that relevant

waivers are automatically applied to researchers logged into Research4Life when submitting articles. There is also strong support for Research4Life to play an advocacy role in encouraging publishers to be more consistent and transparent with their approaches to APC waivers. It was also suggested in the case studies that Research4Life could take on a role of negotiating APC waivers in a similar way to subscription discussions and that Research4Life could help publishers communicate about their Open Access policies and waivers.

Factors influencing Open Access and Research4Life:
- Lack of understanding of the difference between Open Access and the availability of content through Research4Life.
- The strong relationships with publishers and the impact on potential advocacy.
- Research4Life's contacts within countries that publisher partners have no on-the-ground presence in.

Implications for Research4Life:
- Although this was not a core part of the study, the research gathered does suggest a need for Research4Life to explore whether it could play a role as an intermediary with Open Access awareness and payments.

4.4.4 Responding to crises (COVID-19)

This user review was conducted in an unprecedented time in the life of Research4Life. While a global pandemic presents challenges for research methodology, it also provides a valuable additional learning opportunity that can help Research4Life respond to other significant disruptors in users' countries.

In line with studies throughout the sector, we found that COVID-19 is not affecting all the Research4Life community in the same way. While around 52% of survey respondents found no change in their use of Research4Life, 23% found it easier and 26% found it harder.

Some of the issues are related to the wider circumstances that researchers are in – for example needing to look after children who would normally have been at school or additional commitments due to working in healthcare. For others, the pandemic presents additional time for reading research papers.

However, some issues relate specifically to issues around infrastructure and technology. As we discussed in a previous section, not everyone has computers or internet access at home and costs for broadband or mobile data can restrict possibilities of use.

Factors that influence COVID-19 impact on Research4Life usage:
- Underlying technical issues and costs of internet access.
- Wider context in which the user is operating, including competing pressures on time.
- Ease of use of Research4Life outside their institution.
- Restrictions on using Research4Life in another country, which may be an issue for people returning home if their institution needs to close.
- Lack of face-to-face support within institutions.

Implications for Research4Life:
- Pandemics like COVID-19 are fortunately rare. However, public health issues, conflict and natural disasters that affect a whole country or region are quite frequent. Such situations

can have serious effects on research and the use of research information, particularly where infrastructure is weaker. Anticipating the additional challenges and needs in such situations could help ensure that Research4Life can continue to support research in difficult circumstances.

- Things to consider include appropriateness for low-bandwidth settings; offline options; constraints around registration and authentication; and flexibility regarding country of access.

5. Recommendations

Reviewing the evidence summarised in this report and detailed in the full reports for each evidence-gathering stage, some clear themes emerge. In this section, we present some key themes and suggestions that can guide the development of recommendations and help the review team and Research4Life prioritise future developments of the initiative.

5.1 DEFINE HOW AND WHY RESEARCH4LIFE'S GOAL WILL BE ACHIEVED

- Develop a Theory of Change[1] to define the expected outcomes, processes and assumptions of how Research4Life intends to reach its goal. This will help to guide Research4Life's priorities and actions.

5.2 BUILD AWARENESS, COMMUNICATION AND COMMUNITY

- Identify what Research4Life's "unique selling (or value) point" is – and why it would be preferred over other e-resource platforms.
- Co-create, with key stakeholders within Research4Life countries, a communications strategy.
- Support – and ideally provide funding for - national-level activities to increase awareness of Research4Life and follow up and provide support where there are cases of low usage.
- Strengthen and expand committed networks of Research4Life champions and foster senior-level support for the initiative (for example, through deeper connections with government ministries).
- Cultivate a more strategic relationship with faculty at universities.
- Engage public agencies in the dissemination of Research4Life.

5.3 EXPAND AND RECONCEPTUALISE TRAINING

- Encourage institutions to embed training in Research4Life – and e-resources more generally - into undergraduate curricula and postgraduate training.
- Encourage more training and, crucially, ensure the sustainability of training efforts by including a training of trainers element so that insight from Research4Life training filters throughout institutions.
- Provide small training grants.
- Build Research4Life users' access skills and confidence on an ongoing and routine basis to grow usage.
- Consider why development of secondary training/learning materials is happening and if/how this should be encouraged.

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[1] For more information about Theory of Change, see, for example, www.theoryofchange.org/what-is-theory-of-change

5.4 IMPROVE SUPPORT NETWORKS

- Provide, and increase awareness of, more promotional tools for librarians, so that librarians can be better equipped to engage with their users.
- Provide librarians with more updated usage statistics – to help them identify their own needs better and plan their training and interventions, as well as to advocate for registration.
- Improve the capacity to track logins so that librarians can have more confidence to release passwords to users without fear of penalties.
- Have clearly identifiable Research4Life contact people within institutions to raise awareness of Research4Life and provide support internally.
- Develop a network of local focal contacts within countries, to follow up on institutions with poor usage and provide tailored support to improve awareness.
- Explore alternative payment schemes with institutions for countries where payment is required; simplify and clarify subscription and payment processes.

5.5 ENSURE PLATFORM AND TECHNOLOGY SUPPORTS EFFECTIVE USAGE

- Simplify the interface and improve the search process so that users can reach the right content more quickly.
- Explore options for offline content for situations where bandwidth is constrained, or internet connections are unstable.
- Consider developing a mobile app, especially to meet the needs of healthcare providers and those doing research in the field.
- Clarify authentication processes and improve flexibility to respond to crises.

5.6 ADDRESS GAPS AND SUDDEN CHANGES IN CONTENT

- Address issues of content gaps, especially the impact of sudden changes as a result of changing economic status. Advocate for publishers to avoid sudden implementation of exclusions.
- Explore ways to include more locally relevant content, for example by expanding links with local publishing platforms.
- Increase the number of relevant non-English-language resources.
- Clearly communicate to users when changes to the platform or content are made.

5.7 EXPLORE POTENTIAL NEW AVENUES FOR WORK

- Consider new partnerships and if there are benefits in expanding into new subject areas.
- Explore the feasibility of supporting Open Access processes, for example administering APC waivers or serving as an intermediary for publishers in communicating about Open Access to potential authors and readers.

6. Prioritisation of recommendations and next steps

Discussion of the recommendations presented in the previous section with Research4Life stakeholders was positive and constructive. Participants at the December 2020 workshop agreed that the recommendations were in line with their expectations and useful for guiding development of Resesarch4Life.

In most cases there was consensus that these recommendations should be priority areas, although, within several of the broad topics, there were some priority recommendations to focus on more than others. The exception was recommendation 5.7 (new areas of work), where opinions were more mixed; although people saw value in following trends in, for example, Open Access, and being responsive to changes in the wider information landscape, there was a general feeling that it was important to strengthen the usage and awareness of the existing offering before spreading resources more thinly to address new areas.

In a vote, the top priorities were "Build awareness, communication and community" and "Define how and why Research4Life's goal will be achieved; develop a Theory of Change". Although, participants continue to see the underlying content and technology of Research4Life as very important, participants acknowledged that much work has already been done or is in progress to respond to limitations in the areas identified in previous user reviews.

A key theme underpinning workshop participants' priorities for next steps was to increase engagement at a local level as a way to understand and respond to context and challenges more deeply and to increase the sustainability and sense of shared ownership. Local-level engagement, which particularly spans communications, training and support, means building stronger local-level connections with organisations, networks and individuals. It also means fostering stronger communities that feel shared ownership for R4L rather than seeing R4L as a service that they are consumers of.

7. Conclusions

This user review confirms that Research4Life is a relevant and effective resource for users who are aware of it, have had appropriate training for it and have infrastructure to support it. The user review team heard stories of positive impact for individuals, in terms of quality and quantity of research. There were also some examples of institutional-level impact in improving research skills and teaching resources.

However, lack of awareness, in addition to a range of other barriers, continues to limit overall usage and means that more widespread impact within institutions and countries is not currently being realised.

The review has generated recommendations for next steps across all aspects of Research4Life. The top priorities for the initiative are underpinned by the need for a clear, shared strategy and strengthened local community engagement through which Research4Life can address the information access challenges that continue to be faced by so many researchers, doctors, policymakers and others throughout low- and middle-income countries.

Appendix 1:
Themes of focus that emerged from document review

The following summary was produced in May 2020 at the start of this user review to capture themes from previous studies and inform the current review.

Over the duration of the Research4Life initiative, several studies have been conducted with different user groups and other stakeholders to understand more about user needs and about the impact of the initiative. To feed into development of methodology, the review team reviewed past studies and asked questions of the Research4Life team in order to inform development of questions and methodology for the current study. Below is a summary of key themes that emerged from the background reading, along with key points to address within the current study.

Context

Many past studies have focused specifically on the R4L user experience and impact somewhat in isolation. However, to determine effectiveness of the initiative, it is also important to consider the wider context in which R4L operates.

The 2020 landscape review[2], conducted by Research Consulting, was commissioned to address that wider context. This review covered a wide range of political, economic, development and social issues in terms of global trends, research and research communication. The review also highlighted three key themes to emerge that were especially important to Research4Life's strategic outlook:

- Growth in LMIC research
- The rise of open access
- Changes to search and discovery workflows

The landscape review also highlighted the rise in international collaboration and external funding, and the imbalances in power and decision making that these often bring.

Little is mentioned within the landscape review of the potential impact of other capacity development interventions both from within countries and from international actors. This is also an important consideration to bear in mind when evaluating the specific impact of R4L on wider research and publishing trends.

External research support has implications for engagement in R4L, according to Mueller-Langer et al's 2018 study[3], which observed: *"Our results suggest that the most productive institutions benefit the most from OARE while the least productive institutions barely benefit from it."*

- **Current study**: We will ensure that questions about experiences of R4L are set within the wider regional, national and research contexts within which researchers work, asking about issues such as collaborations and research or publishing support received beyond R4L. The current review will also recognise the current context of lockdowns as a result of COVID-19.

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[2] Fosci, M., Ficarra, V., Chiarelli, A., Johnson, R., (2020), Research4Life: Landscape and Situation Analysis
[3] Mueller-Langer, F., Scheufen, M. and Waelbroeck, P., (2018) Does Online Access Promote Research in Developing Countries? Empirical Evidence from Article-Level Data, JRC Digital Economy Working Paper 2018-05

Past reviews and other studies have revealed a clear need for information access. In the 2015 user review[4], for example, 78% survey respondents stated that access to research information is "extremely important" to their work. Other studies have similarly reflected this need. However, as will be discussed in the next section, there are disconnects between the percentages who say they find access very useful and those who actually use R4L regularly.

- **Current study**: It will be important to uncover whether there is still a high demand for access, especially given the wider shifts in open access and the research and publishing landscapes more generally over recent years. It will also be important to tie this discussion to the other issues highlighted, notably the disconnect between these observations and usage of R4L.

Usage

In the 2015 user review survey, just under than half had accessed R4L materials in the previous 30 days. In contrast, a 2014 user review of Hinari[5] noted: *"It is interesting to note that nearly two thirds of users access content via HINARI at least once a week."* A 2009 Hinari study in Nigeria[6] also revealed positive engagement, with more than two thirds of respondents claiming they had used Hinari resources and 92% of those having done so within the month preceding the study.

There are some challenges around registrations and usage. A 2009 user review[7] in five countries noted that registrations did not turn to usage at as high a rate as might expected. And there are challenges in getting to that stage; Mueller-Langer et al in 2018 noted that only 5% of eligible institutions are OARE members.

Mueller-Langer et al also found that: *"Our results suggest that the most productive institutions benefit the most from OARE while the least productive institutions barely benefit from it."*

This echoed an observation from the 2009 user review: *"Our findings indicated that lecturers and postgraduate students who were aware of the R4L programmes found them to be very valuable. Similarly, the academic professionals, students, and librarian respondents who had undergone training on their use reported training to greatly facilitate programme use. However, our findings also indicate a need for increased publicity and training on effective programme use within the universities (both at the heavy and light user institutions), not only for end users but for librarians and IT managers as well in order to translate programme awareness into frequent usage. The data also indicates that is essential to find ways to address the issues of the passwords problems, slow Internet connections and inadequate IT and Internet infrastructure at the user institutions in order to help increase the usage of the three programmes at the targeted institutions."*

- **Current study**: Building on findings from past reviews, there is a need to explore gaps in R4L usage and their links with awareness of or need for R4L materials, as well as possible disconnects between the materials and researcher practices. Noting that some of the more positive findings

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[4] Gaible, E., (2015), 2015 Research4Life User Experience Review
[5] Information Power, (2014) Research4Life Impact Survey Analysis
[6] Ajuwon, G. A., Olorunsaye, J.O., Odeku, E. L., (2009), Utilization of HINARI Resources among Researchers and Clinicians in Health Institutions in Southwestern Nigeria
[7] FAO, (2009), Factors Affecting Information Uptake in Universities in Developing Countries A User Study of Research4Life (R4L) Programmes at Selected Universities in Five Countries

relate to Hinari, it is also important to consider how usage patterns might differ by programme, as well as exploring potential disconnects between registrations and usage.

Awareness

As the quote from the 2009 user review in the last section highlights, an obvious factor to consider in addressing gaps between need and usage of an initiative is awareness of the initiative – and awareness raising has been a recurring theme in recommendations in past reviews.

The 2014 study found a high awareness of Hinari, even amongst those not in the R4L user group. However, 19% of people were not aware if their institution had access to Hinari. A study of Hinari use in Nigeria in 2009 also found high awareness of the programme (72% of users). Interestingly, in the Nigeria study, the vast majority of respondents (60.9%) heard about Hinari from colleagues. 27.7% learnt about it from training. Only 3.4% learnt about it from librarians. The study also noted some differences between men and women, which will be discussed in a later section.

As noted in the previous section, the 2009 user review noted that there was higher awareness of institutional access codes (username/password) for the R4L programmes among respondents in the heavy user institutions category compared to those at light user institutions. This same review also highlighted the need for communications not just to end users but also librarians and IT managers

An inception-stage interview with the R4L team revealed some challenges faced by the initiative in terms of communications capacity and related limitation in capacity to gather in-depth data on engagement and impact of communications activities. However, they noted some improvements over the past 18 months in terms of engagement with LMIC users.

- **Current study**: Awareness is clearly a key component to explore in relation to its impact on usage. In particular, there is a need to explore how people learn about R4L.

Effectiveness and impact

Past reviews and other materials share some examples of impact that can be either directly or indirectly linked with access via R4L programmes. The 2015 user review noted: "respondents list outcomes such as: development of virus resistance in cassava; development of management strategies for agricultural-extension services; initiation of biological control agents; support for a fisheries project. In addition, respondents cite publication of articles and books, receipt of awards, and completion of Ph.D. research and dissertations."

Some specific examples have been shared, such as this quote included in a presentation about communications impacts in 2019[8]:

> "Last year, I developed a national intellectual property and technology transfer policy. I used legal content from GOALI to develop a better policy." – Erick Velésques, Guatemala

The 2009 study of Hinari in Nigeria found specific benefits reported by librarians:

> "HINARI has created a good image for the library both within and outside the center."

> "My knowledge of use of information technology has improved as a result of use of HINARI."

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[8] Research4Life (2019), Highlights from the Research4Life Communications & Marketing Team

> *"HINARI has brought the rest of the world literature to our door step."*

More broadly, Mueller-Langer et al 2018 found that OARE membership increases the overall number of publications by a research institution by +48% to 57%.

Meanwhile a presentation in 2010[9] charted increased research productivity from R4L countries over the course of the 2000s. The researchers noted: *"2008 was a notable year. The aggregated research productivity by R4Life countries increased by 38% in 2008 compared to the previous year (2007)"* and *"The gap between 92 R4life countries and Total World Research Output (191 countries) narrowed progressively in the 2000s, especially notable are 2008-2009".* However, the study did not acknowledge other factors during the time period that might also have had a bearing on these trends. Some are contextual factors as discussed in the 2020 landscape review – for example, larger higher education sectors, increased national research budgets and increased numbers of international collaborations. Some factors relate to other capacity development interventions during the same time period as this study.

- **Current study**: Understanding effectiveness and impact is vital to determining how R4L is meeting its objectives. This will underpin much of the current study. We are also aware of the need to be sensitive to the wider context; R4L does not operate within a vacuum.

Gender

Little is mentioned of gender in past reviews but the 2009 study of Hinari use in Nigeria pointed to lower engagement and use by women than men. In the study of users, 65.4% of the respondents were male and 34.6% female. This imbalance was compounded when it came to awareness; 74.4% of men indicated they were aware of Hinari compared with 68.4% of women. This issue was not explored in detail in this or in the other studies reviewed here.

It should be noted that this study was conducted 11 years ago, in one country, in one subject area. Nonetheless, as pointed out in the 2020 landscape review and elsewhere, women are underrepresented in research, especially within LMICs, and often face additional barriers compared with men when conducting their research.

- **Current study**: Understanding engagement by gender within the current study will be an important component of determining how R4L addresses the needs of all users.

Barriers and challenges

Past user reviews and other studies have highlighted a range of barriers and challenges faced by users of R4L. As the 2015 user review noted: *"Problematic access to the full text of research articles is the single most critical challenge cited by users of all four Research4Life programmes."*

Some barriers and challenges are about the context within which users operate and some relate to the platform and content directly.

Regarding the wider context, the key issues highlighted over the years have been:

- Inadequate bandwidth/speed of internet
- Competition for internet

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[9] Krkoska, B., Ross, S., Patricia Brennan, P., (2010), Research4Life – Review of Impact in the Literature, Presentation at R4L 2010 General Partners Meeting

- Lack of access to PC/terminal with internet
- Cost of internet
- Irregular power supply
- Lack of time

The 2009 Hinari study in Nigeria highlighted the challenge of researchers paying for internet access (in internet cafes, for example) themselves. The study also noted that, while some users sought assistance, the vast majority (86.3%) did not do anything to seek to solve the problems they encountered.

There have been positive trends with these external factors in recent years. The 2015 user review highlighted a reduction in infrastructure issues compared with the previous user review, which platform-related issues such as search strategies and discoverability presenting bigger issues than technical challenges. However, in 2020, we need to be aware that the present COVID-19 situation resulting in people working from home rather than their research institution may exacerbate previous technical challenges.

In terms of challenges and barriers with R4L, key themes from user reviews included:

- Restrictions in accessing some full text articles
- Difficulty in remembering username and password
- Problems with accessing the publishers' websites
- Delays in response by the help desks of AGORA, Hinari and OARE
- Nobody available to assist with access (see next section)
- Need for training (see next section)
- Issues with authentication
- Search/discoverability - requests for better search functionality
- Publisher exclusions
- Payment issues

The issue of publisher exclusions, where content is not available to users within specific countries, was explored further in an inception-stage interview with R4L. Only 40 of the 180 publisher partners have exclusions. However, of those 40, no two publishers have same list of countries and it is hard to find two countries with same publisher list. In addition, some publishers exclude certain categories of user within countries.

This causes administrative challenges for R4L and confusions that can arise within training courses. R4L expressed concern that complicated exclusions can drive users to turn to alternatives such as SciHub.

In the 2015 user review, improvements were seen in ability to pay compared with the previous review, although the 2014 Hinari user review raised some payment issues with transition as countries move from one band to another.

We also note the unusual context due to COVID-19 that might impact on ability to pay where required.

- **Current study**: All of the issues raised in previous studies are interesting to revisit in 2020, in both a broad sense and in the current context of COVID-19.

Training and support

As the previous section noted, a common theme in past reviews was the importance of support and training. The 2009 user review, for example, mentioned delays in response by the help desks of AGORA, Hinari and OARE.

In an inception-stage interview with R4L we also discussed local support from institutions for access to R4L training resources. R4L provides a range of materials (for example a marketing toolkit) to assist institutions with support. However, R4L has no data on the use of these materials or other local support beyond anecdotal evidence (for example, of a very supportive librarian in Nepal).

The 2015 user review noted that training from R4L helped success. Similarly, the DAR report[10] found usage patterns increased in 2018 for almost all countries where training took place during that time period.

However, the majority of users have not had any training. The 2014 Hinari user review, for example, reported that *"These figures are consistent with HINARI's own expressed concern that it does not have access to sufficient resources to respond to all requests for training that it receives. A significant proportion of the free form responses to the final question of the survey are pleas for more in person or online training in the use of the HINARI information resources."*

Since the last user review, R4L has launched a MOOC to address the training gap identified. This is still very new and so there is a lack of data on impact. However, initial signs are encouraging.

- **Current study**: The issue of training and support seems key to success and is something to explore in this study. Building on previous work, new areas to study will be the impact of the new MOOCs and extent and effectiveness of local support.

Recommendations and learning from previous studies

The 2015 user review made the following high-level recommendations:

- Increasing agility and responsiveness
- Increasing awareness and use
- Increasing engagement with users
- Improving functionality
- Increasing participation in training

In response to the 2015 user review, R4L has made improvements to the authentication system. In response to the 2016 Content Portal Usability Test (which was not part of the materials shared for review) R4L has made search more prominent. In an inception-stage interview, the R4L team reported that these developments have been well-received by users.

They said that anecdotal evidence from trainers suggests that mobile access is increasing. However, R4L currently has no records of which device is accessing the system; this technical development is planned for the near future. They also note that the new R4L portal being developed will have responsive design built in from the start to facilitate improved mobile experience.

The R4L team also report communications developments in terms of numbers of newsletter subscribers, social media followers and engagement with different channels. They also report an

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[10] Excerpts from DAR report end of 2018 for TechBank, shared in part with the review team by R4L

increase in Southern-facing engagement, compared with what was previously a significant Northern focus.

Responding to issues raised in past reviews around language and the source country of content, the R4L team noted that there has been a growth in content but that this is more increased content from the same publishers or same kinds of publisher rather than different geographies. They also acknowledged that this is an ongoing discussion, especially in terms of interest in French-language content and content from developing countries.

A related change, which it would be interesting to explore awareness of, has been the broadening of scope of content beyond the core remit of the five programme themes, for example with the addition of content in areas such as theology. The lack of a general R4L category means that this content is often added to Hinari because that is the largest programme. As users can search across all the platforms using Summon single search, the boundaries are less pronounced that when users browse.

- **Current study:** As noted in previous section of this appendix, the 2020 review will study the challenges and concerns raised in previous reviews and perceived changes over time. It will also be interesting to explore what content users know about within the R4L initiative, especially the content that is out of scope for the main programmes, and to explore whether there are alternative ways that this content could be presented to users.

Research4Life 2020 User Review

Final interviews report

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This document is the full and final report on the interviews undertaken for the Research4Life (R4L) User Review. The document explores the key issues raised by the interviews conducted.

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1. Key learning and emerging recommendations

In common with previous Research4Life (R4L) user reviews, the interviews point to challenges with awareness, training, content and the platform. These challenges all impact on usage.

Using the interview data, in conjunction with findings from the case studies and the survey, we have identified eight key learning points for Research4Life (R4L) to consider. There is a need to:

1.1 Have clearly identifiable R4L contact people within institutions to raise awareness of R4L and provide support internally

The importance of having key identifiable (to members of the institution) contact people within an institution was a recurring theme. It is important that these contact people can be easily identified and are accessible. They also need to be informed and motivated. They function as a kind of first-line technical support as well as being ambassadors for Research4Life within an institution. Within universities, these were often – although not exclusively - librarians.

1.2 Build R4L users' access skills and confidence on an ongoing and routine basis to grow usage

Once people are aware of R4L, usage appears to be dependent on ease of access and confidence. Greater investment in these areas (may make the usage experience of R4L more efficient and effective.

1.3 Clearly communicate to users when changes to the platform or content are made

Changes to the platform and/or content can all be frustrating for the user – even when the changes are 'positive'. It is worth considering the mechanisms by which the end users receive and process information about changes to ensure optimal usage. This links closely to learning point 1.2 above – as these regular sessions of orientation or mentoring could afford users the opportunity to learn about updates/changes.

1.4 Identify what R4L's "unique selling point" is – and why it would be preferred over other existing e-resource platforms

Research4Life has undoubtedly had wide-ranging effects on a whole range of activities, not purely on academic research. In the interviews, people mentioned teaching materials, checking of citations, preparing public health information, communications for political leaders, and even preparation of sermons. It was also talked about, both directly and indirectly, as a general repository of knowledge, a source of "knowing what was going on" in the scientific world. What still needs to happen is for R4L to identify what its "unique selling point" is. Why would a researcher (of any definition) opt for R4L over a search platform, say Google Scholar, for instance? And why is R4L perceived to function as a search platform?

1.5 Consider why development of secondary training/learning materials is happening and if/how this should be encouraged

There seems to be quite extensive development of training/learning materials at different institutions and in different languages. Currently, it's not clear how that information is used and how it might be better shared to avoid duplication of effort. This could also be an important building block in the development of a supportive environment for a R4L community. Further inquiry would be useful to understand:

- What materials are being developed and by who?

- Could these materials be shared with other countries/institutions? How?
- Should R4L be encouraging this?
- Why are people developing other materials - is it a gap in what R4L are providing?

1.6 Reconceptualise R4L's approach to training

It is clear from these interviews that users do have capacity development needs for which training is required. However, the conventional forms of training in which a one-off programme is delivered at a point in time or indeed periodically over a year, do not fully meet users' needs. A different, more flexible, collaborative approach that combines shorter forms of orientation, updating users' skills as content or technology changes, ongoing mentoring by researchers of researchers themselves, teaching videos uploaded to YouTube, in addition to longer more conventional approaches, and which links users across regions or indeed globally is indicated.

There was also a feeling that if R4L was seen as a service that needs extensive training, then users would look for other (simpler) options. Many users encounter R4L when they are in the middle of a project and need material quickly - they need to be able to 'hit the ground running'. So, although a wide range of training approaches is a good thing, it shouldn't be seen as too complicated for the beginner.

1.7 Grow a community of R4L users

One of the most striking findings of the interviews is the degree to which the experiences of users were similar. Enabling users (such as in a community of practice) to be in touch with one another for mutual support, solutions to platform queries, and potentially opportunities for collaboration could be an important way of strengthening the R4L user experience and research more generally.

1.8 Provide some sort of statistics from R4L to enablers

More than one librarian mentioned the need for statistics in terms of number of logins, time spent on R4L, number and type of material downloaded. This gap in knowledge was evidenced in how hard enablers found it to answer usage questions. Knowing about how R4L is used can help develop/target learning and also help them promote or justify R4L within their institution.

2. Background

In depth interviews of Research4Life (R4L) users in different institutional roles were conducted between 1 June and 31 July 2020 as part of the R4L 2020 User Review. The purpose of the interviews was largely to inform the development of the R4L user survey (held in September 2020) but the interviews also stand alone as a significant body of information.

Interviewees were selected to represent the diversity of R4L user type, institution and geographical region.   As such, they are a good source of data to identify themes across a wide variety of R4L users. The individual contexts of the interviewees are deliberately diverse, and the number of interviewees relatively small, therefore, it is unlikely that any regional, gender or other group differences would emerge from the interviews *per se*. Group differences will be explored with the survey where much larger numbers will allow for segmenting the data in a more meaningful way.

Our plan was to conduct 72 interviews across 12 countries – 7 countries in Group A and 5 in Group B. Interviews were conducted in 11 countries (no interviews were held in Algeria) across 30 institutions. We targeted end users of R4L (e.g. researchers, lecturers, students) as well as enablers

of access to R4L (primarily librarians and research directors), achieving a final count of 29 users and 34 enablers. We have an achievement rate of 88% with a slightly higher distribution of men over women across the entire sample, as the table below illustrates.

Country	Group	Contacted number of interviewees	Achieved number of interviewees by gender		Total
			Male	Female	
Algeria	B	Approx. 87 persons contacted Reminder and follow up emails sent on three occasions (in English, French and Arabic).	0	0	0
Bangladesh	A	12 persons contacted. One round of emails	5	2	7
El Salvador	B	20 persons contacted. Reminder and follow up emails sent in Spanish.	5	2	7
Ghana	A	25 persons contacted. Reminder and follow-up email sent.	2	4	6
Jordan	B	Approx. 66 persons contacted (full list). Reminder and follow-up emails sent in Arabic and English.	1	1	2
Mozambique	A	Approx. 298 persons contacted (full list). Reminder and follow up emails sent in Portuguese and English.	4	1	5
Myanmar	A	11 persons contacted. One email round sent	3	5	8
Nicaragua	A	14 persons contacted. Reminder and follow up emails send in Spanish.	3	0	3
Papua New Guinea	A	Approx. 174 persons contacted (full list). Reminder and follow up emails sent.	4	2	6
Rwanda	A	Approx. 270 persons contacted (full list). Reminder and follow up messages sent in French.	3	1	4
Ukraine	B	Approx. 370 persons contacted (full list) in English. Reminder and follow-up emails in Ukrainian sent.	1	6	7
Vietnam	B	Approx. 923 persons contacted (full list) and select reminders sent in English and French. Approx. 511 persons contacted in Vietnamese.	2	6	8
TOTAL			33	30	63

3. Undertaking the interviews: reflections on the interviewing process

As stated in section 2 above, we were able to achieve an interview completion of rate of 88% - interviewing at least two people in each selected country except in Algeria where interviews were scheduled but interviewees cancelled at the last minute. The table also illustrates the significant number of emails and email rounds sent to achieve the final numbers. Responses to interview requests were poor, both in getting people to agree to the interviews and then actually honouring the commitment once interviews were secured. This could point to a lack of awareness of R4L and/or a lack of personal or institutional "investment" in or attachment to R4L.

Interviews from some countries proved particularly challenging. We suspect that issues with language, low awareness and/or little existing use of R4L may have been responsible for these low engagement rates. In some cases, we were able to redress this problem by switching the interview language, but this approach was not universally successful. For example, by recruiting Vietnamese interviewers and translating the email invite into Vietnamese we were able to achieve the target numbers. In Jordan and Algeria, however, where we used a similar approach recruiting both Arabic and French speaking interviewers and sending out emails in both languages, we were not as successful. On reflection, it is interesting to note that where switching the language proved more successful, the interviewers were based in the country and were familiar with the research system (e.g. Vietnam and Ukraine) as opposed to in Algeria and Jordan where we engaged Arabic and French interviewers but who were not resident in either country. This reinforces a key finding of these interviews about the critical nature of internal "agency" in turning around engagement with and usage of R4L.

4. Findings

4.1 Awareness, outreach and usage

A recurring theme during the interviews was the lack of awareness of R4L, both in terms of knowledge of its existence and ongoing awareness of its changing content and capabilities.

It is also note-worthy that many interviewees used the interview to try to elicit information about R4L and its functionality. This potentially reinforces the point about a lack of awareness, or gaps in information and understanding about R4L. Awareness of and knowledge about R4L (even within subscribed institutions) and the sense of identity or community around R4L are explored in greater detail in the survey.

4.1.1 Initial awareness

Because of their participation in this study, there was inevitably a familiarity with Research4Life as a concept. However, the level of understanding of Research4Life varied markedly between participants and many had a partial picture of R4L.

- The most common descriptions of Research4Life were as a **database**, **E-Library**, **portal** or **platform** for information.

- It was notable how often initial awareness of Research4Life had come through a variety of sources:

- Training abroad or visits to international institutions was a key source particularly for enablers:

  "…project with DFID/FAO in Rome, subsequently others mentioned it."
  Librarian from Ghana

- Sometimes the information came explicitly through organised courses:

  "Around a year ago, the University of Rwanda worked with INASP to organise a workshop on the use of the platform for accessing information on Research4Life and I took part in that."
  Researcher from Rwanda

- Sometimes the knowledge came more informally and through chance interactions:

  "A doctor went to a meeting where they discussed Research4Life, and shared that information with me."
  Librarian from El Salvador

- Sometimes Research4Life resources were available through other institutions:

  "…at the hospital we didn't know we had access through the Ministry of Health."
  Medical doctor from El Salvador

- Sometimes R4L was embedded in students' formal training. In one academic institute in Bangladesh, R4L was so integrated into the work practices that Masters students were examined on their ability to demonstrate obtaining references through R4L

  "…Our students will often have formal training on how to use it as part to their studies."
  Researcher from Bangladesh

- Some interviewees were aware that someone had to pay for Research4Life, although often people were unclear about who met these costs.

- Individuals who are not the primary gatekeeper for Research4Life within their institution, were often unaware of the full range of Research4Life resources to which they had access. Some interviewees, particularly those who are used to using only a single R4L programme, were not even aware that the resources they were using were part of Research4Life; they knew them only by their programme name, A consequence of this could be that any materials (training and communication, for example) branded solely as Research4Life could be overlooked by some users.

  "Actually, we didn't know it as Research4Life before, we just knew it as AGORA since 2005."
  Academic from Myanmar

4.1.2 Outreach
Continuous outreach work to effect greater awareness varied greatly between different institutions.

- Universities are the most likely to undertake ongoing promotion - often through email, or social media (WhatsApp and Facebook were mentioned specifically).

  > *"We have focal people who usually do awareness raising, and generally, when there is any new initiative from Research4life, they usually send out emails and put the information on the notice board for the entire academic community in university to have this information."*

  > ***Researcher from Mozambique***

- Some universities were very proactive with promotion, even going so far as producing their own materials:

  > *"The first thing is I put links to the Research4Life resources on our library website, because we have an online/digital library and those who want to can search for documents online. So among the links are links to Research4Life, the university website, and other resources.*

  > *"The second thing is that I have put together a guide for the students so that they can use the Research4Life resources. This guide is written in Portuguese and I've gone through all the steps needed to access Research4Life: the password, the web address, what to do, how to download a document if needed, how to read a document on-screen if you don't need to download it."*

  > ***Lecturer/librarian from Mozambique***

  > *"We provide support – we make some classes to show how to use Research4Life. We translate this support [training materials from Research4Life] into Ukrainian and Russian. Translation is done at institution level, not pooled resources across country."*

  > ***Librarian from Ukraine***

- Unfortunately, this level of engagement was the exception rather than the rule. A director of a research institute in Jordan told us that there was "no awareness raising at all" within his own institution and commented that "90% of researchers in Jordan have never heard of Research4Life". This perhaps explains the very low levels of engagement in Jordan. A researcher from Bangladesh appeared unaware that his own institute was connected to Research4Life because "nothing has ever been circulated".

4.1.3 Usage
Interviewees reflected a wide spectrum of R4L usage. Clearly, awareness was a big factor in driving usage: if you are not aware of a programme, or some of its functions, you will not use it. However, awareness alone is not sufficient to guarantee usage. Frequent usage is also driven by need, access and confidence in the product and in one's ability to use it effectively.

Need

- Need for R4L tended to depend largely upon institution type and the role of the interviewee. Unsurprisingly, institutions like universities which are focused largely upon research and production of academic papers, tended to express the greatest need for R4L resources. Need was expressed for specific resources to support research work, but also, in a more general sense, there was a need for information to stay current in a particular area. Specifically, those researchers working in medical and therapy-related areas often mentioned R4L as somewhere they would go to look for new therapies or trends in treatment. In this sense, R4L was seen as a way of keeping up to date with what was going on in specific fields.

Access

- Once need and awareness are established, the potential user requires access to R4L. This means accessible devices and a reliable infrastructure. It also requires access to the appropriate login information. There was some uncertainty expressed about how and when passwords were valid – for instance, could they be used when the user was abroad, or accessing R4L from different devices. Some would prefer individual passwords for all users:

  > *"…now we have a general username and password. It would be great to have individual one."*
  >
  > **Librarian from El Salvador**

- In general, librarians or other gatekeepers favoured individual passwords, whereas researchers seemed comfortable with institutional-level access. This could be because ease of access is the priority for individuals but being able to manage access information is the priority for gatekeepers. Indeed, a couple of librarians commented upon the need for more information about their institutions' access behaviour – which could further inform promotion and training for R4L within institutions.

Confidence

- One often overlooked driver of usage is **confidence.** Someone who is not confident about using a resource will avoid it if there are alternatives. Confidence can be built in individuals in training – the mode, content and tone of training can all contribute to making a user feel confident. However, increasing the amount of training available is not a solution in itself. Indeed, individuals can be daunted if it appears that a lot of training needs to be undertaken before a resource can be used adequately.

- Librarians, or other institutional gatekeepers, have usually been on formal training courses. However, individual researchers within their institutions do not always benefit from subsequent training by these librarians – and do not therefore have the opportunity to grow their levels of confidence. Researchers, more often than not, encounter R4L during the course of their work when they're looking for specific information or references. They need a quick pragmatic solution and often don't always have the time to embark on lengthy training courses. In this situation there will be the temptation to opt for other solutions (e.g. searching Google) if they are perceived to be simpler/quicker. The issue of the relationship between R4L and Google is explored elsewhere.

4.1.5 Changes over time

Of the few interviewees who had good levels of awareness of R4L, a number were long term users of R4L and were able to provide a retrospective perspective on the initiative. Generally, comments about changes over time focused on two areas, changing content/access and change in functionality of the platform.

- Some were aware that the material that they could access had changed, but were not sure about exactly how or indeed when it changed. The access to a wider range of books as well as journals was generally welcomed, though there was some frustration around inability to access entire texts. Some individuals were aware that they were currently unable to access material to which they had previously had access. In general, there seemed to be a lack of clarity around how and why access changed.

- Long-term technology changes to the platform were generally judged very positively, particularly when it came to accessibility through different types of device.

> *"[There has been a] vast improvement over many years, it is now easier to access."*
> **Librarian from Ghana**

> An AGORA user from Papua New Guinea, said that 10 years ago it was relatively difficult to use the portal and they used to face login issues; but with the amalgamation of all the R4L programmes, the new portal was more user-friendly.

4.2 Perceptions of value for R4L: its platform, content and training

Interviewees commented on two aspects of satisfaction and perceived value of R4L: satisfaction with the platform and satisfaction with the content.

4.2.1 Platform

Cost and stability of internet connection are obviously fundamental for efficient and equitable access to Research4Life. Comments about satisfaction with the platform were often conflated with the issue of unstable or expensive infrastructure.

Connectivity

- Many interviewees commented on internet access issues:

> ***From Bangladesh*** *… "Internet is so slow."*

> ***From Ghana*** *… "Internet is slow but improving, slowly."*

> ***From Rwanda*** *… "Lack of fast internet and insufficient computers."*

> ***From Vietnam …*** *"The internet … of Vietnam is not too stable and access is slow."*

> ***From Myanmar …*** *"Internet connection is very poor… And expensive."*

> However, we should exercise caution when it comes to classifying internet access by country alone; one researcher from Papua New Guinea pointed out that the internet connection varied widely from towns to rural areas. And from another Papua New Guinea a researcher: *"if you are located within the city vicinity, then you can easily access. if you're outside of the boundary then it's hard to access."*

- Sometimes users could not determine whether the issue was with the internet, or with the Research4Life website.

> *"Website/server need to be more stable for the users, though the problem may sometime be due to internet connection on the users' side."*

> ***Researcher from Myanmar***

Difficulties with connectivity were underlined by the fact that some interviews were either cut short or couldn't go ahead as planned because of connectivity issues. Connectivity is an important consideration in developing appropriate training materials accessible to those with poor-quality or expensive internet. These issues are explored more thoroughly in the survey.

Limitations of search engine

- Interviewees talked about two types of limitation of the search engine (an implementation of the Summons discovery solution) - limitation of search terms that can be used, and large number of results produced by a search.

> *"One of the challenges is the type of questions used when looking for information… The databases have some limitations when one asks about the topics. The search engines are too rigid.*

> *"… It is easy to access, but one needs to be patient to ask the right questions to find what one needs. Navigating is easy, but getting the information takes time."*

> ***Academic from Nicaragua***

> *"…I don't think it's so easy for [our researchers] because even me when I try to use search terms it will either allow me to use the drop down menu to submit or you can do a free text search. And that is not really helpful because you come up with too many results. So for me, because as I told you before I have techniques in searching, I'm able to narrow down but for them it might not be that simple. Unless, of course, they are looking for a particular journal. So they will just type in the name of the journal and go straight into the article, that is quite simple. But if they are just doing free text searching it's not that easy."*

> ***Librarian from Ghana***

4.2.2 Content
When it came to content, satisfaction was generally very high, with reports of "very satisfied" ***being common.***

- One researcher from Mozambique was only able to find what they wanted "*about 50% of the time*", but for a researcher from Vietnam, the Research4Life content "*was like opening a whole new world*".

- Emphasis was placed on content being peer-reviewed and "*authentic*" compared to content available through other sources. Specific areas where interviewees indicated a need for more content are discussed in the next section.

4.2.3 Limitations of content
Interviewees referenced language and a demand for books in a wider range of subjects as the main limitations of content.

Language
- A few people complained about the fact that the majority of content on R4L was in English and a need was expressed for resources in other languages – Spanish and Portuguese were mentioned most frequently, though this is probably due to the locations chosen for interviews. The survey will give a more geographically balanced picture of the need for content and support materials in other languages. There was, however, general acknowledgement that R4L had little control over the languages in which journals and books were published.

Book content
- Some interviewees were not aware of the availability of books as well as journals through Research4Life. Those who knew about them generally welcomed the inclusion of books, though some expressed frustration that the books that they could see were not fully downloadable:

  > *"… when you search for a book, they give you a chapter, not the whole book, just a chapter. If you could download the whole thing, that would be good."*

  > ***Research Manager from Rwanda***

- Some asked for more books to be available on different subject areas:

  > *"We would like more books on stochastic frontier analysis or introductory mycology, microbiology and introduction and statistics concept and controversy and genomes to factions or plant power, bacteriology or molecular genetics of bacteria, essential cell biology, molecular biology, such kind of books they want, if, if you can afford it, please arrange it!"*

  > ***Academic from Myanmar***

  Other specific subject areas mentioned included nursing, management, business-related subjects, physical sciences, mining, mineral geology, sport, medical specialties and material about children.

- Some regional difference also featured in the interviews. For example, researchers from Papua New Guinea wanted agricultural content from researchers in Africa (which shared similar terrain) and other parts of the Pacific islands. They were often unable to access it through R4L and had to communicate directly with colleagues to obtain these. The desire for more diversified regional content will be further explored in the survey.

A need was expressed for resources in other languages – Spanish and Portuguese were mentioned most frequently, though this is probably due to the locations chosen for interviews. The survey will give a more geographically balanced picture of the need for content and support materials in other languages.

4.2.5 Training

Training of all kinds - online, one-to-one and group training – was thought to be useful. Usefulness of specific training modes depended on the circumstances of the user.

Awareness of online training

- There were large differences in awareness of the online training between end users and gatekeepers. Some were not aware that it existed - a user from El Salvador said he had received no R4L training and thought that lack of available training was "one of R4L's weaknesses". When alerted by the interviewer to the existence of online training, some were keen to investigate it:

> *"If we could access the material, I would be among the first to sign up."*
> **Medical doctor from El Salvador**

- Others knew about the training available but hadn't tried it.

- Those who had done the online training were generally very positive about it, variously describing it as "vital", "very helpful", "very beneficial", "enriching". A librarian from Ghana thought that the problem with online training was that users need a contact person to ask questions as they go along with training.

Demand for ongoing training

- Changes in the platform and in the people using R4L, mean that training needs to be ongoing and adaptive, and not just a one-off when an institution first introduces R4L. A good example of this was a user from Papua New Guinea who had first learned of R4L when working in Bangladesh and had subsequently been involved in introducing R4L to Papua New Guinea in 2016. Initial training was provided by the WHO (Western Pacific Region), but no subsequent training has been delivered. There is no local capacity to sustain training and he saw a need to continue training so that officers at the district and community levels could be taught how to use R4L and promote use within the country.

- One interviewee pointed out that "people stick to what they know and not everyone is inclined to explore new features" so training has to be ongoing

- A librarian from Mozambique was adamant that the way forward was developing YouTube videos demonstrating how to use specific aspects of R4L, referencing the need to develop training materials accessible to those with poor-quality or limited/expensive internet.

- Some mentioned that the COVID-19 pandemic had disrupted planned R4L training, and that in this climate the online training will be all the more important.

Training beyond platform use

- Conversations about training often went beyond specific platform use, with many users seeing an R4L role in more general research skills training. Specific areas of training interest cited by interviews included scientific writing skills (mentioned several times) searching and referencing skills and training on how to translate from scientific to plain English.

"…if R4L can host a professional training about effective searching and using R4L, it would be great."

Librarian from Vietnam

"Definitely basic writing skills is something that they need to build capacity and that support would be great to get that. Maybe just how to publish? I mean, how do you know what you need to do? How do you choose suitable journals? So, yeah, these are certainly areas where capacity building required and it would be great to get some assistance."

Director of Research from Papua New Guinea

"…So to encourage R4L to promote certain scholarship in or run courses in this area of referencing, writing proposal and citing materials correctly and the appropriate language to use. Sometimes people write in present tense, its present but the past tense in their sentences that's complicated sentence structure. Those specific things R4L can offer and put some courses in those areas it will get R4L to the next level."

Researcher from Papua New Guinea

- An interviewee who had completed the MOOC commented on how it had improved his skills in paraphrasing and citing literature.

  Some mentioned that the COVID-19 pandemic had disrupted planned R4L training, and that in this climate the online training will be all the more important.

Multilingual training materials

Some people thought the training materials should be available in other languages. Locally developed training materials were sometimes in other languages.

- Some countries required learning materials in multiple languages and other interviewees felt that training materials should be available in a broader range of languages. Locally developed training materials were sometimes created in languages other than English. Rwanda was an example of how bilingual training had been used successfully:

  "The training was bilingual, in English and French. In Rwanda younger people don't know French, they know English; older people know French and not English. The trainer was a French speaker but the presentation slides were in English and they were delivered in French. In this way, both Anglophones and Francophones could follow the training. Francophones can write in English even if they can't speak it. So when I write an article, I write it in English."

  Laboratory Manager from Rwanda

There also seemed to be an appetite for Research4Life to be involved in the development of broader training activities around research. Specific areas mentioned included:

- Materials/courses on scientific writing (mentioned several times)
- Training on searching and referencing skills
- Training on how to translate from scientific English to "normal use"

4.3. Impact of R4L

General impact was always spoken of in very positive terms. The respondents who had had broadest view of impact tended to be librarians, or other enablers of Research4Life, rather than the researchers. Understandably, researchers commented more upon individual impact on their own research.

Interviewees referred to R4L's impact as "Very great" (from Myanmar); "Remarkable" (from Rwanda) and "Huge" (from Bangladesh). One researcher from Papua New Guinea even went as far as describing it as his country's "only hope" for accessing quality research materials.

A director of research from Papua New Guinea suggested that we turn the question around and ask what would happen if Research4Life were not available. We incorporated this question into the survey.

The respondents who had had broadest view of impact tended to be librarians, or other enablers of Research4Life, rather than the researchers. Understandably, researchers commented more upon individual impact on their own research.

4.3.1 Impact on Institutions

Impact on institutions was seen in terms of both quality and quantity of research produced.

- Impact was also expressed in terms of the ways in which research can be carried out and broadening of research topics available (because of increased content range).

- A research director from Myanmar credited Research4Life as being a major contributor to the fact that his institution had increased their masters students and research staff by a factor of 10.

- One librarian from Rwanda made some interesting comments about how Research4Life had resulted in significantly fewer users of the library because everyone was able to access the platform from home.

4.3.2 Impact on individuals

Impact was often spoken of in terms of the development or refinement of specific skills or on career development.

- R4L's impact on research writing and teaching were specifically mentioned.

  > *"To make a scientific paper was a headache, but now we can easily do it with no problem."*
  >
  > ***Researcher from Mozambique***

- People also spoke of the impact that Research4Life has had on career development, or attainment of specific research goals like PhDs. For example, a librarian from Papua New Guinea said that Research4Life had had a "very positive" impact on their own career.

- Many researchers cited specific instances where Research4Life had had an impact upon their work. One research director from Papua New Guinea used Research4Life as a main source

for writing an intervention plan in response to COVID-19 in his region. In his view, *"Research4Life can transform your professional life completely'."*

- Another researcher from Nicaragua, working on domestic violence and pregnancy, reported that they were able to access many WHO documents that they had not even known about prior to using Research4Life.

During the interview process several interviewees indicated they would be happy to speak with R4L's communications team about their "stories of impact". INASP will share the contact details of these interviewees if this is of interest for R4L.

4.4 Alternatives to R4L

Research4Life is used as a research tool in parallel with a whole variety of different resources, including search engines, publisher platforms, Open Access databases and less legitimate sources. Some of these other research tools are seen as direct alternatives to Research4Life, others are complementary and can be used alongside it.

Google Scholar

- Google Scholar was by far the most frequently cited alternative, mentioned by about half of the interviewees as shown in this word cloud. Some interviewees were very positive about Google Scholar and used it as their main source of information:

    "Yes, yes, yes. Currently, we only use Google Scholar. Web of Science and Scopus we won't use it. But we're just using Google Scholar."
    Researcher from Papua New Guinea

    "The most useful one for the people and researcher in Myanmar is Google Scholar."
    Academic from Myanmar

- Some interviewees commented on the wider range of material available via Google Scholar:

    *"The Research4Life is providing now search engine is more or less big but compared to the Google Scholar, the information is still limited**."***

    Academic from Myanmar

    "If I don't find a response to my question on Research4Life, I can go and search on Google Scholar."

    Academic from Mozambique

- The requirement for a password was also referenced as a reason why Google Scholar may be preferable to Research4Life:

    "And the Google search engine is easier than the AGORA because AGORA needs the username and password. If they don't know the username and password, they easily go and find the articles and books from the google search engine."
    Academic from Myanmar

- Others were more cautious about the use of Google:

> *"With the information boom it is necessary to have access to trustworthy, serious platforms, because one has to be careful with Google."*
>
> **Medical doctor from El Salvador**

> *"For Research4Life is more or less okay but from the Google Scholar or other open sources we need to check the reliability. It can be some fake or some unreliable data we can get."*

> *"If you go and find the any articles in the Google Scholar", and Google or Google internet, this is limited. Some information are not peer reviewed journal…the quality of information is better in Research4Life."*
>
> **Academic from Myanmar**

- One interviewee explained how he used Research4Life in conjunction with Google:

> *"Before heading to Research4Life, I have some information that I want to find. I might read an article and the article might recommend a reference which I'm interested in. So I start with an information need, and I go to Google Scholar which gives me the details of a particular reference (publisher, year of publication etc). And with that information I then go to Research4Life, enter the details and then I have the publication."*
>
> **Academic manager from Rwanda**

- Ease of use or content were the main criteria against which R4L was compared with other resources:

> *"AGORA need to know exact name of journals, not key words, SpringerLink is much easier."*
>
> **Librarian from Vietnam**

> *"We usually look at Scopus but that usually just gives abstracts… In Research4Life the scientific level is much better…Research4Life provides more deep scientific research."*
>
> **Academic from Ukraine**

- Interviewees also referred to PubMed, ResearchGate and Cochrane databases. Some users referred to the illegal information hub Sci-Hub. The survey will provide a broader description of the other resources that people use and their relative frequency of use.

4.5 Three words

Interviewees were asked to come up with three words that best capture their experience of working with Research4Life's programmes. The words used were overwhelmingly positive and often reflected quality, accessibility and innovation.

Typical responses included:

- Good, integrated, useful
- Innovative, research, development
- Spectacular, supportive, exceptional
- Free, easy, reliable
- Indispensable, relevant, unmissable
- Friendly, current, easy to access
- Excellent, high-quality, accessible
- Coverage, quality, contribution
- Simple, free, networking
- Easy, quick, scientific

- Excellent, quality, accessible
- Great platform, excellent, information
- Research, development, innovative
- Multidisciplinary, current, scientific
- Efficient, effective, robust data

Some interpreted the three-word brief more widely, using more than three words, but broadly describing three concepts, examples included:

- Brilliant system, very happy, well maintained over a long period
- Up to date, unlimited access, trustworthy
- Research, innovation (digital books), quality content
- Scientific maturation, research skill, knowledge itself
- Easy access, good-quality, recent articles
- Easy, helpful (saves money), high-quality (clear titles, author, language)
- Updated knowledge, good practice, internationalisation

One interviewee used the opportunity to describe the impact that Research4Life had had on his own work:

- Improved my studies, made my study go faster, reduced burden

4.6 Open Access

There was limited understanding, and some misunderstanding, about the concept of Open Access publishing, and the relationship between Open Access and Research4Life.

- Some researchers, like one medical doctor from El Salvador, had never heard of Open Access; others had a detailed understanding and had published Open Access papers. Understanding of Open Access was generally higher amongst librarians than researchers or managers. But even amongst librarians, understanding varied:

> *"I think Open Access is just for reference, I don't think it would be accepted in research…. People normally don't trust the [Open Access] information … I think Research4Life should not have Open Access materials."*
>
> ***Librarian from Vietnam***

- A number of interviewees were unclear around the relationship between Open Access and Research4Life: some thought that they were synonymous. The Dean of an institution in Ghana commented that open access was "*a bit different from Research4Life, because with Research4Life you'd need a user name and password*".

Understanding of Open Access was generally higher amongst librarians than researchers or managers. But even amongst librarians, understanding varied:

> *"I think Open Access is just for reference, I don't think it would be accepted in research…. People normally don't trust the [Open Access] information … I think Research4Life should not have Open Access materials."*
>
> ***Librarian from Vietnam***

- As well as differing levels of understanding, interviewees demonstrated differing attitudes towards Open Access. A research director from Jordan was very aware of Open Access, but looked negatively on it. He said it reinforces the stratification between rich and poor countries, explaining that researchers in the 'developed world' can afford to spend a lot of money on publishing in highly-regarded and widely-read Open Access journals, compared to researchers in low-income countries who cannot afford to pay the Open Access charge and, therefore, their impact factor and citation index stay low. Others viewed Open Access as a very positive thing for poorer countries, or institutions, who might not be able to afford high journals subscription rates:

> *"I'm on the side of Open Access. It's beneficial to everyone. In Ukraine it's a big problem to buy articles because the government doesn't really support us. I see Research4Life as Open Access. Research4Life is the same as Open Access because you can read and download … For me it is the best option because science should be open."*
>
> ***Researcher from Ukraine***

- Issues around predatory journals and article processing charges were also cited in conjunction with Open Access.

- The survey will provide a clearer picture of the breadth of understanding (or misunderstanding) of the concept of Open Access and its relationship with Research4Life. We will be able to look at whether familiarity with Open Access depends upon geographical location, job type or academic discipline.

4.7 The COVID-19 pandemic

COVID-19 has had widespread effects in the ability to carry out and disseminate research work, although the effect is varied widely between disciplines and across geographical locations. The pandemic has increased the need for Research4Life, but has potentially limited the ability to use it for those who rely on institutional machines. It has also affected the ability to carry out face-to-face training programmes and, therefore, impacting on awareness and skills development.

The survey will give us a clearer idea of where the different disciplines and countries have been affected differently by the pandemic.

- People who could normally access Research4Life through their library faced particular problems:

  > *"It's just three months but due to the pandemic, I was not able to use the Research4Life for the last three months because of the lockdown."*
  >
  > ***Researcher from Papua New Guinea***

- A librarian from El Salvador (a Group B country) indicated that their budget had been reassigned because of the pandemic so that they could no longer afford to subscribe to services like Research4Life.

- Some pointed out that the use of traditional research materials like books was potentially more dangerous during a pandemic:

  > *"…at the moment we are living through the COVID-19 pandemic. And the pandemic inhibits the use of physical documents so that means that there is more and more need for electronic resources. I'd say that now, more than ever, we need more information resources in an electronic format to reduce the chances of transmission of COVID-19."*
  >
  > ***Academic from Mozambique***

- Impact of the pandemic is, understandably, particularly marked by those researchers who do fieldwork or need to travel during the course of their research. Some said that research had had to be put on hold, meaning their need for R4L was reduced. For others putting their research on hold was more problematic because their research itself was seasonal:

  > *"Right now I'm having a problem because I have one research going on in the Shan state, it is in the east of the country. And actually I went there monthly because we are doing horticulture crops and it's a short, short season. So you need to go there you know, you need to see them every so often. But it's like I couldn't go there for four months already."*
  >
  > ***Academic from Myanmar***

- Though the impact of COVID-19 was seen as largely negative, a few reported some positive aspects like the academic in Papua New Guinea who reported increased awareness of online meeting and collaboration tools, such as Zoom. A librarian from Rwanda reported increased use of Research4Life due to the pandemic and commented that the extra time spent at home had allowed more time for preparation of training materials for Research4Life – although the training itself had not actually been carried out.

In summary, the pandemic has increased the need for Research4Life, though it has potentially limited the ability to use it for those who rely on institutional machines. It has also affected the ability to carry out face-to-face training programmes and, therefore, impacted awareness and skills development.

The survey will give us a clearer idea of where the different disciplines and countries have been affected differently by the pandemic.

4.8 Suggestions for improvements
Interviewees made a number of suggestions for improving, or expanding the Research4Life platform, and guidance on how to use it. Suggestions to improve R4L fell mainly in five main areas:

1. *Increasing breadth of content*
2. *Improving supporting materials and information*
3. *Providing more training materials/services*
4. *Simplifying the interface*
5. *Improving search functionality*

4.8.1 Increase breadth of content
- Interviewees asked for more full-text content, a wider range of subject areas, and patent information:

    "Would like to see more journals and books available on R4L, especially in the health area."

    "But I think to make it more popular and convenient, it should open the access to more full-text materials to get fully materials is better. So there are some limitations, not yet too good."

    "What else would be good? Maybe some patents. Maybe it would be good to search patents alongside books and articles. Because I'm interested in new products it would be good to search alongside."

4.8.2 Improve information available about the content
- Interviewees made a number of suggestions for improving the information and guidance available, including adding pointers about how to identify "trusted" information, creating simple guides about Research4Life content, provide usage stats to institutions, and publishing success stories of Research4Life users around the world (this could be important in community building). Key comments on improving information on content were:

    "It would be good to know which are free to access and which are full text."

    "Maybe if there are some, some sort of short guides of what is in there and available. I don't know if she [librarian] could circulate that and provide ongoing information about the service and create more awareness on it maybe to increase the use, but it kind of now depends a bit on her initiative, too."

    "...R4L should be able to report back on usage."

    "I am of the opinion that when they attach some type of material to the platform, we have to be notified."

    "I would like to see success stories from users in different parts of the world within the R4L portal."

    "R4L doesn't have enough advertising about what is available."

    "Don't know how to collect stats from R4L, would like them so can improve usage."

4.8.3 Develop more training materials

- As explored in section 4.2.5 interviewees were keen to see a range of different training materials, including more use of YouTube videos (in different languages) and information about how to choose suitable journals

> *"In developing countries, if R4L can be able to provide some short-term scholarship within the Pacific region. The research is quite far, there is a big gap in understanding. They have the right notes sitting there, but they are not publishing it. The research needs to be published so others can access and see what are the gaps in these areas that need to be [addressed]. It will encourage more collaboration between international partners. Currently, it's not so I think."*

> *"I think they should work hard on the recordings via YouTube. Because nowadays people learn a lot in an autonomous way, right? Because the person has difficulty, goes to the internet, downloads a video from YouTube, you can follow some instructions. So I think that they should do that. Record in several languages and use each person depending on the language."*

> *"A mobile app for the R4L platform."*

> *"We want more YouTube tutorials to help."*

> *"R4L portal could provide pointers to people on how to identify sites or information that can be trusted, as researchers are sometimes inclined to look up YouTube videos and other generic sources of information."*

4.8.3 Simplifying the interface

- Interviewees referenced IP authentication, server stability and simplification of the user interface

> *"…is it possible to do it by other authentication eg IP?"*

> *"And if they could give us a way of registering the login details once in an institutional database so that students could access R4L automatically using their remote logins [without having to login to R4L each time]."*

> *"…make the platform 'simpler' and 'less cluttered'"*

> *"Is it possible to use the IP authentication so that they don't need to be logging in?"*

> *"So, yeah, to stabilise the server."*

4.8.4 Improve search and discoverability functionality

- Interviewees suggested improved interaction with other applications like EndNote and Mendeley, integrating referencing tools alongside search features and including search by ISBN. Key comments on improving search functionality included:

> *"A PICO-based browser for evidence-based medicine."*

> *"Change back to PubMed as the main browser."*

"On Hinari, if we could enter title of a research paper and year and could get full paper that would have been just great. In Google Scholar, it is just keywords that need to be entered. So, searching could be made more easier on Hinari."

"It might be good to integrate referencing tools alongside the search features."

"Lookup feature by DOI or ISBN – by entering either of these, the full text would get downloaded."

"…more options for filtering. And maybe, I don't know if it is possible, but this can be my suggestion, if they can find a way of grouping it that isn't the same thing as filtering the information, the journals, and we get to know where to find what and find it where. The grouping of journals should also be clear."

4.9 Developing a community of users

One of the most striking findings of the interviews is the degree to which the experiences of users from such varied backgrounds were not totally dissimilar. Indeed, many of the challenges, reflections on their R4L experiences and proposed solutions were shared. An interest in the experiences of fellow R4L users in other parts of the world is captured in the sentiment expressed by a researcher quoted above that they would "*like to see success stories from users in different parts of the world within the R4L portal."* It seems opportune to explore the interest and viability of such a community providing mutual support and learning to its members.

Is it viable to grow a community of users who share similar experiences, have overlapping academic (and other) areas of focus and interest, similar access issues, similar issues in searching for content, experiences of training, and in general responding to the research information needs of their disciplines. What was also evident is a need for these users to learn how to become better users of R4L. Wenger's[11] definition of a community of practice as "a group of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly", suggests that this may be a possible path for exploration by R4L and its users (both users and enablers) to improve the user experience. Enabling users to be in touch with one another for mutual support is possibly one way of strengthening the R4L user experience and generating innovative and shared solutions.

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[11] https://wenger-trayner.com/resources/what-is-a-community-of-practice/#:~:text=A%20community%20of%20practice%20is,It%20is%20very%20broad

Research4Life 2020 User Review
Survey Report

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1. Introduction

Since 2002 Research4Life has worked to address the information access gaps faced by researchers in less well-resourced parts of the world. Research4Life supports over 10,000 institutions in over 120 low-and middle-income countries, providing them with online access to academic and professional peer-reviewed content. There are five programmes through which content is accessed – Research for Health (Hinari), Research in Agriculture (AGORA), Research in the Environment (OARE), Research for Development and Innovation (ARDI) and Research for Global Justice (GOALI). Research4Life provides this service in partnership with the following organisations – UNEP, WIPO, ILO; Cornell and Yale Universities; the International Association of Scientific, Technical & Medical Publishers (STM) and more than 180 international publisher partners.

In support of the overall 2020 review objective "to gather evidence on the experience of users of Research4Life's five programmes across a range of countries, institutions and individuals, and to use this evidence to formulate recommendations to inform Research4Life's strategic decisions about its future", a survey of 1866 people was conducted in two phases. The first was between 3 August and 8 September; and then between 14 September and 6 October.

This report sets out the findings of the Research4Life user survey. It is structured according to five sections. In Section 2 we have a description of the survey objectives. Section 3 provides a summary of the survey design and Section 4 presents our survey demographics. Section 5 details our findings, under the three evaluation criteria of relevance, effectiveness and impact. A summary of the findings under each of these is presented at the start of each section. Section 5 also includes other findings on the impact of COVID-19 and Research4Life and Open Access. Section 6 summarises learning, but the implications of these key learnings in the context of the whole research project are discussed in the synthesis report.

2. Survey objectives

The main survey objectives were to build on the findings from the interviews to:

1. Explore the impact of the Research4Life programmes
2. Explore the perceived value of the Research4Life initiative
3. Identify key learning from users about what would most meet their needs and how Research4Life programmes could support this.

3. Survey design

The survey questionnaire (see annex 1) was designed in consultation with Research4Life. Comprised of 64 questions, it has three key routings – to Users, Enablers (those who facilitate access of use) and non-users. There are 13 main headings:
- General usage
- Users
- Enablers
- Non-users
- Satisfaction
- Technology
- Impact and value

- Community
- Open Access
- Publisher exclusions
- COVID-19
- Areas for improvement

Available in English, French and Spanish, the invitation to complete the survey was sent, in English, French and Spanish, to individuals on Research4Life's mailing list – including existing networks of researchers and information professionals and participants in Research4Life's massive open online courses (MOOCs). The message was also shared with publisher partners with a request for them to share with their author bases in relevant countries. INASP shared the survey invitation as a news story on the AuthorAID website and in its email newsletter. Research4Life, INASP and some publisher partners shared the survey invitation by social media (particularly Twitter). In addition, interviewers in this user review shared the survey invitation directly with interviewees and asked them to share it within their institutions. In total, 1886 people participated in the survey.

4. Survey demographics

4.1 Users and non-users

Early in the survey respondents were asked to describe their relationship with Research4Life. Of the 1886 respondents, 42% indicated that they neither used Research4Life, nor enabled others to use it:

Relationship	N	Percentage
Non-User	793	42%
Users	639	34%
Enablers	237	13%
Unspecified	217	12%
Grand total	1886	100%

The possible reasons for the high proportion of non-users, and what can be learned from them, will be discussed in a subsequent section. **The following demographic analysis will focus only on the respondents who did not identify as non-users** (describing the demographics of a group of people who DO NOT use Research4Life is of relatively lesser importance and including them in the descriptive data would significantly skew the results).

Therefore, except where indicated, 'respondents' refers to people who did not identify as 'non-users'.

4.2 Disability

A total of 18 respondents (2%) identified as disabled. They came from 14 different countries.

Visual disability was the most commonly reported type of disability (N=10). The incidence of different types of disability was as follows:

Disability type	N
Hearing	6
Learning/Cognitive	8
Motor/Physical	6
Visual	10

Note that the numbers add up to more than 18 because some people reported multiple disabilities.

4.3 Gender and age

Over two thirds of the respondents were male:

	N	%
Female	299	31%
Male	671	69%
Other	2	0%
Grand total	972	100%

The average age of the whole group was 41.3 years, with an age range of 19-81 years. Female respondents were slightly older on average than male respondents:

Gender	Age (yrs)	Min (yrs)	Max (yrs)
Female	42.4	20	72
Male	40.9	19	81
Grand total	41.3	19	81

4.4 Survey language

The survey could be completed in English, French or Spanish; 84% completed it in English:

Language	Number	%
English	820	84%
Spanish	40	4%
French	112	12%
Grand total	972	100%

4.5 Respondents by country

Almost half of the respondents came from six countries:

Country	No	%
Ethiopia	134	14%
Nigeria	82	8%
Nepal	67	7%
Ghana	59	6%
Uganda	58	6%
Kenya	47	5%

In Group A, 47 countries were represented (approximately 85% of eligible countries, contributing approximately 74% respondents).

In Group B, 26 countries were represented (approximately 60% of eligible countries, contributing approximately 21% respondents).

12 countries that were neither Group A, nor Group B were represented (approximately 5% respondents).

Country Group	No	%
A	716	74%
B	206	21%
other	50	5%
Grand total	972	100%

There could be several reasons why people based in countries that were not eligible for Research4Life completed the survey as users or enablers. Individuals could have relocated recently from countries that were eligible.

4.6 Organisation type

Almost one third of respondents who identified as either users or enablers of Research4Life worked in public universities:

Organisation type	N	%
University - public	308	32%
Government - national	113	12%
Academy of science	90	9%
Hospital	90	9%
University - private	76	8%
Research institute - public	70	7%
Other	60	6%
National or regional NGO	31	3%
Library/library consortium	31	3%
Government - regional	29	3%
University network	21	2%
International NGO	19	2%
Research institute - private	15	2%
Research institute - international	8	1%
Learned/professional Society	4	0%
National Research and Education Network (NREN)	3	0%
Open Access advocacy group	3	0%
Publishing platform	1	0%
Grand total	972	100%

4.7 Respondents by main discipline

Discipline	N	%
Arts and Humanities	41	7%
Biological Sciences	63	10%
Engineering and Technology	33	5%
Environment	35	6%
Law	5	1%
Life Sciences and Agriculture	112	18%
Medicine and Healthcare	251	41%
Physical Sciences and Mathematics	22	4%
Social Sciences and Business	56	9%
Grand total	618	100%

It should be noted that the total here (N=618) is lower than numbers for other demographic factors because, due to the nature of their roles, not all respondents identified as having a specific academic discipline – e.g. managers and librarians would not necessarily identify with a single discipline.

4.8 Role

Over one third of respondents who identified as either users or enablers of Research4Life, worked as lecturers or teachers:

Role	N	%
Lecturer/teacher	314	32%
Librarian	200	21%
Researcher	161	17%
Healthcare professional	131	13%
Student	77	8%
Other	41	4%
Management	26	3%
Technology support (including computer centres)	18	2%
Policy adviser	4	0%
Grand total	972	100%

4.9 Generalisability of data

Research4Life has been available to over 10,000 organisations (source: Research4Life website). From the present survey, we cannot determine how many organisations are represented. However:

- If each user in the survey came from a different organisation, then *at best* we have a 7% representation of organisations **for users** – i.e. one user in 7% of organisations using Research4Life

- If each enabler in the survey came from a different organisation, then *at best* we have a 2% representation of organisations using Research4Life **for enablers** – i.e. an enabler in 2% of organisations took part in the survey.

Academic research is a notably mobile profession – people often move between countries to pursue their career. Therefore, it should not necessarily be assumed that current location will represent location where the respondent had all their experience of Research4Life. This is illustrated by the fact that 5% of respondents claim to be in countries not eligible for Research4Life at all. This means that caution should be exercised in interpreting country as being 'country where Research4Life was used'.

While the survey may serve to highlight some issues in the wider population, any attempts to estimate the prevalence within that population will have a very wide margin of error.

Generalising from the survey population to the underlying population of Research4Life users should be done with caution.

5. Findings

5.1 Relevance

In this section we explore the extent to which Research4Life responds to the needs of its users. Eight key questions were addressed under this section:

1. What is the overall awareness of Research4Life and the content it provides?
2. What is the pattern of usage of Research4Life's programmes?
3. What is the user's experience of access to Research4Life?
4. What is the experience of users of the Research4Life helpdesk?
5. Degree of restrictions in the scope of research literature made available
6. Perceived subject coverage gaps
7. What is the experience of fees and payment procedures?
8. What is the user's perceived value of Research4Life?

Key findings - relevance

Overall, Research4Life remains a relevant resource for those who know about it and use it. Specifically:

1. Where there is awareness and use of Research4Life, positive experiences of accessing and using Research4Life resources are reported.
2. However, awareness of Research4Life is low in virtually all eligible countries as evidenced by the survey's response rates.
3. Hinari and AGORA had the highest proportions of users and frequency of usage among the survey population, although this may reflect the research interests of the majority of the survey respondents. There were some differences in usage by country group. Group A countries tended to report more frequent use than Group B. Access to computers was not universally available across the board. A third of enablers reported that access to computers was a problem in their organisations at least some of the time. While the majority of users could access Research4Life from home, over half reported that the cost of internet access or mobile data and IT quality all limited their access.
4. In all aspects of the use of Research4Life (i.e. searching for and finding information, logging on) the majority of users found it to be very or quite easy. Group A countries reported higher levels of positive user access over Group B countries.
5. A minority of respondents (20%) had contacted the Research4Life helpdesk. Of this group, the majority (96%) found it very (71%) or somewhat (25%) useful. There were no differences by country groups.
6. About a quarter of respondents (26%) had experienced restrictions in their access to Research4Life programmes. Reasons for the restrictions were mainly (a) the content was not available (b) the cost of accessing the materials (c) log-in or other technical issues or (d) poor internet.
7. The survey revealed a range of content gaps in the resources available.
8. The survey also demonstrated difficulty in paying for Research4Life – reported by about one quarter of Group B countries.
9. The vast majority of users described Research4Life as having value for their work – 62% rated Research4Life as "very valuable" and 31% rated it as moderately valuable.

5.1.1 What is the overall awareness of Research4Life and the content it provides?

The final tally of survey participants obtained was 1886 from two rounds of the survey. The first round of the survey ran from 3 August to 8 September. A second "booster" round was held from 14 September to 6 October. Considering the many channels, databases and networks, amounting to thousands of people, to which the survey was sent (see Section 3), this was quite a low response rate.

Among the survey population, 74% of eligible Group A countries took part in the survey. Among Group B countries, 60% were represented. For round 2 of the survey, we targeted the countries in which we had earlier conducted interviews, hoping that personal contacts made during the interview stage would help boost numbers. Very few additional respondents were gained.
Of the 1886 people surveyed, 42% reported that they neither used Research4Life nor supported others to use it.

These findings suggest that the levels of awareness of Research4Life and/or engagement with Research4Life resources among eligible countries is quite low. Additionally, the relatively low numbers in the final count of participants who *actually use* Research4Life resources suggest a relatively low level of awareness.

5.1.2 What is the pattern of usage of Research4Life's programmes?
Levels of usage

Hinari and AGORA attract the highest levels of usage at 67% and 56% respectively. ARDI use was recorded for 30%, OARE for 31% and GOALI for 23% of Research4Life users. The most *regularly* used resources were Hinari, reported by 48%, and AGORA, which was reported by 36%. These findings are unsurprising considering that 41% of the respondents identified themselves as being in medicine/healthcare disciplines and the second largest discipline category was life sciences and agriculture, which 18% worked in.

Frequency of use

- Just about a third of users (29%) described themselves as using Research4Life programmes "a lot".
- The majority of Research4Life users (64%) described themselves as using Research4Life programmes "sometimes".
- 7% described themselves as using Research4Life programmes "not much at all".

Usage by country group

- In general, there was a tendency for respondents from Group A countries to report more frequent use than those from Group B – 30% of respondents from group a countries reported using R4L "a lot" compared with 24% from Group B countries.

Main source for accessing research literature

When asked to name their primary source for accessing data, Research4Life had the fourth highest response among 12 sources as follows:

- 34% – Google Scholar
- 23% – Internet browsing
- 17% – PubMed
- 15% – Research4Life

The particular use of PubMed as a search tool was consistent with the high percentage of respondents who were in the healthcare space.

A very small number of responses suggested that illegal alternatives such as SciHub are also used.

Access to computers

- Respondents whose primary role was supporting others to use Research4Life (enablers) were asked about access to computers within their organisations. The majority of respondents (66%) reported that there are always computers available to access Research4Life resources. Just under a quarter (23%) said access is sometimes a problem while 7% said access is often problem.

Access to the internet

- Less than half of respondents (48%) reported always having access to the internet.
- Access to the internet was *sometimes* a problem for 40% of users and *often* a problem for 10%.
- 50% of respondents whose primary role was supporting others to use Research4Life (enablers) reported that access was sometimes/often a problem.

Cost of internet access or mobile data limits uses

- Over half of users (58%) reported that the cost of internet access or mobile data limits their use.

Home access

- 71% of users could access Research4Life from home

5.1.3 What is the user's experience of access to Research4Life?
Users' experience of accessing Research4Life was quite positive overall.

Looking at respondents who consider themselves to be primarily *users* of Research4Life, the most commonly used services are Hinari 67% (N=427) and AGORA 52% (N=333).

38% of respondents used more than one service. For those using multiple services, the most commonly used combinations were "All five"(12%), AGORA+Hinari (6%), AGORA+OARE (4%) and AGORA+Hinari+OARE (4%). The use of multiple services is important because some respondents commented on the inconvenience of having to switch between platforms to access all the information they needed.

Respondents were asked about the ease of logging on, searching and finding information in R4L by service, with multiple service users classified by their most frequently used service:

By service

- **Ease of finding information**
  61% of users reported finding information on Research4Life very or quite easy. The highest levels of satisfaction were recorded among OARE users (75%), GOALI users (67%) and Hinari users (62%).

- **Ease of searching**
  68% of users found the search functionality on Research4Life very or quite easy. Greatest levels of ease were recorded for OARE users (81%), GOALI users (74%) and AGORA users (67%).

- **Ease of logging on**
  68% of users found logging onto the R4L platform very or quite easy. The highest proportions were reported for Hinari (71%), AGORA (67%) and GOALI 64%).

ARDI users appear to consistently register the lowest scores for ease of access, although this should be interpreted with caution considering the relatively low proportion of ARDI users in the sample (only 4% consider ARDI their most-used R4L service).

It should also be noted that, despite high percentages reporting ease of logging in to the R4L platform, in a separate question about improvements (see section 5.4.1), 76% of users responded that they would find a simplified login process very useful.

By country group
When analysed by country group, Group A countries show marginally higher levels of positive user experience of access over Group B.
- 63% of Group A countries compared to 57% of Group B reported finding information very easy or quite easy
- 69% of Group A countries compared to 62% of Group B countries described searching as very or quite easy
- Little difference was recorded on ease of log on – 68% of Group A countries compared with 67% of Group B.

By "researcher" as a role
We sought to understand the specific experiences of researchers using Research4Life. 622 people identified themselves as researchers with varying amounts of experience as follows:

Researcher's level of experience	Number of years	%
Very experienced researchers (over 10 years)	Over 10	22%
Experienced in research	6 – 10	23%
Some experience in research	1 – 5	42%
New to research	Less than 1	13%

- 27% of the researchers were women. The highest proportion of these women (36%) was in the least experienced "new to research" group.

- Of those with the most research experience (+10 years) the higher proportion came from Group B countries (68%) than Group A (32%).
- There were large differences in the amount of experience by research discipline. For example, 41% of those in Biological Sciences had over 10 years of experience compared with 15% of those in Arts and Humanities and 17% of those in Medicine.
- Those with more research experience were less likely to be satisfied with the training available.
- Those with more research experience were less likely to be satisfied with organisational support available.
- Researchers with more experience were less likely to have completed a MOOC – 22% of researchers with 10+ years compared 37% of those with less than one year of experience.

5.1.4 What is the experience of users of the R4L helpdesk?

20% of participants had contacted the Research4Life helpdesk. Of this group, 71% found the experience "very" useful and 25% found it "somewhat" useful. The proportion of people who contacted the helpdesk by country was higher in Group A (21%) than Group B (15%). There were similar levels of satisfaction with the helpdesk in both country groups.

Respondents were asked whether any of the following three areas of assistance would be useful to them. Their responses are listed below:

- More online video tutorials – 73%
- More contact people for Research4Life within my organisation to support users – 65%
- More online support in other languages – 46%

5.1.5 Degree of restrictions in scope of research literature made available

About a quarter (26%) of respondents had experienced restrictions in the scope of research literature made available via Research4Life.

Materials were restricted in five main ways:
- The materials were not available:

"Some content was not available… Affected the richness of the thesis paper I was writing. And also it affected the trust students have that will find the resources on Research4life."
  – Male librarian from Malawi

- There was a cost associated with acquiring the materials:

"I was told to purchase important articles I needed for my study. I had to use alternate articles that were accessible to me without charges."
  – Female student from Ghana

"I can't find the information I need because it's not available without payment."
  – Female researcher from Yemen

- There were log-in/admin or other technical issues that restricted access:

"Difficult access at your home due to passwords that are not available and are very important."
  – Male lecturer from Tunisia

"Password changes everyday from my university. Only access at university."

– Male lecturer from Ethiopia

"I can't work in University all time, I would work from home, because the library restricted the time, this may affect the productivity of my research."
– Male lecturer from Sudan

- Poor internet:
"Unavailability of highspeed internet at home."
– Male librarian from Kenya

5.1.6 Are there perceived subject coverage gaps?

Some content gaps were reported by survey respondents. Some of the areas identified were broad, such as "Agriculture", "Education", "Humanities and Social Sciences", "Engineering", etc; others were very specific such as "Agricultural extension or Agribusiness", "Education and the environment", "Mycotoxins". In total, about 74 areas of perceived content gaps were identified in the survey. This information is available on request.

5.1.7 What is the experience of fees and payment procedures?

Respondents in Group B countries were asked whether they had ever had any difficulty paying for Research4Life. The question was asked only of enablers, that is people who indicated that they primarily 'support others to use R4L'.

Of the 57 people who answered the question, 26% had experienced difficulty paying. Countries that reported difficulty were:

- El Salvador
- Honduras
- Mongolia
- Morocco
- Nigeria
- Peru
- Vietnam

37% of those who had trouble paying were from Nigeria.

Many of the people who reported having difficulty making their payment provided their email addresses for follow-up by Research4Life. Some areas of difficult are enumerated below. Most revolve around issues to do with the rate of exchange and the availability of foreign currency. Some examples are listed below:[12]

- *"Since 2018, Vietnam has to pay part of the fee. It is difficult for my university."*
- *"It would be advisable to make the payment directly to R4L and not through an outsource as currency exchange is an inconvenience."*
- *"The procedure involves a rate of exchange of the dollar to the naira."*
- *"The problem of paying in foreign exchange."*

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[12] In order to include a range of perspectives without significantly increasing the length of the report, we have not included country, role or gender details within this list; this information is available on request.

5.1.8 What is the user's perceived value Research4Life?

Respondents were asked about the value of Research4Life to their work. Overall, 62% of respondents rated Research4Life as "very valuable" and 31% as "moderately valuable". There was a difference by country group with 67% of users in Group A rating the resource as "very valuable" compared with 47% of users in Group B. A small difference was observed between men and women in Group B, with a smaller proportion of women rating Research4Life as "very valuable" to their work. This difference was not observed in Group A.

59% of users rated Research4Life as "very valuable" compared with 71% of enablers, while 38% of users report Research4Life to be "moderately useful compared with 26% of enablers.

The effect of age on perceived value was investigated. The chances of Research4Life being perceived as 'very valuable' decreased significantly with increasing age – that is, older respondents were less likely to perceive R4L as very valuable than younger ones.

Experience of use of R4L is also significant indicating that with increasing experience in the use of Research4Life, the chances of Research4Life being perceived as "very valuable" increased significantly.

5.2 Effectiveness

In this section, we explore the findings of the survey in response to whether Research4Life is achieving its objectives.

Two key questions were addressed in this section:

1. Have users improved their skills and use of the Research4Life resources?
2. What are the levels of satisfaction with Research4Life resources?

Key findings – effectiveness

Is Research4Life achieving its goals for the user? Those who use Research4Life rate this resource as effective with the majority of participants expressing satisfaction of Research4Life on a range of issues.

1. Online training sessions were attended by 36% of respondents and other online training or tutorials by 37%. About one-third had participated in Research4Life MOOCs – more enablers (40%) than users (29%). 95% rated the MOOCs either excellent or good. The survey identified seven key areas of training requested including more online training, more face-to-face, organisation-based training, practical skills training, research skills related training and the development of training products.

2. Participants' comments indicated that training should be contextual and tailored to the needs of the institution. While the development of generic products is useful and valued, the evidence points to a desire for greater investment in local training capacity to design training approaches and tailor products that best meet institutional needs.

3. Generally, levels of satisfaction were high amongst Research4Life participants at 69%:
   - There were some differences in satisfaction between those who used different services - the highest level of satisfaction was among users of GOALI and lowest for AGORA
   - 78% were satisfied with available content
   - 53% were satisfied with the Research4Life training available.
   - 53% were satisfied with the organisational support available to users.
   - Generally, those from Group A countries reported higher satisfaction than those from Group B countries: Satisfaction with overall experiences – 70% for Group A compared with 62% for Group B. Satisfaction with content – 80% for Group A compared with 69% for Group B.

5.2.1 Have users improved their skills and use of the Research4Life resources?

Research4Life training

Participants were asked whether they had attended any of the following Research4Life training sessions listed below. The list shows that the two most accessed trainings were (1) online training sessions, attended by 36%, and (2) other forms of online training or tutorials, which were accessed by 37%. The least-used option was internal training offered by a group other than their organisation.

- Used other online training or tutorials – 37%
- Attended an online training session delivered by Research4Life – 36%
- Had training or mentoring from staff within your organisation – 24%
- Attended a face-to-face training session delivered by Research4Life – 20%
- Attended training offered by a group other than my organisation or Research4Life – 17%

Just over half of the respondents (54%) felt that there was sufficient training about Research4Life.

Research4Life MOOC

- About one-third (32%) had participated in the Research4Life MOOC (29% of users and 40% of enablers) although it is important to note that past MOOC participants were a significant cohort within the total body of people invited to complete the survey and so these percentages are not representative of the whole body of R4L users and enablers.
- Asked to rate its quality, 61% rated the MOOC excellent and 34% good. There was very little difference in satisfaction between enablers and users – both groups rated it highly, although users rated it slightly higher – 96% for users and 92% for enablers.

Other types of training that would be useful

From the qualitative data we identified the top training requests as:

- Online training
- Face-to-face training/ "training for my organisation on how to search the resources"
- Free online tutorials for researchers and students
- Research related training including research design, writing articles, advanced analysis including statistical analysis and publication of manuscripts
- Practical skills such as how to use Research4Life – "search content, download and archive content using different data extract tools from Research4Life"; "Advanced searches through Summon, accessibility to content (how to identify coverages, navigation in the different portals of the main publishers)
- Products such as user guides, videos, etc.
- Language training to use Research4Life more usefully

There was also reference to the *context* of the training e.g."Training in hospitals or other services with little internet access"; Government institutions are left out in my country. Need for massive training for government" as well as the *frequency* of training with some respondents wanting more regular sessions in their institution's diary.

5.2.2   What are the levels of satisfaction with Research4Life resources?

Overall experience of using Research4Life

69% of users were satisfied with the overall experience of using Research4Life.

Across the programmes, the highest levels of satisfaction were reported by those who primarily use GOALI and the lowest for AGORA:

GOALI – 80%
ARDI – 74%
Hinari – 70%
OARE – 68%
AGORA – 65%

Satisfaction with programme content

78% of respondents were satisfied with the Research4Life content available. The percentage was lowest for those who use AGORA (65%) and highest for GOALI (80%).

GOALI – 80%
ARDI – 74%
Hinari – 70%

OARE – 69%
AGORA – 65%

Note that the relatively low numbers of respondents for OARE, ARDI and GOALI programmes mean caution should be exercised when making comparisons between satisfaction for different programmes.

Satisfaction with training
Just over half (53%) of respondents were satisfied with the training available on using Research4Life. This figure echoes the proportion who thought that there was sufficient training on Research4Life, while highlighting a significant minority who provided details of the areas of training improvement needed.

Organisational support to users of Research4Life
Just over half (54%) of respondents were satisfied with the organisational support provided to users.

Factors Related to Satisfaction

We explored a number of factors that potentially could be related to different aspects of satisfaction – Country Group, Age, Gender and Experience of Research4Life use.

Only Country Group is significant indicating *satisfaction with content* differs between Group A and Group B countries. 70% of those from Group A countries are satisfied with the content compared with 62% of those from Group B countries, a difference that may be explained by the requirement for Group B countries to pay towards R4L content.

5.3 Impact

This section on impact explores the "difference made" by Research4Life as reported by its users. We asked three questions of participants:

1. How valuable has Research4Life been to your career?
2. What impact (positive and negative) have the Research4Life programmes created or enabled for their users?
3. What is the expectation that Research4Life usage will increase over the next five years?

Key findings – impact

Overall, the evidence suggests that Research4Life has made a difference and impacted the work of its users.

1. Almost two thirds of respondents (63%) rated Research4Life as being "very valuable to their career".
2. A higher proportion (75%) described Research4Life as having a "large positive impact" on their ability to carry out their work.
3. 87% of respondents reported that Research4Life has improved the *quality* of their output.
4. 78% reported that Research4Life has improved the *quantity* of their output.
5. 87% reported that Research4Life has improved their *research skills.*
6. The effects of age, gender, country group and experience of those using Research4Life were investigated. Age and experience were found to be significant factors:
    o AGE - The chances that R4L has had a 'large positive impact' decreased significantly with increasing age - the older the respondents, the less likely they were to report large positive impact.
    o EXPERIENCE - The chances that R4L has had a 'large positive impact' increased significantly with increasing experience - the more experienced the respondents, the more likely they were to report large positive impact.
7. Enablers were more likely than users to say that Research4Life has had a 'large positive impact' on their ability to carry out their work (84% vs 71%) and that it has been 'very valuable' for their careers (71% vs 59%) .
8. 74% of respondents expected their usage of Research4Life to increase over the next 5 years. Without significant shifts in awareness and the active promotion of Research4Life at institutional level, that expectation may not be met.

5.3.1 How valuable has Research4Life been to your career?

Respondents were asked to rate the value of Research4Life to their careers. 63% rated it as "very valuable", 34% as "somewhat valuable" and 3% as "not valuable at all".

There was no indication that gender has any effect upon perceived value– overall, 67% of men and 67% of women indicated that Research4Life was very valuable to their career.

However, we did find a difference between country groups, with respondents from Group A countries being more likely to say that Research4Life has been 'very valuable' for their career (67% vs 47%).

5.3.2 What impact – positive and negative – have the Research4Life programmes created or enabled for their users?
Respondents were asked to classify the impact of Research4Life on their research as "large positive impact", "small positive impact" or "no positive impact at all" on their ability to carry out their work.

75% rated Research4Life as having a "large positive impact" and 23% a "small positive impact" and 2% as having "no positive impact at all".

Impact by gender

There is no indication that gender has any effect upon impact – overall, 75% of men and 75% of women indicated that R4L has had a "large positive impact" on their work.

Impact by experience

81% of those with over five years' experience in the use of Research4Life reported that Research4Life had a large positive effect, compared with only 73% of those with less than one year's experience.

This effect might be explained by user persistence. Those with more than five years' experience are likely to be those who have persisted with the use of Research4Life platform, and people are more likely to persist if their impact of using the platform is positive.

Impact by country group

79% of respondents from Group A countries indicated that R4L has had a large positive impact on their work, compared with only 64% from Group B countries.

Impact by role

There were marked differences in the percentages indicating that Research4Life had a large positive impact on their work by role. For example, 87% of librarians claimed a large impact compared to 76% of researchers and only 65% of healthcare professionals.

Impact by users versus enablers

71% of users reported a large positive impact compared with 84% of enablers.

26% of users reported a small positive impact compared with 15% of enablers.

Impact by organisation

There were marked differences in the percentages indicating that Research4Life had a large positive impact on their work by organisation. For example, 92% of those working in libraries indicated a large impact compared to only 76% of those working in hospitals.

Factors related to impact

We further explored the effects of the following factors potentially related to impact – Country Group, Age, Gender and Experience of Research4Life use.

- Age was significant with a negative coefficient, indicating that with increasing age, the chances that R4L has had a 'large positive impact' decreased significantly.
- Experience in the use of Research4Life was significant indicating that with increasing experience, the chances that R4L has had a 'large positive impact' increased significantly.
- Neither country group nor gender were significant.

- Enablers were more likely than users to say that Research4Life has had a 'large positive impact' on their ability to carry out their work (84% vs 71%) and that it has been 'very valuable' for their careers (71% vs 59%) .

5.3.2 Expectation that Research4Life usage will increase significantly over the next five years

74% of respondents indicated that they expect their usage of Research4Life to increase over the next five years.

In the next section we will explore what respondents believed would facilitate their increasing use of Research4Life resources.

5.4 Areas of improvement: enablers and barriers

In this section we focus on areas of success (enablers) and challenge (barriers) for Research4Life as identified by its users. Two main questions were asked:

1. What are the main enablers and barriers that affect the use of the Research4Life programmes?
2. How desirable and feasible is it to foster a sense of community among Research4Life users?

5.4.1 What were the enablers that affected the use of the Research4Life programmes?

Factors facilitating use of Research4Life

Respondents were asked to rate, among a number of options, how improvements in those areas would improve their use of Research4Life. The list below outlines responses in order of those who rated them "very useful".

- Simplified login process – **76%**
- Simplified registration process – **74%**
- Compatibility with other research tools – **71%**
- Enhanced within-programme search facilities **– 71%**
- More Online tutorials – **68%**
- Enhanced searching across different programmes – **67%**
- A Research4Life mobile app – **60%**
- More training and support materials in other languages – **54%**

Barriers to the use of Research4Life that could be improved

Respondents identified five broad areas of improvement for Research4Life: Technology, Content permissions, Content scope, Training and Finance-related issues. Some illuminating comments that capture these needs are presented below.[13]

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[13] In order to include a range of perspectives without significantly increasing the length of the report, we have not included country, role or gender details within these lists; this information is available on request.

- **Technology issues**

  Technological and logistical aspects of access were mentioned as a key area for improvement, particularly the ability to log in to Research4Life programmes easily and regardless of location, as the list below illustrates:
  - *"Make is accessible even at home and outside the country as long as the person has the password."*
  - *"Improved federated login support for those without access."*
  - *"Include access without passwords and registration."*
  - *"Integration into other searchable tools using google search to access R4L platforms."*
  - *"The most important thing is to simplify access as it is an important factor that we have noticed by users when using any tool."*
  - *"Access across several devices."*
  - *"Access without the need for a country-specific account and password to log in."*
  - *"More access to research for scholars who do not reside within or close to their University of learning, especially for those who work and learn. This may be useful for them to harness the opportunity to use Research4life services in their locations as well."*

- **Content permissions issues**

  Some comments related to the content that is excluded from Research4Life. These comments may be related to content that is not currently part of Research4Life at all or they may be referring to the restrictions on Group B countries or individual countries that are subject to specific publisher exclusions.
  - *"Enhance access to more content, especially the restricted ones."*
  - *"Making it possible to access all articles under paywall."*
  - *"More open access materials from all possible publishers (journals, books, resources, databases and free collections), training, resources and advertising."*
  - *"Providing free access to the novice readers who want to read those articles related to art and humanities."*
  - *"Increased access to restricted content by publishers requiring subsequent contacts and/or payment for full text articles."*

- **Content scope issues**

  Other comments about content focused on expanding subject specific content, developing new products as well reviewing the approach to marketing the Research4Life "product offer" were central to issues of content for respondents:
  - *"Add more ICT content."*
  - *"Add more video content."*
  - *"Arts contents."*
  - *"Content nuggets and short highlights."*
  - *"Education area."*
  - *"I consider it important to strengthen Hinari with more impact publications – books and magazines."*
  - *"Bringing more publishers on board as possible. And also encouraging Elsevier to re-open R4L-enabled access to content in countries like Uganda."*
  - *"More provision of E-book databases such as SAGE Publications."*
  - *"More databases to cover military & security areas."*
  - *"Provide more information in the Dental Area."*
  - *"Research4Life should consider including business in its content programme."*
  - *"Science and technology areas."*

- *"Streamlining of the product offer would be helpful. Specifically, I think it would be important to go for a single brand for all of Research4Life programs, rather than having 5 separate portals, all with similar but slightly different offerings. It is confusing to the user. A single brand with a more seamless integration of resources would be a great improvement."*
- "To ensure that Research4Life platform is updated frequently with more relevant information."
- *"Work more with regional organisations to see how more local contents could be added to the database. Possibly reduce subscription fee particularly for users from developing countries."*
- *"Increase the collection of free magazines and books."*

- **Training issues**
  There were many suggestions of holding greater numbers of training but also more varied, flexible and institutional based approaches:
  - *"More face to face trainings are necessary to create awareness among researchers and academic staff and students on the relevance and content richness of Research4life. And libraries should get some financial support for conducting trainings and promotion for different users. I am thinking of giving information literacy on how to use and access Research4life for all freshman students when they join university. This should be given as mandatory for all students. And at university level we are thinking of preparing some incentives for university faculty to use Research4life."*
  - *"By organising central face to face training where ideas could be shared among participants/users of the programme."*
  - *"Interactive learning."*
  - *"Making MOOC trainings (new and existing) available throughout the year (at least more frequently). Additional discipline-specific trainings."*
  - *"On the tutorial courses administered online there is need to have some questions that will students to explain not just provide answers."*
  - *"Physical training of institutional resource persons; Funding trainings in institutions."*
  - *"Training of how to access and use the already available resources."*
  - *"More training and retraining are required."*

- **Finance-related issues**
  The focus of the finance issues for respondents was essentially eliminating the fee barrier by Research4Life:
  - *"Making Research4Life resources completely free."*
  - *"I will suggest that the Research4life platform and programs be made available to individuals and minor organizations who could afford the cost and meet criteria that are maybe different from that of Universities and the like."*
  - *"Increase funding for supporting training on how to access scientific publications."*
  - *"Provide research grants links for amateur researchers to grow the research skills and training."*
  - *"Making it possible to access all articles under paywall."*
  - *"Research funding."*

5.5 Fostering a sense of community among Research4Life users

5.5.1 How desirable and feasible is it to foster a sense of community among Research4Life users?

Because of the low response rate challenges experienced during the interview phase of this review and the seeming lack of engagement among respondents, a decision was made to explore the feasibility of and interest in developing a "community" of users.   Respondents were asked whether as a Research4Life user they felt they were part of a global network of community. 87% of respondents felt they were. They were then asked whether it was important to them to feel part of a research community – 96% responded in the affirmative.

Asked how a sense of community could be achieved, the responses were primarily of two types:

- The development and promotion of the network of Research4Life users
- Enabling greater access to the resources

Promoting a network of users

Most of the comments relate to the development of a platform that would enable and promote greater levels of communication and interaction amongst users, including:[14]

- *"… creating platforms that make it possible for users to interact and engage on issues to do with access and content. It is also important to continue with the use of MOOCs for purposes of training as that brings in more cohesion and exchange of ideas amongst users."*
- *"Be in the same discussion groups, webinars, online training, discussing issues …sharing information resources and skills, etc. Being in contact and communicate with those who share the same interest as yourself."*
- *"Connecting regional users."*
- *"Create a system such as research gate, that allows a profile to be created for interaction and sharing."*
- *"May be by creating specific pages for each speciality with the possibility to contact peers."*
- *"Linking people to mentees and mentors."*
- *"If it could be possible to ask technical questions to experts in various fields."*
- *"Through the constant leadership of the Research4Life team communicating possibilities we have in relation to their resources to meet the needs of our users."*
- *"By making face-to-face groupings of training by region and encouraging them to develop and conduct research projects together."*
- *"Discussion forums according to fields of research/according to region."*
- *"A sense of community could be achieved for research4life users through combined trainings such as MOOCS, physical regional and or local trainings, group work delegation requiring members to work together and interact, group projects that necessitate drawing group members from across the globe, and blends of varying academic qualifications and professionals."*
- *"Creating a platform for its members to interact of online; Organizing capacity building trainings for staffs and persons interested in research at district, regional and national level."*
- *"There should be partnership with regional bodies like AfLLIP [Association of African Law Library and Information Professionals] to target core professionals for training purposes.*

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[14] In order to include a range of perspectives without significantly increasing the length of the report, we have not included country, role or gender details within this list; this information is available on request.

Such partnership will increase the skills of these professionals to be able to access the database and give these professionals a sense that they truly belong a global community."

Some respondents, once again, identified issues of access as a means of creating a greater sense of community. Although these issues were not directly related to "community building" *per se*, they nonetheless underscore the high degree of importance that respondents place on access-related issues.

Social media
The survey also asked respondents to rate Research4Life's use of social media to engage users:

- 23% rated it as excellent
- 43% rated it as good
- 17% rated it as fair
- 18% did not know

Some believed that a greater sense of community could be expanding through a more active use of social media and WhatsApp.

Assessing the "internal community"

To get a sense of internal awareness, respondents were asked what else their institutions could do to promote Research4Life. As expected, growing the internal awareness of Research4Life was a frequent response. It was therefore not surprising that many comments were of the type below:

"Firstly, get acquainted with it and ensure all personnel are aware of its existence and become familiar with it to then use it a resource."
- Female librarian, Belize

What is quite revealing also, is the number of responses that talked of their organisations not being aware of Research4Life as indicated below:

"No one told me about it, so the first step would be start promoting it by e-mail, handouts and lectures/seminars (even online)."
- Female lecturer, Sri Lanka

The fact that 65% of survey respondents reported that their organisation did not sufficiently promote Research4Life underscores the need for greater levels of internal.

5.6 Non-users
793 (42%) of survey respondents identified as non-users - i.e. they said that they neither used, nor assisted others to use Research4Life. The non-users had a slightly different demographic profile to the users:

- Gender: male - 78%; female - 22%
- Country Group: Group A - 43%; Group B - 18%, neither - 39%
- Average age: 44 years

It is perhaps not surprising that there is a higher proportion from countries that are neither Group A nor Group B since these countries are generally not eligible to access Research4Life resources.

Of the non-users, only 19% believed that their organisation promoted Research4Life sufficiently. 85% expected their use of Research4Life to increase over the next five years.

Among a range of suggestions for improvements (Q67), the most useful was thought to be a 'simplified registration process', with 68% indicating that this would be 'very useful' – although this was still somewhat lower than the 79% of users/enablers who responded in the same way. In fact, the potential usefulness of all the suggested enhancements was lower for the non-Users; perhaps not surprising as many could be unfamiliar with the platform.

Non-users were asked for additional suggestions for improvements and, similar to other respondents, the non-users highlighted log-in simplification, wider promotion and expanded content in their suggestions.

5.7 Impact of COVID-19

5.7.1 Impact on work

Respondents were asked to describe the impact COVID-19 had had on their work – whether a positive or negative impact or no impact.

68% reported a negative impact, 13% a positive impact and 14% no impact on their work.

5.7.2 Impact on use of Research4Life resources

Respondents were then asked to report whether the pandemic affected their use of Research4Life. The response was mixed. Just under a quarter (23%) reported an increase in the use of Research4Life, over half (52%) reported no effect and just over a quarter (26%) reported decreased use.

5.7.3 How COVID-19 impacts future work

Respondents were asked how they believed COVID-19 would affect their work in the future. 68% believed that their work would be affected negatively, 13% said it would be affected positively while 14% reported that it would have no impact on their work.

On elaborating on their reasons, many people saw challenges where others saw huge opportunities opening up for their research. As remarked by one respondent: "it may open up a vast area for research".

Most negative impact scenarios revolved around restricted access to face-to-face engagement, restricted access to field work, laboratories and laboratory output. Comments also related to the need for greater levels of investment in protective gear needed for field research thereby impacted research resources available. Restricted access to research information was also mentioned. This comment by these respondents is illuminating for purposes of this study:

> *"Due to covid19 classes are online which has increased the demand for online information and this is where Research4life use is most necessary but its restricted use causes a negative impact, since our users cannot access this information from their homes since Research4life works with the university's IP."*
> -   Female librarian, Nicaragua
>
> *"Losing the budget earmarked for subscription and institutional internet service."*
> -   Female librarian, El Salvador

People also reported limitations in being able to conduct their work online or access online material where there is poor internet connectivity:

"Working at home lead to lack of internet access hence will not be able to login to Hinari."
-   Female librarian, Botswana

"I am not able to work as efficiently, as I am at home with young children who demand my attention for their education."
-   Female researcher, Mexico

Other Research4Life-related comments included:
"The effects in the long term I think are that my institution's library has restricted the number of users. So most of the reference services are been attended to effectively by referring the Research4Life resources."
-   Male librarian, Zambia

"I am a frontline health worker. So I no longer have time to use Research4Life."
-   Female lecturer, Nepal

5.8 Research4Life and Open Access (OA)
The survey put to participants three key questions on Open Access relevant to Research4Life.

5.8.1 Do you consider Research4Life to be an Open Access platform?
-   48% believed Research4Life to be an Open Access platform
-   15% thought Research4Life was not an Open Access platform
-   37% did not know one way or the other.

5.8.2 Does the increasing availability of Open Access articles make a difference to your use of Research4Life?
72% of respondents responded that Open Access made it *more likely* they would use Research4Life
22% reported that it made *no difference*
6% reported that it made it *less likely* that they would use Research4Life

5.8.3 What is the most important role Research4Life could play in assisting with APC waivers from publishers?
Most people (33%) of participants reported that Research4Life's major role is to "develop technology solutions so that relevant waivers are automatically applied to researchers logged into Research4Life when submitting articles".

Other potential roles commented on include:
-   Encourage publishers to be more consistent with APC waiver policies – 24%
-   Encourage publishers to be more transparent with APC waiver policies – 15%
-   Share central lists of publisher APC waiver policies so they are easier to find – 15%
-   13% of respondents did not believe there was anything they could do.

6 Key learning

Three key lessons learnt were identified from this survey. Unsurprisingly, many of them confirm the key lessons from our interviews.

6.1 Low awareness of Research4Life but significant appreciation of its value

- One of the key findings and reflection points of this survey was the low level of awareness and consequently use of Research4Life in many eligible countries alongside very positive feedback by people who do use it. Awareness levels would appear to be an important issue impacting the uptake of Research4Life programmes. While many people report technological issues of access and other barriers, these could not in themselves account for the low to total lack of awareness (among the wider research population) of a product rated as very much valued by many of those who actually use it. Reversing this low level of awareness would appear to be fundamental to shifting usage patterns.

- In reflecting on what specifically could be done to grow awareness (and consequently usage) the main themes centre on:

    - Raising awareness at an institutional level by growing local capacity for awareness raising within institutions
    - Having identifiable institutional contacts as focal people
    - Expanding awareness and training on how to use Research4Life at institutional level
    - Simplifying and expanding avenues of access
    - Broadening content
    - Repackaging/marketing Research4Life differently

6.2 A community of Research4Life users: learning through inter-connected systems

- The idea of growing a community among Research4Life users was attractive to the majority (87%) of respondents. The qualitative responses from respondents suggest an interest in connecting across research spaces for mutual support, solutions and opportunities to work with colleagues with similar research interests. However, it is not readily apparent that the time commitment and energy that would enable such a community to thrive is present.

6.3 Localised learning – unleashing local strengths

- The need for "local agency" is strongly suggested in this survey. However we define "local agency" (whether institutionally, nationally or regionally), the need for investment in local capacities and structures as a vehicle for enabling a greater uptake of Research4Life is clearly indicated. Research4Life is effectively placed to support the process, but the types of bespoke training, engagement, interaction and mutual support which respondents say they need must be developed locally.

Understanding the Research4Life user experience journey: case studies in Kenya and Honduras

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1. Introduction

As part of the 2020 Research4Life (R4L) user review, case studies were developed in two countries to describe the user experience and explore any potential casual factors.

In discussion with R4L, two countries on two continents were identified with significant differences to enable exploration of a range of experiences relating to R4L.

The first, Kenya, is a large R4L Group A country, with English as an official language. Honduras, in Central America, is about a fifth of the size of Kenya in terms of both area and population and is a Group B country with its official language as Spanish.

Considering country size, Honduras has a significantly higher number of R4L registered institutions than Kenya and also, in general, sees higher usage of the initiative.

2. Methodology

Research for the case studies consisted of three components for each country:
- Desk review of R4L data from the two countries, along with a light-touch review of national data relevant to the context in which R4L operates in the countries.
- 2-3 interviews with key R4L contacts and other key contacts within country (for example, someone involved in national library consortium)
- 2 focus groups with, ideally 5-8 participants from a range of institutions and roles within R4L

Interviews and focus groups were conducted via Zoom. The script for interview and focus group questions are included in Annex 1. Where appropriate, we also drew on the interview script developed for the interview portion of the R4L user review (shared in previous reports). Interviews and focus groups in Kenya were conducted in English; in Honduras they were conducted in Spanish.

Interviewees were identified by R4L (R4L contacts) and from INASP's existing connections in the case of Kenya.

Focus group participants were selected from a database provided by R4L. In selecting participants, we aimed to get a balance of gender, different types of institution, different cities, different roles with R4L and different levels of R4L usage. In practice this was something of a challenge because we experienced a similar issue to our experiences with setting up the interview portion of the user review; namely a very poor response rate.

In Kenya, around 150 emails were sent, resulted in around 15 people who responded expressing interest in participating in focus groups. The issue of low response rate was further compounded by connectivity issues. The first focus group successfully included five participants, although one further person attempted to join the call but was unable to get audio to work. The second focus group included just four participants during the call, one of whom was unable to join the discussion at all and a second who left after about 15 minutes. However, two further respondents who had planned to join the second focus group sent their responses by email. Overall, in Kenya we spoke to six men and six women.

The response rate was better in Honduras, with 115 emails resulting in 30 replies and 14 subsequent focus group participants. Overall, in Honduras, in the focus groups and interviews, we spoke to 11 women and six men.

The two case studies are presented in Sections 5 and 6. Summaries of key themes and recommendations are presented on the next page.

3. Key themes

Although the two Research4Life case study countries differ in location, language, economic status and size, there were some common theme that emerged, which also echo themes from the interview phase of the user review project.

Below we summarise some of the key points and discuss where differences emerged between the two countries; these points and others are discussed in more detail in the two case studies:

Usage

- Stakeholder discussions and R4L data suggest that usage of R4L is significantly higher in Honduras than in Kenya. Indeed R4L statistics show that around three quarters of R4L registered institutions in Kenya show poor usage, whereas in Honduras 30% of institutions show excellent use. This is somewhat surprising, as it might be anticipated that the country with free content and a high English-speaking user community might show higher usage. Some factors that may contribute to Honduras' higher usage are discussed below.

Awareness

- Awareness of R4L plays a huge role in levels of usage. Both case studies revealed institutions with high awareness – and high use – of R4L. However, the lack of response from people contacted, especially in Kenya, suggests that R4L is either not widely known of or not a priority for some contacts. Although Kenya has national-level advocates, including the country's R4L contacts in the UN and the national library consortium, there remains a need for awareness in the country. In contrast, R4L in Honduras seems to have attracted well-connected champions, especially in health, so that connections are made across various parts of the research system – librarians, researchers, practitioners, journal editors and government departments.

Changing R4L status and publisher exclusions

- The financial impact of Honduras' change from Group A to Group B was clearly felt, with many seeing it as a significant barrier. It clearly caused significant hardships for some institutions, especially in light of the COVID-19 pandemic.
- It was interesting that the implications of Honduras' changing status were not discussed as an issue of access to content so much as about capacity to pay, In contrast, the moves by Elsevier and Springer to exclude Kenya from the R4L offering were keenly felt and the most frequently raised issue regarding content.

Content gaps

- The most common gap discussed by Kenya interviewees was the removal of Springer and Elsevier resources, but there was also a desire for more Africa-related content. One doctor noted the need for more materials relating to treatment of conditions in situations where

equipment and drugs are not available. Another comment was that the R4L programmes include some journals – for example about Latin American history – that are less useful for research in Africa.

Language

- In Honduras, the biggest content gap was around language. With most of the R4L content being in English, there were some inequalities in who can access the content. Medical professionals tended to have better English than researchers in other fields, while South American students and researchers studying in Honduras tended to speak English less well than Honduran researchers.

Monitoring usage

- Librarians in both countries expressed desire to know more about how the resources are used in their institutions and would like regular usage statistics to inform their engagement with users.

Embedding in the national research community

- An interesting difference between the two countries was the level of national-level of engagement. In Honduras the level of engagement seems to have a significant impact on usage compared with Kenya.

Positive impact

- Both countries reported positive impact of R4L. However, the discussion of impact was significantly more positive in Honduras than in Kenya.

Registration

- Some people find the requirements of registering with R4L do not match the situation in their institution. The need for three or more contacts, which include a librarian and director, are not necessarily appropriate for all sizes of institution; in some cases directors are far removed from the provision of information access while in others there is no library.
- In Honduras, where payment is required, there are significant challenges with administration and currency fluctuations.

Country-level engagement

- Both countries have networks of engaged individuals. However, in Honduras the small size of the country, the prevalence of R4L in institutions and ministerial-level buy-in seem to have created a stronger community, especially around Hinari, that helps create a sense of R4L's role within the overall picture of information access in the country. The connections with Honduran journals was also an interesting factor and one that was not mentioned with regards to Kenya.

4. Recommendations

The final report from the whole user review will focus more on recommendations. However, recommendations are included within the individual case studies and the following is a summary of recommendations that specifically emerged from discussions in Kenya and Honduras:

User experience
- Address issues of content gaps, especially the impact of sudden changes as a result of changing economic status. Advocate for publishers to avoid sudden implementation of exclusions.
- Explore ways to include more locally relevant content, for example by expanding on the links with local publishing platforms.
- Increase the number of relevant Spanish-language resources, especially for users in Honduras and other Latin American countries.
- Consider expanding into new subject areas – in Honduras there was an interest in social science and humanities content; in Kenya the suggestion was for expansion into the areas of education, ICT and finance.
- Simplify the interface and improve the search process, so that users can reach the right content more quickly.
- Develop a mobile app, especially to meet the needs of healthcare providers and those doing research in the field or other situations where bandwidth is constrained.
- Support Open Access processes, for example administering APC waivers or serving as an intermediary for publishers in communicating about Open Access to potential authors and readers.

Dissemination and training
- Develop a network of local focal contacts, to follow up on institutions with poor usage and provide tailored support to improve awareness.
- Provide, and increase awareness of, more promotional tools for librarians, so that librarians can be better equipped to engage with their users.
- Support – and ideally provide funding for - national-level activities to increase awareness of R4L and follow up and provide support where there are cases of low usage.
- Embed training in R4L – and e-resources more generally - into undergraduate curricula and postgraduate training.
- Encourage more training and, crucially, ensure that training includes a training of trainers element so that insight from R4L training filters throughout institutions.
- Provide small training grants
- Strengthen and expand committed networks of R4L champions and foster senior-level support for the initiative (for example, through deeper connections with government ministries).
- Cultivate a more strategic relationship with faculty at universities
- Engage public agencies in the dissemination of R4L

Administration and management
- Provide librarians with more updated usage statistics – to help them identify their own needs better and plan their training and interventions. In Honduras, as a Group B country where costs are involved, usage stats could also help to advocate for registration.
- Improve the capacity to track logins so that librarians can have more confidence to release passwords to users without fear of penalties.

- Explore alternative payment schemes with institutions for countries where payment is required
- Simplify and clarify subscription and payment processes

5. Understanding the R4L user experience journey: a case study of Kenya

5.1 Context

Demographics

Kenya is a country in East Africa covering an area of 580,876 sq km with a population of around 48 million people, according to the 2019 Kenya Population and Housing Census.[15] Around 4.7 million people live in Kenya's capital Nairobi.[16] Kenya has a young population, with 58.64% of the people aged 24 or younger.[17]

The country has a diverse ethnic mix and a total of 69 languages.[18] There are two official languages, English and Swahili, and English is widely spoken in commerce, schooling and government.

Kenya ranks 109 out of 153 countries in the Global Gender Gap Index.[19] However, it scores highly on gender equity in the areas of educational attainment and health and survival (and poorly in economic participation and opportunity, and political empowerment).

Economy

According to World Bank and OECD data, in 2019 Kenya's GDP per capita was Kenya 1,816.5.[20] A person working in Kenya typically earns around 147,000 KES (around £1,000) per month.[21] Kenya is categorised by the World Bank as lower middle income.[22]

The biggest economic sector in the country is agriculture, with other major sectors being mining and quarrying; manufacturing; electricity and water supply; construction; wholesale and retail trade; accommodation and restaurant; transportation and storage; and information and communication.[23]

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[15] 2019 Kenya Population and Housing Census. Retrieved from https://kenya.opendataforafrica.org/msdpnbc/2019-kenya-population-and-housing-census-population-by-county-and-sub-county 15 September 2020

[16] World Population Review. Retrieved from https://worldpopulationreview.com/world-cities/nairobi-population 15 September 2020

[17] The World FactBook – Kenya. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/ke.html 15 September 2020

[18] Ethnologue https://www.ethnologue.com/; data retrieved from Wikipedia https://en.m.wikipedia.org/wiki/Demographics_of_Kenya 15 September 2020

[19] Global Gender Gap Report 2020. Retrieved from http://www3.weforum.org/docs/WEF_GGGR_2020.pdf 15 September 2020

[20] The World Bank data. Retrieved from https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=KE 15 September 2020

[21] salaryexplorer. Retrieved from http://www.salaryexplorer.com/salary-survey.php?loc=111&loctype=1 15 September 2020

[22] The World Bank data. Retrieved from https://data.worldbank.org/?locations=KE-XN 15 September 2020

[23] Kenya National Bureau of Statistics. Retrieved from https://www.knbs.or.ke/?p=690 15 September 2020

Technology infrastructure

According to the 2016 Global Information Technology Report[24] from the World Economic Forum (2016 was the last year of this report), Kenya was ranked 86 out of 139 countries for networked readiness. 73.8% of the population had mobile phone subscriptions, 43.4% used the internet and 12.3% of households had personal computers. According to the GSMA,[25] mobile internet penetration in the country in 2018 was 24%.

National strategy and development

Kenya Vision 2030[26] aims to create "a globally competitive and prosperous country with a high quality of life by 2030". and to transform Kenya into "a newly-industrialising, middle income country providing a high quality of life to all its citizens in a clean and secure environment". The vision is based on four pillars – economic, social, political, and the enablers and macros for these. The fourth of these pillars includes a focus on Science, Technology and Innovation (STI). Efforts to achieve this include increasing the progression from secondary to tertiary education and strengthening postgraduate training.

The World Bank[27] describes Kenya as one of the fastest growing economies in Africa. However, it also notes the likely impact of recent shocks, including the COVID-19 pandemic and also the 2020 locust attack, which has affected many parts of Kenya especially the North East and has had a negative impact on the food security and growth of the agriculture sector in the country.

Higher education and research

According to UNDP's Human Development Index (HDI),[28] 12% of tertiary age population are in higher education. The Global Gender Gap Index[29] notes that 9.7% of females enrol in higher education compared with 13.2% of males.

The Kenya Universities and Colleges Central Placement Service (KUCCPS) portal.[30] lists 68 universities, 158 colleges and 542 degree programmes. Kenyan universities are not well represented in global rankings. The Times Higher Education ranking[31] includes only University of Nairobi in its top 1500 universities worldwide, placing it 20th of African universities. No Kenyan universities are included in the top 1000 in the QS ranking.[32]

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[24] The Global Information Technology Report 2016. Retrieved from http://www3.weforum.org/docs/GITR2016/WEF_GITR_Full_Report.pdf 15 September 2020

[25] Retrieved from https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/07/Mobile-Internet-Connectivity-SSA-Factsheet.pdf 15 September 2020

[26] Retrieved from http://vision2030.go.ke/ 15 September 2020

[27] Retrieved from https://www.worldbank.org/en/country/kenya/overview 15 September 2020

[28] Retrieved from http://hdr.undp.org/en/countries/profiles/KEN 15 September 2020

[29] Retrieved from http://www3.weforum.org/docs/WEF_GGGR_2020.pdf 15 September 2020

[30] Retrieved from https://students.kuccps.net/ 15 September 2020

[31] Retrieved from https://www.timeshighereducation.com/world-university-rankings/2021/world-ranking#!/page/0/length/25/locations/KE/sort_by/rank/sort_order/asc/cols/stats 15 September 2020

[32] Retrieved from https://www.topuniversities.com/university-rankings/world-university-rankings/2020 15 September 2020

For the 2020/2021 academic year, 122,831 candidates have secured placement to degree courses in universities while 88,724 got placed in TVET institutions.[33]

In 2019 Kenya's National Commission for Science, Technology and Innovation (NACOSTI) unveiled[34] key national research priorities to align with Kenya Vision 2030. The priorities fall into research within five key areas: food and nutrition security; affordable housing; manufacturing; universal health coverage; and academic research and development.

Research information

There are 29 Kenyan journals listed in African Journals Online.[35] Much of the access to research information from outside the country is coordinated via Kenya Libraries and Information Services Consortium (KLISC).[36] KLISC negotiates collective subscriptions to electronic resources[37] for its 129 member institutions, which include university libraries, research institutions, public/national libraries and government agencies. KLISC also provides a search for Kenya's national archive.

5.2 Research4Life in Kenya

Kenya is a Research4Life Group A country. According to R4L data, there are 153 institutions subscribing to R4L in Kenya. The largest group is universities (54; 35%), followed by research institutions (29, 19%) and vocational training (23, 15%). Subscribing institutions also include 17 government offices, 15 teaching hospitals, four healthcare services and one national library.

R4L ranks usage levels worldwide into quartiles within in each institution type. Within Kenya, 19 of the institutions are defined as excellent users in their categories (12%), 12 (8%) are good users, and 11 (7%) are fair. A total of 111 institutions (73%) are defined as having poor levels of usage compared with others in their institution type worldwide. These poor users include the national library and all but one of the 17 government offices that subscribe to R4L.

In a contacts spreadsheet supplied by Research4Life, 370 separate institutions or institutional sites are listed. This number is higher than the total number of R4L institutions, presumably because multiple sites are covered by the same agreement. Nonetheless, the locations of R4L users give some additional insight. Although Nairobi accounts for nearly half (174) of all the locations of R4L users, there are a total of 74 different locations for R4L institutions, spread throughout the country. Several locations have five or more separate R4L institutions, including: Kisumu (23), Mombasa (16), Nakuru (11), Eldoret (10), Kakamega (6), Kericho (6), Kisii (6), Thika (6), Embu (5), Kilifi (5).

Although Kenya is an R4L Group A country, its size and status as a lower-middle-income country has opened it up to exclusions by major publishers in recent years. Recent commentary on this topic was one of the reasons for selecting Kenya for further study within this case study.

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[33] Retrieved from https://www.kuccps.net/index.php?q=content/education-cs-releases-20202021-placement-report 15 September 2020

[34] NATIONAL RESEARCH PRIORITIES 2018 – 2022, REPUBLIC OF KENYA MINISTRY OF EDUCATION, June 2019. Retrieved from https://scienceafrica.co.ke/kenya-nacosti-unveils-research-priority-areas/ 15 September 2020

[35] Retrieved from https://www.ajol.info/index.php/ajol/browseBy/country?countryId=110 15 September 2020

[36] Retrieved from https://klisc.or.ke/ 15 September 2020

[37] Retrieved from https://klisc.or.ke/electronic-journals-2/ 15 September 2020

5.3 The Research4Life journey in Kenya

Initial connections

The user journey begins with first hearing about R4L. The routes to this are a mixture of formal and informal. For many, they learn about R4L from friends or colleagues. In discussions, a common theme was librarians bringing knowledge of R4L with them when moving jobs. Another scenario discussed was a teaching hospital that learnt about the initiative when medical students who used it in their universities came for medical placements. Some others hear about it at conferences.

There are also more planned ways of discovering about R4L. The library consortium KLISC intentionally includes R4L within its resource training sessions and encourages new consortia members to sign up if they are not already. The R4L representatives in Kenya promote R4L at UN meetings and organise training (see Training section later).

Registration

Experiences with registering for R4L varied. Some people found it straightforward but others raised some challenges they had encountered.

The most consistent theme was the requirement to have the registration signed by three people including an institutional lead and librarian. This requirement does not align with the ways that many institutions operate; negotiating institutional hierarchy can take time, as these librarians shared:

> *"We are not under any director; we are an independent department within the university. So that information can be confusing and it can actually slow you down." (librarian)*

> *"I can't give my director's name without trying to tell him what exactly that is. And I felt that was a challenge because some of these databases, we own them as the library. I understand that aspect of it because of troubleshooting. But different institutions have different structures; looking for your director, because you need to get his approval to give his name and email for me, it slowed the process. In my case, it had to be the medical director, yet I had to try and make him understand what I'm giving his details for." (librarian)*

Meanwhile some institutions, especially hospitals, do not have librarians:

> *"We don't have a hospital librarian or anything like that, I just used the main institutional information, the generic hospital email address and things like that. A lot of the institutions that would benefit from [R4L] don't necessarily have all the support staff that other educational institutions do." (doctor)*

There can also be a challenge if there is a lack of senior engagement with R4L, as one researcher in a small research institution shared:

> *"As a junior [researcher] in the institution, I tried to share with the boss but he was a bit reluctant about enrolling for Research4Life because there is a process that requires registration and the library. So then I just left it. I tried to enrol individually but it hasn't been successful yet."*

Having participated in a focus group and heard librarians' experiences, this researcher felt more informed about the process and plans to reopen discussions about registering with R4L.

The case study process also prompted one university librarian who had used R4L extensively in a previous university, to sign up to R4L on the morning of the focus group. However, this librarian and others raised the question of why there is a delay of up to two weeks before registration is approved.

> *"If it can be fast tracked, then I think that would be good for the cases where people are eager to start using their resources." (librarian)*

There was a final point about the form for registering:

> *"They have an index [for countries] using numbers. You have to keep clicking on different numbers to see where you your country is. Of course, if you go systematically, you will have to run through all the pages before you reach your country. But if you had that index using letters, you could just click 'K'." (librarian)*

Usage

The interviews and focus groups represented a range of institutions across Kenya, including long-time users and institutions that had yet to sign up. They also represented a range of usage levels.

An interviewee from KLISC noted:

> *"I did a small survey [of KLISC members] some time back, just to find out how many people are using Research4Life. And I was shocked that people were not using it but when you go to the list, their institutions actually have access. I know of a few universities who have high usage because they do sensitisation consistently. But I also know of some that do not use it at all."*

Participants also noted differences in interest in using R4L depending on their job function and career stage. Residents at a teaching hospital reported using Hinari every week. This was partly to help understand the new clinical situations they are encountering and partly because they are set weekly research tasks by their university.

> *"If it's not already open access, Hinari is the most reliable resource we have for accessing articles." (medical student)*

In general, undergraduates were not seen as likely big users of R4L.

> *"I've observed that there is a difference in the way the postgraduates look for information compared to the undergraduates. I think the postgraduates are more receptive to the research information from the journals and from the proper databases, but the undergraduates tend to be very comfortable reading the textbook and the reading notes and they don't want the complicated stuff. Most undergraduate students may not be so much interested in high-end research materials because I think that their needs are a little bit superficial but where you have a huge community of researchers and postgraduate students [in an institution], the numbers will also be quite high." (librarian)*

Despite the low usage that some report, and that the statistics reiterate, there were also high-usage experiences shared:

> *"What makes me say that the usage is very high is if we are having a small problem, like it could be a technical issue, and Research4Life is down, you find that particular day we will get so many calls from our users - even before I know, as a librarian, that it was down. That gives me an indication that they are using the resource." (librarian)*

Another librarian at a high-usage institution noted:

> *"...it can be accessed anywhere as long as one has the institutional access password and internet, because our users especially those in the field can access. R4L is unique because it has databases that are subject specific and work as gateways to other major information platforms; health, environment, agriculture, intellectual Property and Law... it is a database that the users would have preference in relation to others.*

Awareness

A major factor in level of usage is level of awareness of R4L. A representative of the UN body coordinating R4L in Kenya noted a trend when users at subscribing institutions come to training:

> *"Some of them are not aware that their institutions are subscribed. And the librarians say that very few of the end users go to the circulation desk to ask for the username and password.*
>
> *"When you are processing the registrations of new institutions for joining R4L you find some institutions that are already registered. It means whoever is registering is not aware that his institution is already registered."*

This interviewee attributed this to lack of promotion within institutions.

> *"They are not using it because the marketing part has not been done the right way. The information is not getting to the right user. When we as librarians keep the information to ourselves it's a challenge.*
>
> *"The only time that they are able to market R4L is when they have a new group of students joining the university, when they have to complete that induction. So you can imagine being a new student and joining the university, and within one week, you have got so much information and before you get to get to the library all that information has disappeared. Sometimes the low usage comes because the information is not enough."*

(See the institutional promotion section below for discussion about approaches to awareness building.)

User interface

Aside from awareness, respondents felt that user experience of the R4L interface had an impact on usage.

"Some people I think, want very simple information. So if they go to a research article with the methodologies and everything, and they're thinking, Oh, no, I can't do that. Let me go to Google. So I feel sometimes that is where the struggle is." (librarian)

"There's a lot of user preference on where they want to get the information. You find a number of users sometimes don't go to some of these databases, maybe what I have observed, it could be just the challenge of navigating, or some people are also not too comfortable with some of these interfaces. I feel that we almost have to struggle as the information specialists on advising our users on where to go. At the end you find that they just want to go to Google and get whatever it is they are looking for. And if they can get it in Google, they wonder why they have to make so much effort in going into so called sophisticated interfaces." (librarian)

"The navigating all these databases for every vendor interface being very different can be very frustrating for any user, sometimes even for us as librarians." (librarian)

"The simplicity of interfaces plays a major role because I think, behaviourally, we are now dealing with a very frustrated and very impatient users. I think technology is leading to that - everybody is now expecting that everything should just be coming at a press of a button and you get everything okay. A user who finds any interface frustrating will always want to use Google as an alternative, because it is very simple, just open and you type, you get it and you move on. So simplification of these interfaces, and also the processes and procedures involved, can be a game changer as in the user usage." (librarian)

Searching

The majority of comments around the interface focused around searching. Several users noticed dramatic improvements in user experience when R4L added the Summon discovery service.

"Before they implemented Summon it was really hectic because you had to log in to Hinari or AGORA and had to go and search by such titles by the alphabetic order and then is really time consuming looking for something in a tropical insect science and you have to go all through the alphabet and there are maybe five pages of journals so that's really time consuming." (librarian)

"That lack of a discovery tool had been a major problem." (librarian)

However, there were some issues identified with Summon:

"I think there are unnecessary steps in Summon. It's very nice at the top there and you type in your keywords. But I feel the need to be a bit more fine tuning on the search capability of that discovery platform. Because I don't understand why when you search and it gives you keyword and you get your article, it still takes you to another page where you have to download the PDF. And a lot of users when they get to that particular page, think there's something wrong with the system and stop." (librarian)

"Sometimes it's just specific publishers that come up the first ones and if you want specific ones, you have to go click on the next page, the next page and all that, but I believe the answer to your question is if Summon can be improved, just as other discovery services should be improved, so that people can get resources, specific resources that they want,

without having to spend too much time, the filters and all that. That's what technology can do for us." (librarian)

"I feel fatigued. you have to go through multiple interfaces that are so different from one another. And you have to learn again, and you jump to another one. So it's really a pain of consumer." (librarian)

"I am only able to search for journals, as opposed to individual research articles, or just search using key words/terms and find papers in those topics. [But] at the end, I find it very impressive that when I search within the journals for the topics I am looking for, the results are very well organised, by volume and issue. I am therefore able to peruse and pick what is most useful to me." (researcher)

According to one librarian, Kenya is looking at having a nation-wide unified interface for all its research databases. However, this raises different issues with R4L:

"I have a discovery platform where I've linked all my subscriptions, the ones that we get through KLISC so it's a one stop shop, search and we get access to all the other databases. But we know that's not possible with Research4Life, there is no way to get Research4Life in, let's say, EBSCO Discovery Service, so that I get access to all my subscriptions in one search box; it's not possible. And you know, the user does not want to know that Reseach4Life is free and this one you paid for it. They just want one search box that can give them access to all the resources that the university or the institution has access to. It's not easily achievable because I believe Research4Life has their own reservations in terms of privacy, of content. And that's why they wouldn't be willing to provide them open URLs to these databases that can be embedded on the discovery service to enable one meta search."

Connectivity

Internet connectivity was a common comment. Indeed internet connectivity was responsible for considerable difficulties for some people in being able to join the focus group calls. Connectivity issues depend on the institution. One participant, a medical student, had been studying an one university where the connection was very bad and then found the connection was better at the teaching hospital, although they thought this could also be due to technical issues related to the university's R4L account.

One librarian who had recently moved universities shared the experience:

"When I joined the new university there were a lot of challenges in that place. We found a place that was devoid of most of these sophistications - ICT network infrastructure and so on. I have played a big role in ensuring that our university actually installed all these infrastructures in place. We now have them and we are now in the process of actually building up online resources and platforms."

Another librarian observed:

"Most universities or institutions that are using these resources are at different levels of development. I think being at a higher level will also affect the usage. If the bandwidth is not good enough, and you're having a very large team actually fighting for that, it affects also

the availability. Also the availability of relevant gadgets like computers, laptops and smartphones."

Content and the impact of publisher exclusions

Librarians expressed appreciation of R4L content. However, an overarching theme of discussions was frustration that Elsevier and Springer content is no longer available in Kenya, with many saying that this is having a detrimental effect on usage of R4L overall.

"I feel like this publisher dangled the carrot at the beginning. And somehow when we got hungry for the content, they pulled the plug, and people are very upset about it. And that affected a lot of our usage."

"I believe our income has not changed that much as a country. Somebody mentioned that it could be because there are some institutions and countries that have engaged directly with these two publishers - although to the best of my knowledge, I don't think there are many institutions that have subscribed to Science Direct, the whole package. I only know a few that have subscribed to packages like the Clinical Keys collection for   medical students, or SciVal, but not the whole package."

"I think most important is our users who rely so much on the quality of Elsevier and Springer are disadvantaged right now. And I would request that this study could give some recommendations for this to be reinstated. Because as it stands, our financial muscle mass has actually gone down. And we all know that COVID-19 has actually worsened things. I would really appreciate if we would actually get the access that we used to have for all these resources."

"I don't know what it is that publishers are looking at. Our appeal is if the Research4Life would try their level best to put a case for Kenya as a country because we have been left out in very useful resources."

According to stakeholders, the issue is not simply about access to materials from these two publishers; it makes the whole offering less appealing to users.

"Our users don't even know the name of the publisher. But in any discipline, there's what they call the core journals. So if I am looking for journal XYZ I just want to find it there. I don't think they understand who Springer and Elsevier and all those are, but it means if I go back and I don't get it, then it becomes frustrating for the user. And in the case of health, I noticed it was always the big publishers in the industry are the ones who pulled out first. And unfortunately, they're the ones who seem to have that core journal. And that affected usage." (librarian)

"If they are going into the databases, to Research4Life because of a set of certain resources, and suddenly they don't find them, they now stop going there. There may be alternatives, but it could be a reason why they wanted that particular resource." (librarian)

"Key publishers like Elsevier cannot be accessed and this is a platform that has a lot of scientific information. So we have had a lot of complaints and we are now going to be forced to subscribe to this publisher separately which could make most of our scientist rely more on this than R4L because we get numerous requests for full texts from this publisher." (librarian)

The lack of content from these two biggest publishers, according to one librarian, is also driving users to alternative ways to access content such as Sci-Hub:

> "I can tell you the impact is that people have resorted to using illegal means. I don't want to mention that database but I know that you know that database."

Another point raised was about the impact on publishing:

> "Let's just look at publishing; more members would be able to publish in these journals if they had accessed some of the content in them in the review, but now that has actually reduced because the access is limited and the people are resorting to other publishers which is a disadvantage." (librarian)

But there was a reminder that there is still plenty of other content in R4L.

> "I think it's now that we need to change the perception of these other resources and stop focusing so much on the top because you will also find those who are writing for the top publishers they are also publishing with the other publishers. It's just a matter of changing the perception and embrace the access."

Although the issue of Elsevier and Springer dominated discussions about R4L content in Kenya, there were also comments about the geography of content.

> "Not many of our journals from Africa are in Scopus or Web of Science. They're not published by these huge publishers so they don't make it. Whether [the information in R4L] is from Europe or America, it's still relevant - but some of the things that we get will not be relevant for us. For example in social science and humanities I'm talking about, maybe, history of America or Latin America; we get these among the journals available for free, then it becomes irrelevant for us because we want to know the history of Africa." (librarian)

Similarly, a doctor mentioned the importance of relevance to local context:

> "For those of us especially primary care providers who are working in resource-limited settings, some of these other sites that have a lot of clinical summary type of information are really written for a Western setting. It would be helpful to have summaries written more for research in limited context. It would be helpful, you know, to have [answers to] questions like: 'how do how do I diagnose and treat MS when I don't have access to all the fancy drugs or even have an MRI?' or 'what is the best approach to lupus?' I think those kinds of things would be valuable."

Authentication

There was significant discussion about authentication. R4L's data on the most prevalent approaches to authentication in Kenya was not available to the user review team. However, amongst the people spoken to during this case study it seems that the use of usernames and passwords still seems to be the most common approach in the country, although some are using IP authentication. Some issues and concerns were raised about both approaches.

> "Some of our users do not take note of [the institutional login] and some confuse the login for example use small letter instead of capitals. Then we get complaints that the logins are

not working. So we normally keep circulating this to our users and have also posted print outs in the library especially the reading area." (librarian)

Participants saw IP access as beneficial on campus:

"People are used to IP authentication [with other resources]. So when they go to the AGORA page or OARE page and they find the if they're not logged in, and maybe they don't go to the library and get the correct information then they assume they don't have access." (librarian)

However, for some, passwords and login are still preferred because of the flexibility of where to use the resources.

"Especially when you think of the Masters and PhD students, most of them are out of the university. And they want to use the resources when they are at home. So most of the universities do not want to sign up for the IP access."

In addition, sharing IP addresses with other bodies can be a challenge, including for the UN organisation responsible for R4L in Kenya.

"Within the UN compound there are so many, many agencies that are using the same IP. So if you are sharing the IP, then it means the information can be used by the wrong agency. We have FAO, UNEP, UN habitat, UN Women … but it's only those agencies that administer R4L that are allowed to access it. At the same time, with IP authentication, if like you want to know what the usage is within UNEP how do you determine that when it can be used by FAO or any other agency?"

One librarian mentioned the benefit of the remote access portal for addressing some of the issues around off campus use:

"Recently, we've installed the remote access portal. So with this one, they don't need to use the password once they log into the portal, they are able to, they're able to get into the databases and that worked for us very well, especially during this time when most of them are working from home with a portal."

Related to authentication comes the issue of how much librarians share login information and how much they are gatekeepers.

Penalties

Part of the reason for caution in sharing passwords too widely comes from concern about losing access to R4L.

"I know Research4Life has been using username [and] password for a very long time and I was finding it had its own limitations, they have their usage policy on what you can do. I remember two of them because we used to preach it like the gospel truth: do not use it out of the country, do not share it on your website. I mean, there's a long list. I don't even remember the rest. But those two, I used to keep repeating and repeating it. But I just wondered one time that why would it be such a problem? Because you also start controlling the username and password I feel it actually does not then serve the purpose. And again, when you start giving out the username and password, you almost accept liability on how a

user is going to use it within the country. So it becomes such a delicate balance for us as a librarian.

Two of the librarians in the study spoke about their difficult experiences of being blocked from R4L.

"As you know, R4L is very keen on the rules that you sign the agreement. I think there was one user that did a lot of downloads. So I got an email from R4L and we were actually suspended for a while."

This meant putting measures in place to avoid the situation happening again.

"I came up with a policy on what should be done before somebody is given a username and password. So anybody who was coming for Research4Life access, they give us the IP address. But of course, we're talking about 100 of us [researchers] in total. So it's not hard to keep track. So we were taking the IP address and we put it in our small registration database. And then we provide you the user name and password and you sign a document saying that if you are found to have breached the contract, your IP address is part of the contract measures which are important. So that was one of the tough measures we put in place so people do not abuse this wonderful opportunity that we get from Research4Life to access many peer reviewed resources that would have otherwise been very expensive, but we are getting it for free. So this is what we've put in place so now everybody who gets the password, the username has to provide us with the IP address and has to sign that document."

For the other librarian who discussed the issue of being blocked, the issue was resolved by moving to IP authentication.

"I'm sure there's some sophisticated system that should block you if you're not within the country. I find that a very big challenge on the part of the librarian. I was so delighted that we can control the usage through the IP. So right now what we are doing is we are using IP authentication."

Monitoring usage

In a focus group of predominantly librarians, the issues of usage and avoiding penalties were closely aligned with the issue of data. The librarians reported that R4L does not send out usage statistics unless particularly requested.

"I think that is a crucial point in terms of usage statistics, because all other databases that we tend to subscribe to the issue of statistics comes up. Maybe Research4Life because it is free that might not be a major concern. But you find the ones where you're paying, even when you don't ask for them [for usage statistics], they just push it your way, maybe just a way of justifying that they're being used so that when they send you that invoice at the end of the year you will not question whether you really need this particular resource. But like what has been mentioned, I feel this is an area that needs to be looked at in terms of just sending regular usage statistics without having to ask for them. Because even from our end, we would like to see it. We could be training our users, but I feel would only measure the success of that effort as librarians by looking at the usage statistics. So maybe it's something that Research4Life would consider."

"It's high time also to try and request for this kind of information just to help us see how we can improve our training."

Beyond receiving usage statistics, it is important to have the skills to interpret them and make decisions on the basis of them. One interviewee recently participated in an online tutorial on Monitoring and Evaluation of E-Resource Usage, which was developed by INASP and piloted in the first half of 2020 by library consortia in Kenya, Uganda and Ghana.[38]

"I attended one of the INASP trainings on monitoring and evaluation. That was really intensive training. If that can be done for Research4Life, I believe the usage will go up drastically."

Institutional promotion and support

There was significant discussion about the challenge of building awareness of R4L within the communities of potential users. From the R4L contact person's perspective there were a few approaches to use:

"I find when you have several pull up banners, may be at the entrance of the library or strategic points where people can just get to learn, within a few minutes they are able to pick up that this thing is happening. You know, people can be able even to make follow up and use the resources. You find that most of the institutions are saying we have pointed to them that if you go to this website, you can even get these training materials that you can use, you can have your own. but how many of them make use of it? Very few. So we were asking them if we can make sure that this information is available at the point at the circulation desk, at the entrance later on.

"I think the main challenge in Kenya is the marketing part to users. We can improve, even the marketing strategy for R4L because you go to the R4L website, where you have all those premium materials, but maybe we need to do a different strategy to bring up this information. Those PowerPoints, yes, they are good and they are relevant and they help the user get to the resources but who knows about those resources?"

KLISC organises knowledge ambassador workshops and other approaches to making connections with e-resources within institutions.

"What works most is individualised promotion campaigns, like going to specific universities, holding, let's say, e-resource week, bringing together faculty and telling them that when you go to class, when you're giving assignments, ask your students to refer to Research4Life resources. I believe that's what works most because the faculty are the focal points in terms of reaching out to undergraduate students. It's much easier when [students are] given further readings or in a given assignment, tell them go to the library, get a username and password for Research4Life. Go and access this database, get a journal critique, submit your work, it's easy. There you're able to really get people accessing these resources. For graduate students, we can do that as librarians because we can have information training sessions where we enlighten them on the best resources, or even if it's direct, one-on-one training.

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[38] One of the authors of this report was involved in this pilot but did not ask any questions about INASP during the interview.

"We have a specific day where at least 10 people from universities of the region congregate in one university. And then the quite a number of activities like questions about the databases, questions and all that. And then of course, prizes. The winner getting on iPad or a laptop you know, something like that. That has worked. We've done it since 2013. I'm not saying we just speak about Research4Life, we speak about all e-resources. So, we have somebody speak about Research4Life, we are going to speak about the resources that we subscribe as KLISC. And from there, students are aware, and we call them knowledge ambassadors, so when they go back to their universities, they actually help us increase awareness campaigns – they put posters, they talk to their colleagues. Most of these knowledge ambassadors are either in the Student Unions or the academic boards."

Appropriate institutional support is also an important part of effective R4L usage, as this librarian noted:

"For some users, you just direct them and you give them with the instructions and they are able to go to these databases and get the Information themselves, but there are those who will tell you that I've tried and cannot get so please get these things for me. So, they are those that you will have to search for them and send these materials to them. So it depends on their level of understanding of how the database works."

"As librarians we have to come in and really offer support to some of these users to ensure that they can retrieve relevant information in terms of their Research4Life."

Training

Training in R4L is an important component of successful usage. As one librarian observed,

"Sometimes we just assume that our users, the moment you give them a link, they'll just go there and retrieve."

Instead, the groups noted that active support is needed:

"In our institution we try as much as possible to do information literacy classes to train the users. I can't say we have we reached the mark of making everyone comfortable, but we just keep carrying on those training, hoping that they will use the so called, quote unquote, the right information, especially for decision making."

"In our case might be a little unique because in addition to the trainings that we organise as the library, we have been privileged in the sense that information literacy has been integrated in the curriculum. And you find that whenever we add training, Hinari is always a database that we will cover. So, you find the will always hear about it from us and I think that increases the usage. From the point of the librarian, how we communicate to them and make them understand the importance of this resource is very key."

The institutions with more training and engagement tended to show higher usage:

"I took an opportunity to begin an initiative some years back to train the users on how to use the R4L database. The users would give the librarians their searches which was very difficult at times due to the terminologies that might not be too familiar. Hence I decided to train them because they know their information needs. We carried out numerous training to all

our centres. This was adapted and has now become mandatory that every quarter the Library is required to carry out trainings to users on how to access online information R4L being our lead database because it is the one that is commonly used. This has enabled the library to be recognised as the main hub of information and backbone to research." (librarian in a high-use institution)

"The librarians in our institute have been very instrumental in bringing awareness about R4L to the researchers. They take advantage of postgraduate student orientations; short courses and running seminars, to inform the community about R4L, how to access it, how to use it and even make themselves available to small groups and individuals who want to understand the process better." (Masters student in the institution referred to in the quote above)

The R4L contacts in Kenya also aim to support this:

"If there's a UN meeting in our offices I make sure that I provide the brochures and any information in case there is a user there. And at the same time, we have a group of librarians in Kenya. It is a collaboration between the United Nations in Kenya and the university libraries. It's once in a month we meet and discuss and share ideas.

"I go to where we are having the UN university librarians meeting, whichever university or even within the UN. At the same time, every time there is a major meetings. at the UN complex, we take advantage and present R4L to the people who have come here, especially when they are meetings for the developing countries."

But this can come with some challenges:

"When we did the first training not many people turned up. I had some send so many invitation letters and one of the questions participants were asking me are we getting paid. Actually the only things we provided were the stationary and the water and the cup of tea but there are those ones who feel that anytime they are going for a meeting, you have to give them a per diem. We said no. At the same time when you look at where the universities are - because it was a mix – not many are in Nairobi. And so many of them have to use transport to get to Nairobi. And for some of them it was very expensive and the institutions were not willing to sponsor them to come for this. So you see, as much as you want to help them, even institutions are not to be able to support - yet their students are the users are the ones who are benefiting."

There was also discussion about the new R4L MOOCs:

"One thing I've learnt is people use these online trainings. I remember that Kenya is one of the countries with the highest number of participants - and they spread the word in the different forums that we have."

"I believe the MOOCs are a better approach, because it gives the librarians that chance to be very well versed with Research4Life, resources, navigation, the papers, everything so that when they go to information to the training, the orientation, then they're given correct information. But if we just rely on what the website, it's a behaviour, people don't like spending so much time on such pages on the website. Very few people use the help button on any website, or the or the frequently asked question tab."

Need for training of trainers

Training individuals is not enough though:

> *"After the training getting to the other users becomes a challenge."*

> *"When they come for the training, we think eventually they go to train the other ingredients within the institution. It doesn't happen."*

> *"You will find there are institutions with different off-site campuses and so they are not able to communicate; it is only the main one, the other campuses are not registered. And when you train the librarians from the main university and leave the rest, that is what will happen. there's a lot that needs to be done in terms of training more, more and more."*

The suggested solution is to not just do training but also training of trainers, to equip those who have participated in the training to pass on the information to others.

Connections within country

Training is also a way to build up wider connections within Kenya around R4L. An R4L contact in Kenya discussed the role of a group of university librarians in Kenya, along with the United Nations in Kenya. This group meets once a month to discuss and share ideas.

> *"We thought it would be a good idea to share experiences and to see ways that you can collaborate. Many universities have signed up. And we now go beyond just discussing the resources, but also our challenges and user experiences."*

This interviewee suggested building on this network and appointing focal points:

> *"Maybe if we had more resources and maybe have a few more focal points. We could use this to deliver this training and follow up on the usage, looking at the statistics and asking why, especially some of those institutions where they are not using.*

> *"When you're processing the registrations of new institutions for joining R4L you find some institutions that are already registered. It means whoever is registering is not aware that his institution is already registered.*

> *"I think we need to deal with that. And that is why I was thinking maybe if at all that could be a group that can be that can be tasked, especially with follow up with these institutions to get feedback from the users. I think that maybe will raise awareness and increase usage. But to form such a group you need finances."*

5.4 Impact on user

In addition to exploring issues and challenges, interviewees and focus group participants were asked about the impact of R4L in Kenya and there were plenty of positive comments.

A researcher, who is not yet a user, is hopeful about the potential benefits:

"Getting access to Research4Life information will be key because we will be exposed to a greater pool of data and information, scholarly articles, which we can back up because we do research. And also we do proposal writing some things like that. It will give a wide pool of scholarly articles, which we can refer to, and we see what has been done, as opposed to just going to the internet and checking Google. We'll have more authority. I'm a research-oriented person and I do a lot of article writing. But getting access to Research4Life information, I believe, is going to push me to the next level as an as an individual and as well as an organisation, which is focusing on research."

Librarian comments echoed these hopes:

"It's definitely been a helpful piece of that whole puzzle. And I think it'd be tougher, you know, definitely to do our jobs without it." (librarian)

"The use of these Research4Llife resources adds a lot of value. I think this is mainly owing to the choice of the subject areas that they are focusing on. We all know how COVID is now trending because it's a health issue and many other things are going to come up HIV and AIDS and so on. With agriculture, we're talking about food, and environment is also very important, and development and innovation." (librarian)

"Research4Life has really helped a lot. I think the impact is quite notable. It cannot be missed. People know that when you get a padlock on Google of a resource, you go to Research4Life and you can access it so what I believe is that has been able to bridge the gap of knowledge in Kenya and abroad. Our users are able to access the same resources that the users in in America or Europe are accessing. Of course, this statement is not so valid now that Elsevier and Springer have pulled out." (librarian)

Access via R4L also has an impact on publishing:

"Our publication stats are also informed by the kind of resources that we are able to access. So the publishing output of Kenya as a country is reliant on the kind of quality content that we are able to access. And of course, if I read content from a journal, and I like the kind of content that I get there I'd be more inclined to publish a paper with [that journal]. So in terms of impact, I believe you will see that Kenya has really gone has really increased our publication output." (librarian)

The impact on publishing is not just for authors but for others in the editorial process:

"It helps me to be able to do thorough literature review on my topics of interest, hence produce professionally researched work. In my role as an Editorial Assistant, it also helps me to double check submitted manuscripts, to ensure that we are not duplicating already published works." (researcher)

It also holds potential for assisting in Kenya's future development, according to one librarian:

"The Kenya Medical Research Institute and the Ministry of Health is introducing the Universal Health Care (UHC) in the different counties so as to know the country's output in the health research sector and this will require libraries that will need to access information. With limited resources platforms like R4L are key." (librarian)

5.5 Recommendations for further work

Based on the analysis of R4L's implementation in Kenya, the following recommendations emerged as extensions to R4L's work or new areas to move into.

User experience

Advocate for Elsevier and Springer to not exclude Kenya

A recurrent theme in this case study was the negative impact for Kenya of losing access to content from the world's two largest scholarly publishers. Many pointed out that their institutions are not in a position to pay for this content and that its removal has a negative impact on perception of the value of the entire body of R4L content.

Include more content from Africa

While users value content from around the world, there is a need for research that specifically relates to the issues that are pertinent in Africa. One example given was access to research about health conditions and treatment in Africa.

Expand subject areas

Respondents noted that R4L already focuses on key development areas but had suggestions for others:

> *"They are really focusing on everything that that matters but I was just asking myself, where is education? I think education is also trending. Maybe they need to expand."*

Other suggested areas were ICT and finance.

Simplify the interface and improve the search process

Some users in Kenya found the R4L user interface too complicated to get into and to navigate; they turned to Google instead, thereby missing much of the wealth of content that was made available to them through R4L. Simplifying access and navigation would ease this issue. Related to this, users would like to see fewer steps in the search tool before they find what they are looking for.

Introduce an app version

One focus group was predominantly doctors and medical students. They noted that some aspects of R4L are optimised for universities and research institutions, and reliant on having an internet connection. They proposed development to better fit hospital work patterns:

> *"I'm not sure if you're able to have it as an app on your phone like that really helps to keep up to date."*

"If I were going about designing something, specifically for clinical work, it would be something more like, well, what the Digital African Health Library[39] used to be. Basically, it takes things like the Oxford Handbook of Clinical Medicine, the Oxford Handbook of Tropical Medicine, other sort of handbooks and textbooks, and puts them on an app."

Support Open Access

A proposed role for R4L and similar organisations in this space was supporting Open Access.

"Africa is disadvantaged in terms of knowledge gaps; we are not able to access what others are able to access. Unless you're able to get information, which will help you to become an entrepreneur, do something in terms of development, then that gap could always be there. But if we say that information is accessed for free equally everywhere, then that's a strong step towards making sure equality is there in terms of countries and in terms of scholars and that will that will greatly impact on the development of low-income countries." (librarian)

A couple of approaches were envisaged for Research4Life's potential role:

"Research4Life can take up the role of negotiating for waivers and publishers, the same way you're negotiating for free options now you can negotiate for waivers and then now be the in between for these APCs.

"Or even just doing the marketing because publishers are by themselves not to this market. They need INASP, R4L, EIFL to reach out to institutions in low-income countries who do not have regional offices of the publisher there. I know there is no Elsevier office in Kenya, there's no Elsevier office in Uganda. There's only one office in Dubai. Can you imagine, that not Africa! And then there's one in South Africa. Research4Life is able to penetrate through their ambassadors, through the focal points and institutions. And they can do the trainings or marketing. At the end of it all people will become aware of Open Access publishing. There will always be a role. It's just a matter of, you know, having a strategy and I believe these are institutions that have quite, you know, intelligent minds to this." (librarian)

Dissemination and training

Develop a network of focal contacts within the country

A network of focal contacts within institutions in Kenya would enable follow-up with institutions that show low usage of R4L, to understand their needs better and provide training materials and support accordingly.

Provide, and increase awareness of, more promotional tools for librarians

While R4L already provides promotional materials for librarians to use, awareness of these resources seems to be quite low, and promotion by libraries is often quite minimal – links on web pages and mentions of R4L in library inductions at the start of a student's time at university, for example.

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[39] http://www.digitalhealthlibrary.net/

Effective awareness-raising can be achieved with bolder promotion activities including banners in the library and events.

Embed training in R4L – and e-resources more generally into curricula

The institutions in Kenya where usage of R4L is high tended to include e-resource skills development within undergraduate curricula and postgraduate training.

Incorporate training of trainers within training activities

For R4L to become more widespread and sustainable in Kenya there is a need for librarians and users to pass on the knowledge about how and why it should be used. Training activities should not just develop individuals' knowledge and skills but also empower them to pass on these knowledge and skills. It is important within this to also ensure that subsidiary campuses of universities are not neglected.

Cultivate a more strategic relationship with faculty at universities

Another success factor within high-usage institutions consulted was the importance of engaging faculty. Key members of teaching staff can influence usage of R4L by including guidance about R4L when recommending resources for students to read.

Engage public agencies in the dissemination of R4L

It was not clear how much national-level engagement there is with R4L in Kenya. Engaging government ministers could help with national uptake of R4L. It could also address the current poor usage of R4L in almost all the government agencies that are registered with the initiative.

Deepen community interaction

It was clear from the case study that there are some highly engaged supporters of R4L within Kenya and that in-country connections help with awareness and training. Networks already exist convened by KLISC and in conjunction with the UN team in the country and it was interesting that in several cases focus group participants already knew each other. There was little discussion of the explicit role of community in strengthening R4L in the country. However, one early-career researcher had a suggestion:

> *"I look forward to a future where the platform is interactive with platforms where users can interact with each other." (researcher)*

Administration and management

Provide librarians with regular usage statistics

A key theme amongst librarians was the need for usage statistics. These would help librarians to understand more about the usage patterns in their institutions and therefore deliver awareness-raising and training activities that address any gaps. This could also help librarians to tackle locally any potential breaches of R4L's terms before they reach a level that might trigger suspension of service.

6. Understanding the R4L user experience journey: a case study of Honduras

6.1 Context

Demographics

Honduras, in Central America, covers an area of 112,492 km^2 and has a population of over 9.3 million, according to government statistics[40]. The country is divided in 17 departments. Around 4.9 million people live in Honduras' capital Tegucigalpa, while around 4.1 live in rural areas[41].

With 90% of *mestizos* (people of combined European and Indigenous American descent) in the country, at a professional level the most widely spoken languages are Spanish (official language), followed by English. Indigenous languages are spoken, but not professionally.

The country is ranked 58 in the Global Gender Gap Index, and 15 in Latin America and the Caribbean (LAC).[42] Honduras also ranks first in educational attainment (with other 25 countries), and it is one of four countries in LAC that has achieved gender parity in the labour force.

Economy

Although in recent years Honduras has registered the second highest economic growth rates in Central America, the GDP per capita remains among the lowest in the region, 48% of people live in poverty (of which 60.1% live in rural areas)[43] and inequality is among the highest in the region and the world (GINI 50.5 in 2017). The country ranks 132 in the UNDP's Human Development Index (HDI), corresponding to medium human development category.[44]

Political instability (since the *coup d'état* in 2009) and an exposure to natural adverse events (especially heavy rainfall and drought) have impacted Honduras economy. Honduras' economy is expected to register a -2.3% growth in 2020 and 3.9% in 2021 due to the impact of the COVID-19 pandemic.[45]

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[40] National Statistics Institute (Instituto nacional de Estadística): https://www.ine.gob.hn/V3/#
[41] Idem: https://www.ine.gob.hn/V3/imag-doc/2019/09/cifras-de-pais-2018.pdf
[42] World Economic Forum. Global Gender Gap Report 2020. Retrieved from: http://www3.weforum.org/docs/WEF_GGGR_2020.pdf
[43] The World Bank. Individuals using the Internet (% of population) – Honduras. Retrieved from: https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=HN&year_high_desc=false
[44] Conceição, P. (2019). Human Development Report 2019: Beyond Income, Beyond Averages, Beyond Today: Inequalities in Human Development in the 21st Century. United Nations Development Programme. Retrieved from: http://hdr.undp.org/sites/default/files/hdr2019.pdf
[45] The World Bank. (2020, April 12). The World Bank In Honduras. Retrieved from: https://www.worldbank.org/en/country/honduras/overview

The country's historical productive matrix indicates a high presence of agriculture, which accounts for 24.8% of the employed population.[46] The service industry has grown in the last years, driven by communications, including a rapid expansion of internet and cell phone networks.[47]

Technology infrastructure

Despite its recent development, access to the internet is still limited in the country. By 2017, 32% of the population in Honduras used internet.[48] The 2016 Global Information Technology Report[49] indicates that the main challenges in the country are access to technological equipment, internet access, and weak promotion of information and communications technologies (ICTs).

National strategy and development

The development of science and technology as part of Honduras' development strategy is a recent subject. The limitation of economic resources and human capital have been major challenges in this regard.[50] The National System of Science, Technology and Innovation is integrated, among other agencies, by the National Secretariat of Science, Technology and Innovation (SENACIT), and the Honduran Institute of Science, Technology and Innovation (IHCIETI). The country's strategic documents (Country Vision and Nation Plan) do not incorporate explicit objectives around science or research.[51] The country invests 0.06% of its GDP in research and development.[52]

Higher education and research

Honduras has 20 higher education institutions (six public universities and 14 private ones). Although higher education coverage is high in the country, it remains low in regional terms. Among the 388 academic programmes offered by universities, degrees represent 50%, masters 27%, and doctorates 1.7%. The country does not show a strong production in the field of research, nor are universities well positioned in international research rankings.[53] The academic offer is concentrated in the sectors of Management, Business and Law (26,5%), Engineering, Industry and Construction (14.5%),

[46] Minzer, R. & Orozco, R.C. (2019). Análisis estructural de la economía hondureña: el mercado laboral. [Structural analysis of the Honduran economy: the labor market]. Comisión Económica para América Latina y el Caribe (CEPAL). Documentos de Proyectos, (LC/TS.2019/123, LC/MEX/TS.2019/30). Ciudad de México. Retrieved from: https://repositorio.cepal.org/bitstream/handle/11362/45039/1/S1901201_es.pdf

[47] The World Bank. (2020, April 12). The World Bank In Honduras. Retrieved from: https://www.worldbank.org/en/country/honduras/overview

[48] The World Bank. Individuals using the Internet (% of population) – Honduras. Retrieved from: https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=HN&year_high_desc=false

[49] The 2016 Global Information Technology Report (WEF) http://www3.weforum.org/docs/GITR2016/WEF_GITR_Full_Report.pdf

[50] IHCIETI. (2019, February). Plan Estratégico Institucional. PEI IHCIETI 2016-2019. Modificaciones [Institutional Strategic Plan. IHCIETI 2016-2019. Modifications]. Retrieved from: https://senacit.gob.hn/documentos/Plan-Estrategico-Institucional-2019.pdf

[51] IHCIETI. (2019, February). Plan Estratégico Institucional. PEI IHCIETI 2016-2019. Modificaciones [Institutional Strategic Plan. IHCIETI 2016-2019. Modifications]. Retrieved from: https://senacit.gob.hn/documentos/Plan-Estrategico-Institucional-2019.pdf

[52] Casalet Ravenna, M., & Buenrostro Mercado, E. (2014). La integración regional centroamericana en ciencia, tecnología e innovación: un nuevo desafío. [Central American regional integration in science, technology and innovation: a new challenge]. Economía: teoría y práctica, (40), 165-193.

[53] For example, according to Quacquarelli Symonds World University Rankings Latin America 2020, UNAH is the first ranked Honduran university, within the range 250-300. For more information, see UNAH (2018).

Health and Wellbeing (11.5%), Social Sciences, Journalism and Information (11%), and Education (11%).[54]

In 2018, the number of students enrolled in the 20 universities in Honduras was 266,908 (including international students from other Latin American countries) of which 57% were women and 43% men. Considering all education levels, women achieve higher graduation rates (64.5% compared to 35.5% for men). However, universities present more male faculty (59%) than female (41%).[55] While no data regarding the number of researchers in the country is available, according to UNESCO, 74% of researchers in Honduras are male and 36% are women.[56]

Together with universities, the research landscape in Honduras includes a few national research institutes, some of which were consulted in the case study, and NGOs, and the presence of multilateral research organisations.

Research information

From discussions with stakeholders, two journals particularly stood out as scientific resources in the country. The Honduran Medical Journal (*Revista Médica de Hondureña*,[57] RMH) of the Medical College of Honduras (*Colegio Médico de Honduras*, CMH) is the oldest continuous publication in the field. The Journal of the Faculty of Medical Sciences of the National Autonomous University of Honduras (*Revista de la Facultad de Ciencias de Médicas de la Universidad Nacional Autónoma de Honduras[58]*, RFCM-UNAH), was also highlighted by stakeholders. Honduras is one of the three countries (along with El Salvador and Nicaragua) that hosts journals on the Central American Journals Online (CAMJOL)[59] platform; Honduras accounts for 20 of the journals on this platform.

Access to research information in Honduras is conditioned by the high cost of resources and the low budget allocated to institutions and units responsible for providing information services.[60] Libraries are concentrated in big universities in larger cities. Only one Science Library master's degree is offered,[61] and many existing libraries are not managed by professionals.

The main reference to access research in the health sector is the National Medical Library (*Biblioteca Médica Nacional*, BIMENA), within FCM-UNAH, but with responsibility for coordinating health information services across country. The Virtual Health Library of Honduras (*Biblioteca Virtual en Salud Honduras*, BVS-HN) has contributed to integrating information sources and providing access

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[54] UNAH. La educación superior en Honduras y sus líneas estratégicas de desarrollo. [Higher education in Honduras and it's development strategic lines]. Tegucigalpa, MDC, Honduras. Marzo 2018. Retrieved from: https://des.unah.edu.hn/noticias/la-educacion-superior-de-honduras-y-sus-lineas-estrategicas-de-desarrollo
[55] UNAH. La educación superior en Honduras y sus líneas estratégicas de desarrollo. [Higher education in Honduras and it's development strategic lines]. Tegucigalpa, MDC, Honduras. Marzo 2018. Retrieved from: https://des.unah.edu.hn/noticias/la-educacion-superior-de-honduras-y-sus-lineas-estrategicas-de-desarrollo
[56] UNESCO. R&D spending by country. Retrieved from: http://uis.unesco.org/apps/visualisations/research-and-development-spending/
[57] http://www.bvs.hn/RMH/html5/#gsc.tab=0
[58] http://www.bvs.hn/RFCM/html5/
[59] https://www.camjol.info/index.php/index
[60] García, MC. Padilla, O. Ramírez, L. & Alger, J. (2017). HINARI Información para la investigación en salud: Experiencia en Honduras. [HINARI Information for Health Research: Experience in Honduras]. Revista de la Facultad de Ciencias Médicas UNAH; 14: 52-55. In their article, the authors refer to health information. But interviews and focus groups revealed these factors constitute barriers in other knowledge areas as well.
[61] At Universidad Pedagógica Nacional Francisco Morazán.

independently of location. The Association of Librarians and Documentalists of Honduras (*Asociación de Bibliotecarios y Documentalistas de Honduras*, ABIDH) brings together librarians and professionals in the information sector.

At the regional level, The Latin American and Caribbean Center for Information on Health Sciences (*Centro Latinoamericano y del Caribe de Información en Ciencias de la Salud*, BIREME) is a specialised centre of Pan American Health Organization (PAHO) - World Health Organization (WHO) aimed at technical cooperation in scientific information in health. At the international level, Healthcare Information For All (HIFA), The Global Health Network and the National Library of Medicine (NLM) of the United States are important sources of research information in the sector.

Outside the health sector, the rest of the programmes that are part from Research4Life (R4L) and the Agricultural Information and Documentation Service of the Americas (SIDALC) stand out as important resources. In addition, interviewees and focus group (FG) participants indicated that institutions rely on Open Access databases, and Google remains a major source for grey literature, especially among students.

6.2 Research4Life in Honduras

Honduras has been part of R4L since 2002, with Pan American Health Organization (PAHO) performing as the national focal point for the initiative. Initially Honduras was part of Group A, having free access to the resources, which was highly appreciated in a context of strong economic recession. In 2018, Honduras became part of Group B, meaning that institutions had to start paying for accessing a service that they used to enjoy for free.

BIMENA was the first national institution to register to R4L,[62] and, together with a network that also included BVS-HN, BIREME and PAHO, led in the expansion of the initiative in the country. Interviewees and focus group participants (see next section) saw the collaboration among regional and national organisations as instrumental to build in-country capacity and broaden access to research in Honduras, as well as to develop and support national scientific journals. Working in an integrated manner, these organisations actively disseminated R4L and provided support to institutions to register (moving from individual to institutional registration) and access materials. Through these organisations, Honduras has been represented on R4L's Executive Council.

Honduras is one of the countries with a high proportion of its institutions registered to R4L (more than 90), according to R4L data. According to R4L's database for the country, 24% of those institutions are teaching hospitals, 23% are universities or faculties, 19% are government offices, 17% are research institutes, 11% are NGOs, 3% are libraries or documentation centres, and another 3% are healthcare services providers. The data available regarding usage in relation to other similar organisation types across all R4L institutions[63] indicates that 30% of the institutions make excellent use of R4L, 6.5% makes good use, another 6.5% makes fair use, and 57% make poor use. Most of the institutions that make excellent use are universities, while among the ones showing poor usage there is a slight prevalence of teaching hospitals.

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[62] García, MC. Padilla, O. Ramírez, L. & Alger, J. (2017). HINARI Información para la investigación en salud: Experiencia en Honduras. [HINARI Information for Health Research: Experience in Honduras]. Revista de la Facultad de Ciencias Médicas UNAH; 14: 52-55.

[63] Only available for 30 institutions, less than 30% of the total registered to the programme.

Out of 94 separate institutional locations in a spreadsheet shared by R4L, 44 are in the capital. Other clusters are in San Pedro Sula, with 13 R4L institutions, and La Ceiba, with eight R4L institutions. The remaining registered institutions are spread throughout the country.

6.3 The Research4Life journey in Honduras

Initial connections

Some of the main ways in which potential users get to know about R4L are through librarians in their institutions, through faculty who encourage its use among students, and through attendance to scientific events or consumption of resources where R4L is promoted. In most institutions, once they get to know R4L, users are provided access through their institutional emails. In the case of students, access is provided through a generic institutional user, whose password changes with a certain frequency.

Registration

In the beginning, registration to R4L was mainly an individual matter. The network of organisations devoted to disseminating R4L in the country have advocated to get institutional support for registration:

> "*There was a conviction of library staff, but negotiations to include these resources in the annual budget have been tough. It was hard for the administrative staff to understand that they are intangible resources because they were used to buying physical journals. It has been a change.*" (librarian)

In order to advocate for registration, librarians need usage statistics (see more about this at the end of this section).

Since Honduras' recent recategorisation as Group B, the payment of the subscription has been a major challenge for many institutions due to lack of resources allocated for this area. While institutions are aware of the possibility of coming together to get discounts when registering, it has been indicated that the transactional costs are not worth the savings, or that different institutional payment methods make partnerships impossible in practice:

> "*And it's more difficult when they suggest that you agree with other institutions to lower costs. One ends up better paying those 1500 dollars than paying 1000. I think that when three institutions are associated they can pay 100 dollars each. That makes administratively a bit complicated.*" (librarian)

Another challenge related to payment methods is experienced by institutions with regional campuses or offices but centralised administration, who cannot justify double payment:

> "*[University] is an institution with campuses in various departments of the country. But it is the same institution. The university pays its subscription and from the capital campus. But they argue that they cannot pay twice for the same resource since that is auditable.*" (librarian)

The bureaucratic process that takes place between institutions' registration at the beginning of the calendar year and when payment is due generates two challenges. On the one hand, some institutions understand they are paying for less than a year of usage (even though they are provided access since January):

> *"We had to do a lot of work to make them understand that they pay for a calendar year, but they are given three months for their paperwork."* (R4L in-country representative)

On the other hand, variations in the price take place between payment and its processing due to fluctuations in the Honduran currency with regard to the dollar:

> *"When paying they tell us that it's in USD. But PAHO is something that is paid in Lempiras. PAHO pays R4L in USD. The conversion becomes complicated. PAHO needs the money first. But our currency is fluctuating: USD 1500 today, when converted to Lempiras, is very different from tomorrow. Last year I needed 20 Lempiras - less than a dollar - to complete the amount due to the fluctuation."* (librarian)

Usage

In terms of the usage of programmes, in Honduras Hinari – appears to be the most used, followed by AGORA, OARE, and to a lesser extent ARDI (as some institutions start to explore the innovation field). Almost no references to GOALI were made during interviews and focus groups.

In addition to health and agriculture being well developed professional sectors and research fields in Honduras, the fact that the health and the environment areas have clear R4L and sectorial focal points or partners interested in disseminating the initiative (PAHO and BIMENA, and FAO, respectively) also explain the higher usage of those programmes. Hinari and AGORA also benefit from the quality seal and recognition provided by WHO and FAO, respectively, in addition to the involvement of well-known publishers:

> *"That attached name gives it strength"* (librarian).

> *"The publishers that are included in R4L are also an important endorsement when it comes to consulting information."* (librarian)

When access to R4L has been suspended for any reason, some librarians report being rapidly overwhelmed with requests of access.

It was acknowledged that usage of R4L resources is higher at the postgraduate level (where research publication is more encouraged) than by undergraduates, as the latter tend to favour the simplicity of using a search engine like Google. However, despite librarians' and faculty's efforts, participants in focus groups have indicated that the institutions' usage of R4L is limited by their knowledge about the platform.

Usage of R4L is also conditioned by structural factors. In addition to the already mentioned limited internet access outside the capital, interviewees and FGs' participants have pointed to the poor reading culture in the country, especially at the youth level, and the limited availability of time that professionals can devote to research (both reading and publishing).

While there is an overall satisfaction with the usage of R4L, some challenges have been pointed by users and librarians and these will be discussed in the next sections.[64]

Changing R4L status

Honduras' change from Group A to Group B in 2018 meant that institutions had to start paying for accessing a service that they previously enjoyed for free. While official macroeconomic indicators suggested an improvement in the situation of the country, institutions continued performing under the same conditions. Many respondents felt that Honduras should not have changed category and talked about their organisations struggling to pay:

> *"In practice, we have never felt like a Group B."* (user)

After a grace period, many institutions, with the exception of big public and private universities, could not afford to pay due to lack of institutional budget allocated to these resources:

> *"Although 1500 dollars is not a lot, in a country like Honduras it is a figure that carries weight."* (librarian)

In the current context of the pandemic, in which R4L is critical for students, faculties, professionals and researchers to access research remotely, institutions are finding it difficult to pay for the service.

However, this has led to some unexpected opportunities to strength the community. When Honduras was recategorised as Group B, and some institutions could not afford paying for access to resources, the community of users (students and faculty) self-organised to advocate the reestablishment of the service:

> *"… the university managed to register under pressure from its users[65] (…) The Association of Students of Medical Sciences went to the library to say that if the university did not pay they would do activities to pay the subscription, because they cannot live without that information."* (R4L in-country representative)

User interface and searching

The change in R4L status has introduced new challenges in the user experience relating to the search method. Respondents described it as time-consuming, ineffective (in terms of finding the desired resource) and discouraging. An initial search will return articles to which users do not know they have access to, so they need to go through a meticulous process in which resources are explored one by one to understand the grade of accessibility:

> *"My frustration is that sometimes it seems that I have access and when I arrive I cannot enter."* (user)

A more straightforward searching method would make the user experience more pleasant:

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[64] During the R4L General Partners Meeting 2020 (July 29) it was indicated that some of these challenges have been addressed by R4L team with a focus on improving user's experience (e.g.: authentication methods and search engines).
[65] In the end, UNAH managed to register with the support of a renowned Honduran researcher and a regular user of R4L, who got a donation from a private company for the payment of the annual subscription.

"A person within the [university] dynamic cannot sit down to search title by title to see if they get things done. You need something that gives you information extremely fast." (librarian)

Users indicated that a more agile search mechanism would help improve the user experience**.** Generally, they state that they have to go through numerous 'clicks' until they know the results of their search. According to users, one way in which the search could be more straightforward is including a more visible access to R4L in the interface or embedding a direct link to R4L in their virtual classrooms "*so students do not have to leave to access resources*" (user).

Another user suggested customising the offer to the users' research and field interests by avoiding displaying all R4L programmes (e.g: do not show AGORA if the user is interested in health resources, provide direct access to Hinari instead). However, some users and librarians in the health sector indicated that access to all R4L programmes is a plus:

"In health we see this as an advantage, because health is integral, and I also believe it is a good way to promote other resources." (librarian)

But some also indicated that they are not worth paying:

"*For the rest of the other programmes, the expectation is to have Open Access, otherwise I rather work with the abstracts of the contents that I'm researching.*" (user)

In addition to the issues with searching discussed above, stakeholders consulted also indicated that, due to the increased use of mobile devices, the experience of using R4L in mobiles could be improved through friendlier displays.

Content and language

Respondents reported that access to resources is sometimes volatile, with some resources disappearing or being restricted between two search attempts by the same user.

A major barrier identified with R4L content is language, although it does not affect all users to the same extent. Since most of the articles accessible through R4L are in English, the extent to which the user masters the language determines their ability to benefit from the content. While some stakeholders suggested that, at the postgraduate level or for some careers (mainly medicine), English is not an issue, it is a more influential factor at the undergraduate level and among users outside the academic environment (e.g.: other professionals and general public that uses BIMENA). It was also flagged as more of an issue for users from other countries, especially from South America. Aware of this challenge, some institutions encourage or deliver English training (see Training section).

"The language is also a challenge, most of the articles are in English. We offer English classes to push this forward."

"If I look at my students in the master's degree (…), the search is mostly for gray literature in Spanish."

Authentication

Authentication methods have been identified as an "incredible barrier". Users reported having to go through many steps to access the desired resource, including registering with individual publishers. Sometimes users find the articles they need, but because they have not followed the right authentication steps, they cannot download them. These numerous steps are perceived as obstacles, making users "lose valuable time", while the platform "becomes less pleasant". In some cases:

> *"[Users] give up and go to the competition or to Google where they will find the information easier."* (librarian)

R4L usage during the pandemic

The current pandemic has also influenced the R4L user experience, forcing users to explore it by themselves since many institutions and/or their libraries remain closed:

> *"They have a more direct contact with the tool now."* (librarian)

In the health sector, BVS-HN is providing virtual trainings to support students in accessing information during the pandemic.

Moreover, some international students (especially from private universities), went back to their home countries, which in principle would have affected the usage since users can only access from the country where they are registered. However, at least for one university, exceptions have been made and a temporary username and password have been provided for those cases until the situation is settled down and those students return to Honduras.

Awareness raising

The active involvement of librarians in disseminating and encouraging R4L usage is a major influence factor in usage levels. Librarians support faculties and students, advocate the investment in these resources before universities' authorities to foster institutional commitment, and serve as a nexus with PAHO, R4L and publishers. The ability of librarians to perform these tasks determines to a great extent the general awareness regarding the advantages of the initiative and its consequent usage.

Another important factor that affects R4L's usage, especially by students at universities, is the extent to which the faculty encourages it and makes it part of the learning experience. While many interviewees and focus group participants see this as an opportunity, others see it as a challenge: if faculty are not aware of the initiative or do not know how to use it, "*it can hardly be demanded by their students*" (librarian).

Through the advocacy of some key organisations in Honduras, R4L enjoys wide promotion in relevant academic and professional environments, especially in the health sector. Because librarians are often part of journals' editorial boards in Honduras, they have a great opportunity to publicise the resources. For instance, the RMH promotes R4L on its website and in 2017 the RFCM included a

special article to acknowledge Hinari's history and contribution to the information and research in the health sector.[66]

> *"In all events we seek to have a presence with banners or posters and every so often we write articles in the few scientific magazines in the country or we ask for space to put a free ad."* (librarian)

In scientific events, R4L is featured in promotional stands or pre-conferences workshops on information resources, where not only librarians and researchers, but scientific journals' editorial committees, get to know and be trained on R4L resources. This is a starting point for further engagement. The Honduran experience with Hinari/R4L is also featured in international scientific events.

Training

Related to the issue of awareness of R4L comes the issue of knowing how to use it. Participants in this case study research shared some proactive strategies from library staff to develop users' skills to take advantage of R4L (among other e-resources). Not only are students requested to get familiar with library resources and databases when they enter the university, but some universities and libraries have established long-term, practical and active learning approaches:

> *"In the first year we give them the induction, in the second year we give them the databases, in the third year we teach them to use the knowledge manager and to manage the search and information retrieval skills, and in the fourth year all the resources are linked with their graduation projects."* (librarian)

One university established bibliographic reviews as early assignments, *"so that they can put into practice what they have already learned"* (user). In addition, R4L resources are featured in the syllabi and its usage is encouraged by faculty.

For institutions that do not have strong library services, BIMENA and associated institutions in the health sector play a leadership role in supporting and developing users' skills to use R4L, including library staff at universities. Between 2016 and 2017, BIMENA provided an annual average of 70 trainings in R4L, in particular Hinari, to librarians, students, teachers, and researchers.[67] As indicated, BIMENA benefits from events in the health sector and the articulation with other institutions to provide these trainings.

Due to its experience with Hinari, BIMENA was named by the Hinari representative in Switzerland as the focal point for the country, "providing support to registered institutions for training, problem solving and motivating others to enrol". Hinari also selected professionals from BIMENA, to train other organisations at the regional level.[68] Moreover, in 2017 BIMENA, UNAH and PAHO won a grant

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[66] García, MC. Padilla, O. Ramírez, L. & Alger, J. (2017). HINARI Información para la investigación en salud: Experiencia en Honduras. [HINARI Information for Health Research: Experience in Honduras]. Revista de la Facultad de Ciencias Médicas UNAH; 14: 52-55.

[67] García, MC. Padilla, O. Ramírez, L. & Alger, J. (2017). HINARI Información para la investigación en salud: Experiencia en Honduras. [HINARI Information for Health Research: Experience in Honduras]. Revista de la Facultad de Ciencias Médicas UNAH; 14: 52-55.

[68] In 2015, the workshop "Facilitating Facilitators" was held in Quito, Ecuador, with the participation of representatives of the different health institutions in Latin America attached to Hinari. In April 2017, the

from the Medical Library Association (MLA) aimed at developing training of trainers and users on Hinari/R4L resources, and establishing a network of library training centres devoted to promote and train them in using the resources.

> *"When we managed to have grants, even if they were small, of USD 6000, it meant a lot to us (…) with that we did training activities in different cities of the country."* (user)

In the space of a year, 100 people from public and private institutions benefited from the training in Tegucigalpa, San Pedro Sula and La Ceiba.[69] While training emphasises Hinari, the rest of the programmes are also introduced. Librarians are requested to report to BINEMA on how they have replicated the training in their institutions.

However, such grants are not equally accessible to all institutions:

> *"A requirement is that a librarian has to request it, which is a limitation in the case of Honduras, where not all the professionals in charge of the library have formal training in the area."* (librarian)

Moreover, while these trainings guarantee a wide coverage of libraries, not all the institutions can participate. The distance and the emphasis on health sector prevent some professionals from joining these events and trainings. Also, besides the one-time support provided by MLA, libraries staff and this network of organisations have been voluntarily working to make the initiative known and used, and they struggle to find resources (human, economic and time) to further disseminate it:

> *"We don't have something specific or direct with R4L, but they are our librarians (…) so it cannot be done permanently because there are other services that must be provided."* (librarian)

Collaboration and coordination among institutions is needed to make trainings possible:

> *"If one of the trainings is outside the capital, one of the institutions pays for the instructors' trip, the other sets up the venue with the Internet, and we do so to minimise expenses"* (R4L in-country representative).

Moreover, since turnover at authority level is high in Honduras, raising awareness efforts need to be conducted frequently to engage new deans and directors.

Librarians have also pointed to R4L's MOOCs as another source to learn about the initiative, and many acknowledged having taken them and receiving the diploma. But it was suggested that users do not have time to invest in these trainings. And that language remains a major barrier, both for librarians and users, since R4L trainings are not offered in Spanish. Some librarians have even

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Workshop "Advanced Use of Search Tools in the HINARI Virtual Source" took place in Managua, Nicaragua, which was attended by 41 participants (García, MC. Padilla, O. Ramírez, L. & Alger, J. (2017). HINARI Información para la investigación en salud: Experiencia en Honduras. [HINARI Information for Health Research: Experience in Honduras]. Revista de la Facultad de Ciencias Médicas UNAH; 14: 52-55., p. 53).

[69] Alger, J. (2019). Reseña Biblioteca Médica Nacional. Biblioteca Médica Nacional Rosa Amalia L. de Zavala: Ventana y Vitrina del Conocimiento Científico en Salud en Honduras. [Review of the National Medical Library. Rosa Amalia L. de Zavala National Medical Library: Window and Showcase of Health Scientific Knowledge in Honduras]. Revista Facultad de Ciencias Médicas UNAH; 16 (Suplemento): 14-18.

attempted to voluntarily translate materials to Spanish but efforts were truncated due to time availability.

> *"But what if all these resources were in Spanish too? I think it would facilitate participation, because language is a felt barrier."*

Usage statistics

Another factor that librarians indicated is that in order for them to provide useful training and support to the users, they need to have accurate usage statistics. Otherwise, they indicated limitations in trainings' scope and efficiency. Usage statistics are also important to advocate the registration and payment of R4L before institutional authorities.

> *"As a librarian, how do I defend to my authorities that this access is necessary? It can be through usage statistics. But we don't have access to these statistics, they are shared twice a year, if they are shared at all."* (librarian)

6.4 Impact on user

> *"When it started many years ago it was a boon, especially at the level of individual users."* (R4L in-country representative).

Throughout the years since R4L began being used in Honduras many more organisations have been engaged. Responses to discussions about impact from stakeholders consulted were overwhelmingly positive. According to respondents, the impact of R4L in Honduras has not only reached the individual user but also the research community as a whole and, through that, the development of the country.

The first aspect of this is that R4L has contributed to democratise knowledge and promote a more equitable knowledge system. It enabled "*access to knowledge and information to vulnerable populations*" with fewer resources (librarian), and "*helps to reduce this gap [with other countries]*". R4L has also contributed to decentralise access to knowledge:

> *"It wasn't fair that only people in the capital had access to updated information"* (R4L in-country representative).

R4L's contribution to develop Honduran human capital has also been widely acknowledged:

> *"The programme has had an unimaginable impact on the training of the country's human resources (…) Human resources training with access to frontline information would not have been possible without the resources of R4L."* (R4L in-country representative)

The knowledge network of organisations working in the health sector, with BIMENA and PAHO at the front, strongly advocated that the Secretariat of Health of the government of Honduras create a Directorate of Human Resource Development that would lead in the area of knowledge, information and research management. It was a major step for the Honduran research landscape, and R4L resources were highly instrumental. The Secretariat not only registered to the initiative (and it is one of current institutions that benefits from R4L) but it also became an ally in its dissemination, its staff was trained on Hinari, and the initiative was broadly disseminated with training at the regional level.

And, while this network of organisations belongs to the health sector, where possible they work to disseminate R4L in other sectors as well and are concerned with research access in general.

For many institutions, access to R4L resources has become "*part of the wealth that the information unit provides to users*" (R4L in-country representative):

> "*The resource during the four years [of an academic programme] is present (…) it is always highlighted and shown as an important resource to use.*" (librarian)

The responses also pointed to R4L having fostered Honduras' research capacity and a culture of academic quality. The contribution to research quality through access to resources is highly estimated:

> "*We can't try to strengthen research for health if there is no access to information.*" (user)

The quality of R4L resources is one of its most acknowledged assets. Both the UN seal and the publishers guarantee the quality of the collections and the reliability of the available information. Updated information is another valued added:

> "*They come to look for information with the certainty that they will receive the latest.*" (librarian)

Access to quality resources set a precedent that moves the frontier of research forward:

> "*The intention is to form a habit of selecting the best scientific evidence that is maintained during professional life and not just when you are a student.*" (user)

> "*Now we can demand the use of this type of articles, before it was impossible.*" (user)

For one interviewee, R4L resources add prestige to a piece of work. Participants also said that R4L has had a concrete positive impact in the overall quality and quantity of research production in Honduras. On the one hand, individual users (students, professors and researchers) acknowledge its contribution to the quality of their research efforts.

> "*The tool provides a lot of strength to academic texts, which is very important in the world of research because you have to speak with valid sources. [Students graduation theses] have also improved enormously.*" (librarian).

On the other hand, respondents said that R4L has helped Honduras increase its national research capacity:

> "*Over the years, the number of publications in internationally renowned journals that came out of UNAH postgraduate students who already handle these [R4L] resources (…) has increased.*" (user)

> "*They are increasingly award-winning research projects in the field of medicine.*" (user)

Two concrete examples were shared. First was the RFCM-UNAH, which has been published for 16 consecutive years now and is peer-reviewed and incorporated into international databases. The second is the Journal of Forensic Sciences of Honduras (*Revista de Ciencias Forenses de Honduras*),

edited by the Directorate of Forensic Medicine, which with five years of publication has also been positioned in prestigious databases.

> *"[With the contribution of R4L] little by little Honduras rises in the publication index." (user)*

An important added value of R4L is that, in addition to the five programmes, institutions get access to Scopus, Elsevier's abstract and citation database, "*which we would not have access if it were not through R4L*" (librarian). For instance, at UNAH, Scopus is used "*to make the scientific production of researchers known at a national and international level and to enable cooperation strategies in scientific research inside and outside the institution (…) this year we are about to publish: the UNAH Online Catalog of SCOPUS Researchers.*" (librarian).

In addition, respondents noted that R4L not only strengthens its users' work, but also enhances the visibility, reputation and capacities of the libraries that manage and disseminate the initiative:

> *"There is a recognition of the library with new information resources, maintaining them and making them known (…) It gave the library more visibility as a spokesperson for R4L resources."* (librarian)

Hinari's election of BIMENA to provide regional training of trainers has also increased its visibility among other countries.

It was also noted that R4L allows libraries to provide quality information and has helped libraries develop a virtual offer, which in some cases was the result of the staff advocacy within their institutions:

> "*There was a conviction of library staff, but negotiations to include these resources in the annual budget have been tough. It was hard for the administrative staff to understand that they are intangible resources because they were used to buying physical journals. It has been a change.*" (librarian)

Overall, as stated in the RFCM-UNAH: *"Hinari/Research4Life, in addition to providing collections, has given BIMENA, UNAH and the country greater visibility"*.[70]

Finally, comments in this study suggest that R4L has contributed to strengthen a community and network of professionals and institutions working within the boundaries of knowledge, research and information access and management:

> "*Those of us who are immersed in and attached to R4L resources have also gotten to know each other a lot. We established an informal network that later became formalised. There is a difference before and after Hinari.*" (librarian)

As presented, these networks were highly relevant to the dissemination of R4L.These people are critical to ensure expansion of R4L across the country:

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[70] García, MC. Padilla, O. Ramírez, L. & Alger, J. (2017). HINARI Información para la investigación en salud: Experiencia en Honduras. [HINARI Information for Health Research: Experience in Honduras]. Revista de la Facultad de Ciencias Médicas UNAH; 14: 52-55, p. 54

"Many of the people who went through Hinari, when they become professionals and are in an isolated town, they already know the resources, know where they can get them and advocate for them." (R4L in-country representative)

6.5 Recommendations for further work

Based on the analysis of R4L's implementation in Honduras, the following recommendations emerged as extensions to R4L's work or new areas to move into.

User experience

Enhance a user-centered experience by enabling a more agile search mechanism

A more direct access to the resources means, in practice, "fewer clicks" until users know the results of their search. It can start by coordinating with libraries to embed a visible and quick access button to R4L programme in their websites. Universities could also embed a direct link to R4L in their virtual classrooms. Also, allow users to go through a more direct and integrated search experience, for instance by including a Summon search mechanism, and allow users to clearly identify what resources are fully available to them. A more mobile friendlier experience could also be developed.

Increase Spanish-language resources

Discussions during this case study indicate that enhanced offer of resources in Spanish has the potential to highly increase the usage of R4L, facilitating access to quality research to users who do not manage English and enabling access to a more diverse literature. The same applies to training materials, which if offered in Spanish would allow users to be more independent when navigating the platform, and broaden the scope to more diverse publics. For this purpose, R4L could provide small grants to support library staff in institutions to translate training resources. This relatively small investment has the potential to benefit not only Honduran users, but also R4L users in other Latin American institutions (region represented with more than 12 countries), as well as other Spanish-readers across the globe.

Expand into social sciences

While Hinari's offer has been widely recognised by its users, resources available under AGORA and other programmes were felt to be more limited. As social sciences further develop in the country, it would be important to provide users in related knowledge spheres with a more comprehensive offer that better fills their research needs.

Explore opportunities with Open Access

Although Open Access was not explored in detail in the interviews or focus groups, stakeholders consulted were positive about the opportunities presented with Open Access and recommended that R4L could explore how to innovate in this field.

Dissemination and training

Provide small training grants

Libraries and their staff have been revealed to be the champions of R4L in Honduras. Support through small grants to conduct training could be provided. R4L could also endorse these organisations' efforts to reach out to authorities through personalised letters or generate incentives for new institutional subscribers (e.g.: new interested users could be granted a free trial period which includes support and guidance to the library or information unit/focal point to promote its usage among members). More decentralised and targeted trainings by sector and region could be supported through agreements with and support to new organisations with demonstrated recognition and capacity in their respective areas and regions. Institutions with more trajectory disseminating and training on R4L in the health sector could perform as advisers through peer-learning. At the same time, participation of professionals in the regions to attend trainings in the capital or bigger cities should be explored.

Strengthen and expand the already committed network of R4L champions

Honduras counts on a core group of well-connected institutions that advocate the use of the initiative, especially in the health sector. However, this group knows very little about R4L focal points in other sectors or for other programmes. Helping establish those connections and nurturing those bonds would facilitate peer learning and promote joint efforts to expand R4L usage beyond Hinari. Besides R4L focal points, the initiative could encourage networking and peer support among librarians and information managers of different institutions registered to R4L. Strategic agreements with ABIDH could be explored to that end. Strengthening these networks would also empower institutions in their efforts to get more strategic deals with publishers outside the R4L sphere.

Combine online and face-to-face trainings with more innovative dissemination and training materials

While MOOCs have been acknowledged as useful training programmes, to be successful they require time and a self-taught spirit by the learner, as well as good internet access and connectivity. Face-to-face trainings are still an effective way of disseminating the initiative and developing capacity to use it, and they have a networking function which has revealed to be of capital importance for the expansion of R4L across the country. In addition, R4L could provide those learners with a free trial period to allow them to apply what they learn, familiarise with the platform and further engage them with it. The development of infographics and more dynamic formats that can easily circulate among users in institutions could also be explored.

Cultivate a more strategic relationship with faculty at universities

Together with libraries, faculty staff have been pointed as stakeholders with great capacity to promote the tool. Generate incentives for them to include R4L in their syllabi, encourage its usage among cohorts of students, and embed its use in students' practice and assignments. For instance, establish an award for faculty staff who can demonstrate active dissemination of the initiative (e.g.: provide access to other academic resources or support participation in conferences).

Engage public agencies in the dissemination of R4L

The strategy of engaging the Secretariat of Health in supporting R4L dissemination was critical to expanding its usage in the health sector, and further developing the capacity of its human capital. Aligning the benefits of R4L with a national strategic policy and research agenda or interests can be very promising in terms of widening R4L impact. R4L could support PAHO, FAO as well as local institutions organise meetings with other government representatives to show the benefits of the initiative and engage them in joint actions to further disseminate it in strategic sectors for the country. This could be tried out with agencies with cross-cutting responsibilities in the knowledge sector (e.g.: SENACIT or IHCIETI) or with agencies with sectorial responsibility (in agriculture, environment, etc).

Administration and management

Provide librarians with more updated usage statistics

In order to better support users, librarians and other information responsible must have accurate information about R4L usage. A simple statistical model that allows librarians to systematically monitor access and use variables would allow them to make informed decisions about the best strategies to foster R4L use in their institutions. To the extent possible, data should be disaggregated by sex and other relevant categories to inform targeted actions that favour inclusion of diverse users. Moreover, usage data would help librarians make the case for R4L registration to authorities and administrative staff.

Explore alternative payment schemes with institutions

Despite Honduras' recent recategorisation as Group B, institutions face several barriers to afford the costs associated to R4L registration. Alternative arrangements or payment facilities could be explored. National R4L referents (in BIMENA, PAHO, and others) could be consulted and provide advice on arrangements that could benefit institutions and be administratively feasible. While institutions are aware of the possibility of coming together to get discounts when registering, it has been indicated that the transactional costs are not worth the savings, or that different institutional payment methods make partnerships impossible in practice. Administrative facilities could be explored to create more incentives for institutions to get together and registered as a group.

Simplify and clarify subscription and payment processes

The bureaucratic process that takes place between institutions' registration at the beginning of the calendar year and when payment is due generates two challenges. The first is that some institutions understand they are paying for less than a year of usage (even though they have been provided access since January). The second is that variations in the price take place due to fluctuations in the Honduran currency with regard to the dollar. Streamlining this process will avoid misunderstanding and frustrations. Ideally, payment could take place when registering, and payments in local currency could be considered. In addition, multi-annual rather than annual contracts could be explored to reduce paperwork but allowing for annual payment to make the renewal effective and institutions to step out under clear conditions. Payments could also be made directly to R4L instead of through PAHO. Also, contemplate facilities or alternative payment schemes for institutions with regional campuses or offices but centralised administration, who cannot justify double payment.

Provide accurate contact information and streamline response mechanisms

Institutional staff need to know who they can get in touch with if they have doubts or issues (whether it is regarding registration, payments, or technical failures) and what they can expect from that contact. Confusion exists regarding whether the contact for this is PAHO, other UN representatives in the country, WHO or a R4L itself. Clear information in that regard is needed. In addition, response timing should be improved for institutions to receive on-time solutions to their challenges.

Annex 1: Focus group and interview questions

Focus Group Script (1.5 hour - mixed groups of 5-8 people)

1. How is research literature currently accessed in your institution? (**10 minutes)**
2. How would you rate your use /your institution's use of R4l (are you a high, medium or low user?) **(10 minutes)**
3. What do you attribute to your levels of R4L use? **(10 minutes)**

    o Language (R4L content is largely in English; there is Spanish interface)

4. What role does R4L play in your overall access to research literature? (**10 minutes**)

    o Currently
    o Over time
    o For different users
    o Alongside other ways of accessing literature - **Open Access/National databases/what they get for free**

5. Does R4L's availability make a difference to the way you work? How /in what ways? (**15 minutes)**

    o Does it make a difference to the **quantity** or **quality** of the outputs of the participants?

6. What's the dynamic between researchers and librarians (or other groups) in your institution when it comes to providing support to access R4L? **(10 minutes)**

    o Training
    o language
    o Awareness of new materials
    o Levels of knowledge about R4L
    o Regular ongoing support – new researchers joining institution

7. Let us explore a typical approach to accessing R4L resources – describe the journey, beginning at log-in? (**10 minutes**) – highlights; downsides? And the end result – what impact on the quality of your outputs?
8. So what elements could improve your overall user experience? What does the future of accessing information via R4L realistically look like? What would you like the future to be? (**15 minutes)**

Interviews with country focal person

Interview script (45 minutes)

Focal persons

1. What do they do in relation to R4L support in the country?
2. How do countries/institutions find out about R4L and register?

3. Exploration of approach, experience and outcome of communicating with R4L users in the country.
4. How often? When/for what purposes? Response back? Reasons why?
5. Successes/challenges of engagement
6. Interactions with R4L/publisher, if any

Appendix 5: Personas

I look after resources that teaching staff, other researchers and students need for their teaching, research and studies. We have print books, some electronic databases and other resources. I try to help users find what they need; sometimes I need to help them by doing searches for them. I learnt about Research4Life at a conference. I signed up for it at my institution when I started working here two years ago. It can be difficult to know what all departments or sites in my organisation have access to. We are operating within tight budgets and sometimes have issues with connectivity.

[Note: Enablers are often librarians (54%), but might be academics, or doctors, or other people acting as enablers.]

Anne
Enabler persona

research4life

	My pain points are...	I need...	I would like...
Marketing	• Limited time available to promote Research4Life within my institution	• Ready-made marketing materials	• Clarity on marketing & training materials and support available from Research4Life • Marketing materials suitable for my national context
Awareness	• Limited awareness of the availability of Research4Life resources within my institution • I am not able to tell how valuable Research4Life is to users in my institution • Difficulty of connecting with potential users across multiple sites & departments in my institution	• Regular usage statistics • More support to reach potential users • Multiple ways to train users within my institution	• Research4Life training from third parties • An institutional network of Research4Life champions
User Experience	• Expectation from users that the search process and website interface should be simpler	• Simpler and more intuitive search tools and functionality • in-platform user support and FAQ	• Option to include Research4Life in federated searches
Admin	• Single institutional username and password	• An easier way to give access to users in compliance with Research4Life requirements	• Clearer process and guidance from R4L to resolve compliance problems

Facts and figures about me

70% — Research4Life has been very valuable for my career

52% — I teach groups of people about Research4Life

71% — I promote Research4Life within my organisation

61% — I would find a Research4Life mobile app very useful

Prepared for Research4Life by Research Consulting and INASP.

Grace
User persona

I need access to research publications to find out about the latest developments in my subject area - both internationally and in my own country. This is vital for my research. I also use journal articles and other references in teaching and learning. I use a range of print and electronic resources, but a key concern is that I can find the information I need quickly and easily. I have not received much training in using electronic resources and so I sometimes need help from my librarian to get access to e-resources and to navigate them. I usually access electronic resources when I am on site within my institution but, sometimes, I need to access from home or elsewhere. It can be harder to access the internet when I am away from my institution.

research4*life*

	My pain points are...	I need...	I would like...
Awareness	• Limited familiarity with the range of Research4Life resources available to me	• A clearer understanding of what resources I have access to	• Research4Life programmes to be consistently branded
User experience	• Complexity of Research4Life interface compared to searching other academic databases"	• A more straightforward approach to searching and finding relevant literature • Training on using Research4Life resources	• An improved interface and user experience • Option to include Research4Life in federated searches
Coverage	• Limited range of results compared to other academic database searches	• More resources in my subject area	• Coverage in new research fields
Admin	• Need to enter credentials to access Research4Life resources • Difficulty of accessing academic literature when out of the office	• An easy way to access Research4Life resources, including when I am out of the office	• An easy way to get access credentials and log in with fewer clicks
Technology	• Lack of a reliable and cheap internet connection	• Research4Life materials available with low bandwidth	• Research4Life materials available offline

Grace
User persona

I need access to research publications to find out about the latest developments in my subject area - both internationally and in my own country. This is vital for my research. I also use journal articles and other references in teaching and learning. I use a range of print and electronic resources, but a key concern is that I can find the information I need quickly and easily. I have not received much training in using electronic resources and so I sometimes need help from my librarian to get access to e-resources and to navigate them. I usually access electronic resources when I am on site within my institution but, sometimes, I need to access from home or elsewhere. It can be harder to access the internet when I am away from my institution.

research4life

Facts and figures about...

Frequent users	Infrequent users

36% / **7%**
Research4Life is my main source to find research literature

84% / **49%**
Research4Life has been very valuable for my career

90% / **73%**
I am satisfied with the content available via Research4Life

69% / **46%**
I am satisfied with the training available on Research4Life

69% / **46%**
I am satisfied with organisational support to users of Research4Life

74% / **68%**
I would find a Research4Life mobile app very useful

Appendix 6: Workshop report

Research4Life 2020 User Review

Validation workshop report

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Date submitted:	29 January 2021

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1. Introduction

The 2020 Research4Life (R4L) user review used a range of approaches – interviews, survey, focus groups and review of previous studies – to assess the current benefits and challenges with usage of Research4Life.

The review highlighted many positives for Research4Life users but also that many challenges remain. In particular, challenges around low levels of usage, low levels of awareness and some technical and user experience issues were identified. Many of these echo findings from previous user reviews.

As a result of the latest user review, seven areas of recommendations were identified:

1. Define **processes and outcomes**
2. Build **awareness, communication and community**
3. Expand and reconceptualise **training**
4. Improve **support** networks
5. Ensure **platform and technology** supports effective usage
6. Address gaps and sudden changes in **content**
7. Explore potential **new avenues for work**

These recommendations, along with the with reports of the findings, were shared with the Research4Life core team and their selected stakeholders in November 2020.

2. The workshop

Following the collation and sharing of user review findings and recommendations, a three-hour validation workshop took place on 10th December 2020 via Zoom.

The aims of the workshop were to:

- Draw out key overall findings and broader learning

- Discuss and reflect on these findings

- Collectively agree the key actionable recommendations

The workshop included 19 participants, selected and invited by Research4Life. They represented the R4L core team, publishers, participating UN agencies and end users, from a total of 11 countries.

In addition, five members of the user review team from INASP and Research Consulting participated to present a summary of the user review findings and to observe and take notes of discussions.

The workshop included a mixture of small group discussion about the recommendations and plenary feedback of key points of these discussions.

Within four small groups, each of the seven recommendations were discussed with the following questions:

- Is this a priority for R4L?

- Why is it important?

- How will it help R4L advance its goals?

At the end of the session participants voted on their priority recommendations.

In this report, we summarise the key reflections on each of the seven user review recommendations and share the priorities of the workshop participants.

3. Summary of workshop responses to the recommendations

Recommendation 1:

Develop a Theory of Change to define the expected outcomes, processes and assumptions of how Research4Life intends to reach its goal. This will help to guide Research4Life's priorities and actions.

Is this recommendation a priority for R4L?

All four small groups agreed that developing a theory of change should be a priority for Research4Life.

Why is it important/How will it help R4L advance its goals?

Participants made the following key points:

- The initiative does not currently have a theory of change and it would be very useful in defining plans and priorities and determining the future strategy.

- Research4Life includes many countries but does not have much money so it is very important to define the outcomes, which will help agree priorities.

- Having a theory of change would help Research4Life to clarify the problem that the initiative is trying to address and identify in which part in the overall process Research4Life is aiming to make a difference. As one group noted, "A theory of change would provide the mechanism to remain relevant and bring meaningful change and be future oriented."

- The R4L community already have the same overall goals, but a cohesive plan that brings together communications, technology – the various stakeholders across the different countries and sub-groups – would help everyone to see how it all fits together: "We have all agreed that we need to get our user numbers up, because we know it's a valuable resource, but we have been scattered in how we try to do that."

- Having a theory of change would help Research4Life in measuring its impact. To date, some workshop participants noted, monitoring, evaluation and learning (MEL) in Research4Life has centred on the findings from the five-yearly user reviews. Having a theory of change would enable clear, measurable goals to be defined and monitored on a more ongoing basis.

- A theory of change would facilitate more rapid adaptation where appropriate. It would also guide the evolution of Research4Life and feed into work in response to the other recommendations from the user review.

- A theory of change would be a useful resource for introducing R4L to new project team members and engaging with funders and potential funders, including publisher partners.

Workshop participants also talked about how the theory of change could be developed. They discussed whether Research4Life should have a focal contact person for the theory of change, and whether a MEL team could help monitor it. Some noted that support to the theory of change is a potential role for Friends of Research4Life to support and provide structure. They also noted that publishers are sitting on a "goldmine of knowledge" that can be fed into the process.

Participants noted that the process to develop a theory of change needs to look at what inputs need to be brought out, what processes this would involve, and what the intended outcomes are, to bridge the access gap for resource-deficient countries.

In addition, the process should look at long-term adaptability. Participants noted that Research4Life is currently working at activities level and carrying out "tasks" such as number of courses run. In contrast, the theory of change would focus on outcomes and outputs (such as a change such number of papers R4L has supported to publish) and pathways to achieve this.

However, there was also a note of caution: "if we implement a theory of change we have to really follow it – sometimes people forget about the theory of change until the end."

Recommendation 2:

Build awareness, communication and community

- *Identify what Research4Life's "unique selling (or value) point" is – and why it would be preferred over other e-resource platforms.*

- *Co-create, with key stakeholders within Research4Life countries, a communications strategy.*

- *Support – and ideally provide funding for - national-level activities to increase awareness of Research4Life and follow up and provide support where there are cases of low usage.*

- *Strengthen and expand committed networks of Research4Life champions and foster senior-level support for the initiative (for example, through deeper connections with government ministries).*

- *Cultivate a more strategic relationship with faculty at universities.*

- *Engage public agencies in the dissemination of Research4Life.*

Is this recommendation a priority for R4L?

Every group identified awareness raising as a key priority for Research4Life. Recognising that Research4Life's resources are limited and spread out, within this recommendation two areas in particular stood out as priorities for workshop participants: developing a communications strategy and plan, and building up local engagement.

Why is it important /How will it help R4L advance its goals?

Participants made the following key points:

- Communicating with and engaging with networks is a significant force multiplier. It amplifies R4L's efforts.

- The need for awareness raising is not a new challenge and past interventions have not always been very effective. "It's not a surprise to us to hear this, we've been aware of it ever

since I've been involved," was one comment. "It's really gratifying to see the great numbers saying they really appreciated R4L, it's helped them do better research and do better outputs, but it's still really worrying how many are not using it."

- A communication strategy is needed to align with the overall R4L goals and to professionalise the approaches to communications. Having a clear communications strategy would help R4L define priorities better. It would also help R4L to get engagement and support from stakeholders such as the UN agencies, and help R4L to be more easily embedded in wider programmes. Raising awareness needs to be part of the overall project design.

- Within the communications strategy there is also a need to do more to identify and understand the key audiences that need to be reached. Participants noted that it takes a long time to change perceptions and that communication and engagement should be tailored to address the different needs and perceptions of specific audiences, for example where librarians might have different perceptions than end-users.

- Improving communications and awareness requires investment on the part of R4L, in personnel and in developing strategies to communicate the current value of R4L, as well as to be agile and adapt to the complex and changing wider context in which R4L and its users operate.

- Local engagement is key. Some participants noted that R4L at an organisational level does not have the local contacts, for example with the national press within R4L countries or the connections with relevant national-level networks.

- Often R4L does not have connections within the universities and other registered institutions beyond the registered contacts. This can be a challenge for effective communication because often universities have multiple campuses. What's more, connections at universities can be lost when staff move jobs. "It seems the local awareness there is isn't sticking; there is so much change with staff so how do you get the knowledge in countries to take hold?" was one observation.

- The vast majority of R4L communication is in English. Local-language information about the initiative would aid communication and be a benefit of stronger local connections.

- To embed R4L at programme and country level R4L should identify local points of influence that already exist and partner with these networks, organisations and individuals. An obvious starting point is strengthening connections with the universities and other institutions that are already part of R4L. Participants also talked about ways to connect better with library consortia and other on-the-ground networks that span institutions, including library associations and also national or regional university associations.

- R4L could make more of the relationships with the various UN agencies that are partners in R4L, embedding R4L into those agencies' country-level programmes. As the UN programmes each link specifically to one R4L programmes, the focus would be more thematically targeted.

- Political buy-in is important, building the awareness of, and therefore the support to, R4L from national governments and ministries.

- Information literacy requires engagement of faculty; participants want to also identify ways to foster faculty champions too and, for example, encourage R4L to be incorporated into course work.

Workshop participants also had a few practical ideas for communications. They noted that the release of a content portal in 2021 (see Recommendation 5 for further discussion on this) is a great opportunity to connect with new users or to reengage with people who used to use R4L. Another idea was to use competitions in communities of users to raise awareness, an approach to communications that R4L has found successful in the past.

Recommendation 3:

Expand and reconceptualise training

- **Encourage institutions to embed training in Research4Life – and e-resources more generally - into undergraduate curricula and postgraduate training.**

- **Encourage more training and, crucially, ensure the sustainability of training efforts by including a training of trainers element so that insight from Research4Life training filters throughout institutions.**

- **Provide small training grants.**

- **Build Research4Life users' access skills and confidence on an ongoing and routine basis to grow usage.**

- **Consider why development of secondary training/learning materials is happening and if/how this should be encouraged.**

Is this recommendation a priority for R4L?

Participants in the workshop identified training as a priority for Research4Life, noting that it often goes hand in hand with awareness raising and usage.

Why is it important /How will it help R4L advance its goals?

Participants made the following key points:

- Registrations and usage go up in an institution or region after training. Training can help people to become aware that they are eligible for R4L.

- Expanded and effective training will advance the goals by creating awareness and capacity-building, as people need to be trained on how to make use of it, prevent misuse around copyright, and create a community.

- As R4L's resources are limited it is important to prioritise amongst the different possible ways to develop training.

- Although there are wider training needs and skills gaps in information literacy more generally – and that these are important–this is complex to address and should not be a priority for R4L. There are many competing resources available and it is better to provide good support to the things that are core to R4L than to do a broader range of training less well.

- There is a need to be more strategic about training. "The current levels of training conducted is like a needle in a haystack," observed one participant. It is not clear how the training is decided and organised, with decision making seeming to be quite dispersed. The suggestion was to have a more professional, maybe centralised approach to organisation of

training, then connecting in with the local knowledge, with communities of practice to support this.

- The key goal with training is sustainability. So supporting local training capacity, embedded into institutions, is needed to make training effective and sustainable in the long term.

- Training needs to be multi-level, with R4L centrally looking after the technology and then training to develop regional competency so that local training can be provided by people who know about the local context. R4L country representatives, working with institutional representatives, can feed back to R4L about what training is needed and whether it is best delivered via the MOOC, or the workshop, or a webinar.

- An important element of this recommendation is to grow training of trainers, supported by small grants to assist with putting on local training activities. This would enable people trained to go on and train others, which is key to sustainability and local ownership.

- A related point is the need to certify training for trainers courses. This would serve a dual purpose – to help R4L to know who has been trained to keep them updated with the latest news and resources, and to build recognition for the trainers and the work they do. Certification within the MOOC might be a good approach, inviting people to undertake training of trainers after they have completed the regular MOOC.

- As with Recommendation 2, identifying partners is important to help embed training, building up 'middle layer' between users and those who deliver R4L. Such partners might be library associations or national networks. Reviving R4L's focal points in countries could help with building a local sense of ownership of R4L. On a more informal basis, R4L currently has strong champions who organise training in some countries, including Nepal and Papua New Guinea.

- Although current R4L training focuses on researchers, doctors and other users, as well as librarians, and this varies between countries and between programmes, it is important to continue to focus on librarians as the key audience for training as the "middle layer between R4L and users".

Participants also discussed how training should be delivered, recognising that this depends on the context. The R4L MOOC has been well-received since its launch and seems to have been a success story of recent years. In particular, it has been valuable over the past year as the COVID-19 pandemic has prevented face-to-face training, and the pandemic has also provided an important learning opportunity.

But a MOOC is not always the answer and, as the user review found, has not yet reached a big proportion of R4L's librarian and user communities. Constraints with internet and power supplies can be an issue, and in-person training still has a place in enabling people to answer questions and solve problems on the spot. Using the training of trainer model and small training grants would enable institutions and regions to deliver the training that most matches the needs of their communities.

There was also discussion about the types of training resources available from R4L. One observation was a need to expand the range of materials, including adding self-paced online tutorials that users could do whenever they want to refresh their skills. This would be a complement to the existing approaches, sitting between the facilitated MOOCs and the bank of training materials for face-to-face training.

Some proposed gathering more user-generated resources. They noted that there are plans already in progress to develop short how-to videos and that this could be an opportunity to connect to local networks too (for example, asking librarians to submit their own videos).

User-generated content was also discussed in the context of supporting training in different languages. Workshop participants acknowledged that the vast majority of R4L training resources are in English and wondered if local librarians could help with translations. However, there are challenges, in particular ensuring that translated material is up-to-date. Here, a sense of local ownership is important to ensure any approach is sustainable; keeping track of updates to translations across many countries and languages is not a task that could be effectively managed by the central R4L teams.

Beyond the detailed discussions about how to do training, there was also a broader challenge about how much training should be the answer. "Training is excellent and people love it, but also we don't want training; we want something to be intuitive, the Google, Google Scholar, SciHub approach. The simplest approach is the best."

Recommendation 4:

Improve support networks

- *Provide, and increase awareness of, more promotional tools for librarians, so that librarians can be better equipped to engage with their users.*

- *Provide librarians with more updated usage statistics – to help them identify their own needs better and plan their training and interventions, as well as to advocate for registration.*

- *Improve the capacity to track logins so that librarians can have more confidence to release passwords to users without fear of penalties.*

- *Have clearly identifiable Research4Life contact people within institutions to raise awareness of Research4Life and provide support internally.*

- *Develop a network of local focal contacts within countries, to follow up on institutions with poor usage and provide tailored support to improve awareness.*

- *Explore alternative payment schemes with institutions for countries where payment is required; simplify and clarify subscription and payment processes.*

Is this recommendation a priority for R4L?

Improving support networks is a priority recommendation, according to workshop participants, and relates strongly to the previous recommendations about communications and training. It also links with the recommendation about creating a theory of change and identifying what changes will have the greatest impact.

Why is it important/How will it help R4L advance its goals?

Participants made the following key points:

- Improved support networks will help R4L better understand how to get R4L to more of the people who need it and help identify the right training needs for the right circumstances.

- As with the previous two recommendations, a priority is to ensure that support networks and systems work in the local contexts. Across the countries that R4L works, there are many skilled professionals who could take on much more involvement and leadership. A dream might be to have at least one resource focus person per country, who know their local

context and can guide R4L in the direction. This could create a sense of community, sharing and support each other.

- Local support is not a one-way process; the user community can guide each other, and guide R4L.

- It is important to identify the key stakeholders here. These key local contacts are probably not going to be users; users are most concerned with how to access R4L and who they should contact if they need help. Instead, the key focal points will be regional and institutional representatives. Institutional representatives should be able to contact their regional representatives, and the regional representative can contact R4L. It is important to appropriately resource and empower regional focal points. Librarians should also be recognised as key within this process.

- As with the previous recommendations, participants considered possible local partners for providing support. Suggestions included like ITOCA, university consortia, science councils, national or regional university associations and partners who work at regional level in more countries. People also mentioned linkage with associations of libraries and connecting with other training partners across the world.

- It is important to strongly link support services and networks to the communications and awareness plans of R4.

- Early-career researchers could play a role in support and wider engagement, especially if they have a strong following on social media; this could help the initiative to tap into new networks and the younger generation.

- As with the discussions about training of trainers in the previous section, there is a need to recognise involvement and contributions. This might be financial but it could also be with official roles or badges, or by providing them with a platform to speak.

- Providing statistics about usage of R4L within their institution is crucial for librarians. Monthly statistics – even just on log-ins – would help libraries to see the impact of training and marketing so could reinforce the value and impact of undertaking this effort.

- Statistics are useful for publishers – and having this evidence might support other R4L goals such as expanding content availability or moving into other areas such as capacity development (for example supporting authorship). Statistics could also help R4L engage and expand collaborations with other publishers – to expand content, publisher buy-in and continue to lessen the digital divide.

- Statistics should go beyond just content downloads, to, for example, also include webinar engagements and the surrounding components of platform. Such data is also vital for understanding and demonstrating the impact of the processes and priorities agreed in the theory of change.

- The issue of payment challenges in Group B countries, was not discussed in detail in any of the groups. However, it was acknowledged to be a challenge and something that R4L is looking to address.

Recommendation 5:

Ensure platform and technology support effective usage

- *Simplify the interface and improve the search process so that users can reach the right content more quickly.*

- *Explore options for offline content for situations where bandwidth is constrained, or internet connections are unstable.*

- *Consider developing a mobile app, especially to meet the needs of healthcare providers and those doing research in the field.*

- *Clarify authentication processes and improve flexibility to respond to crises.*

Is this recommendation a priority for R4L?

Workshop participants also identified appropriate and reliable technology as important to the continued usage of the initiative, particularly amongst so many sources of information. However, there have already been many technical developments over recent years, in response to past user reviews, with others currently in development. This, participants observed, is indicative of technology already being a priority for R4L but not such a priority for new work over the next few years.

Why is it important/How will it help R4L advance its goals?

Participants made the following key points:

- The issue of authentication has historically been a challenge for R4L and has been the topic of significant development over recent years. Having a good and simple way to reach R4L content is inevitably key to a good user experience of R4L. It is also important for avoiding users seeking out seemingly easier options that might result in them paying more or turning to platforms with less reliable quality control or that are not supported by the publishers.

- R4L has made significant steps to improve the authentication system over recent years, which users have noticed. However, there were still some comparisons with other platforms where searches on, for example, Google Scholar or PubMed will generate a link without further authentication being required. There was some discussion about plugins that would automate this and enable more seamless linking. One suggestion was to use the browser plugin Lean Library.

- The additional challenges of the current COVID-19 pandemic have highlighted the importance of flexibility with authentication.

- The content portal, updated in response to previous user reviews and due to roll out in 2021, should be simpler, more attractive and easier for students to use.

- Being able to access R4L easily from mobile devices is very important. However, the new content portal is being developed to be available and optimised for mobile devices, removing the need for a separate app.

- Offline access was generally not seen as a priority amongst workshop participants. In addition, it was seen to be difficult because offline access of research materials depends on individual publisher permissions.

Recommendation 6:

Address gaps and sudden changes in content

- *Address issues of content gaps, especially the impact of sudden changes as a result of changing economic status. Advocate for publishers to avoid sudden implementation of exclusions.*

- *Explore ways to include more locally relevant content, for example by expanding links with local publishing platforms.*

- *Increase the number of relevant non-English-language resources.*

- *Clearly communicate to users when changes to the platform or content are made.*

Is this recommendation a priority for R4L?

There was a general sense in the workshop discussions that enhancing content availability and range was important for R4L.

Why is it important/How will it help R4L advance its goals?

Participants made the following key points:

- Enhancing content would support greater use and potentially impact.

- Developing access to locally generated and locally relevant content and content in languages other than English as part of R4L's offering would improve the relevance of the content to users and ability to address development challenges. Participants noted that R4L's content group is looking at bringing in more local publications, noting that it is key to developing a global solution about global knowledge and moving from being 'top-down' to an integrated global knowledge system.

- However, collection development takes time and there are some concerns about if publishers within R4L countries would want to make content available for free in their prime markets if they rely on revenue from subscription sales.

- Some other approaches suggested for expanding R4L's breadth of content included R4L connecting with and supporting resource sharing networks exist and connecting with pre-print servers.

- Complicated publisher exclusions are a barrier for users and can drive users to resources like SciHub. Content gaps pose a risk of losing users as a result and that the value of the programme goes down when hit by exclusions.

- Publisher exclusions are also an administrative burden for the R4L team. The issue of differential content has come up repeatedly since beginning of R4L.

- However, for publishers, it comes down to a sales decision and many publishers might not be able to be involved in the initiative if they didn't have an option to exclude content from countries they see as commercial opportunities.

- Communicating the issues and challenges of publisher exclusions more clearly to both users and publishers is very important. R4L has a working group looking at this issue, which is helping to broach this difficult topic.

- Communicating change is also important to reflect additions and removals of content that happen on an ongoing basis. Annual emails librarians about changes may not reach end users.

- A particular challenge arises in the situation where a country moves from Group A to Group B. This is a difficult situation for users and they can feel angry and frustrated that the sudden changes do not reflect the reality they see on the ground in their country.

- One suggestion to help communicate changes was to include something about it as part of the annual partners' meeting.

Recommendation 7:

Explore potential new avenues for work

- **Consider new partnerships and if there are benefits in expanding into new subject areas.**

- **Explore the feasibility of supporting Open Access processes, for example administering APC waivers or serving as an intermediary for publishers in communicating about Open Access to potential authors and readers.**

Is this recommendation a priority for R4L?

There were some differing views within the groups about to what extent exploring new avenues for work should be a priority for R4L. Some noted that there is already so much work to do with the partners and subject areas that the initiative already has so there is a need to be careful not to spread people and resources too thinly. There is also a need to be clear on the key goals that the initiative wants to define better as a result of the first recommendation.

On the other hand, some cautioned against R4L boxing itself into a model that could become redundant rather than one with avenues for change and growth. "We cannot simply focus on access when the overall environment is changing. This can be an incremental process," was one comment.

Why is it important/How will it help R4L advance its goals?

Participants made the following key points:

- Expanding the range of subjects covered by R4L, especially to incorporate business, education and other social sciences, would bring in more users.

- Open Access is important as a route to supporting research communications from other regions, not just the northern hemisphere. Expanding and diversifying partnerships, as discussed elsewhere in the workshop, will lead to an evolution of R4L's capacity building work.

Regarding expansion into social sciences, participants were clear that they did not want R4L to add any new programmes to accommodate this. Instead, they suggest broadening GOALI to be a law and social sciences programme, and enabling people to select subject areas within the programme.

Open Access was highlighted as important in the landscape review – and, to a lesser extent, the user review. However, opinion was divided about whether it should be a priority for R4L at the moment. On the one hand, some felt that R4L needs to evolve to provide a much fuller service, potentially covering the full research cycle. However, those involved in the initiative are already stretched to

capacity at the moment so expansion into new areas is dependent on R4L being professionalised and better funded.

There is a task force within R4L already monitoring Open Access and exploring possible approaches for R4L to take and it seemed that in general this was seen as an appropriate level of response at this current time, although R4L may need to make a decision in the future about how to respond.
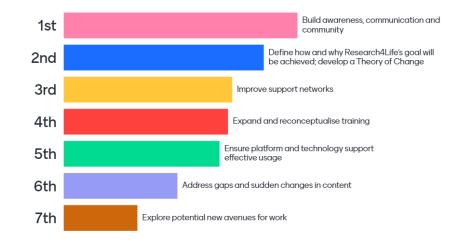
One observation was that R4L already receives many enquiries and requests about Open Access because many publishers use the R4L country classifications as criteria in their APC waiver policies. Work with new partners could also help the initiative to address responses to Open Access, for example brokering conversations with the publishers about waivers. They noted the need to work with publishers as partners, not just content providers. Small pilots with partners could help R4L to test and identify potential areas for change and growth in this area.

4. Priorities and conclusions

Feedback from the workshop was positive and constructive. Workshop participants agreed that the recommendations were in line with their expectations and useful for guiding development of Resesarch4Life.

In most cases there was consensus that these recommendations should be priority areas, although, within several of the broad topics, there were some priority recommendations to focus on more than others. The exception was recommendation 7 (new areas of work), where opinions were more mixed; although people saw value in following trends in, for example, open access, and being responsive to changes in the wider information landscape, there was a general feeling that it was important to strengthen the usage and awareness of the existing offering before spreading resources more thinly to address new areas.

At the end of the workshop in a Mentimeter poll participants were asked to rank the seven recommendations in order of priority.

Rank the recommendations in order of priority

1st	Build awareness, communication and community
2nd	Define how and why Research4Life's goal will be achieved; develop a Theory of Change
3rd	Improve support networks
4th	Expand and reconceptualise training
5th	Ensure platform and technology support effective usage
6th	Address gaps and sudden changes in content
7th	Explore potential new avenues for work

As the group discussions indicated, exploring potential new avenues for work was the lowest priority. The top two were "Build awareness, communication and community" and "Define how and

why Research4Life's goal will be achieved; develop a Theory of Change". Some noted that the priority ranking might have given a slightly different view if the vote had been on the bullet points under each recommendation.

There was some surprise that technology enhancements and platform developments were only ranked fifth in the priorities. Some noted that technology might have ranked higher if R4L had not already made progress in this area and that this was different from previous reviews (which had identified technology developments as a high priority). However, ensuring technology is appropriate for users is still important.

There was considerable overlap between the themes, with much of the discussions assuming that goals and a roadmap to achieve those goals will be clearly defined, as proposed in Recommendation 1.

From the discussions, the key theme underpinning most of what excited participants was to increase engagement at a local level as a way to understand and respond to context and challenges more deeply and to increase the sustainability and sense of shared ownership. Within the chat some of the comments were "Feel excited about the local empowerment focus that has come out of today" and "the local agency piece was great to hear".

Local-level engagement, which particularly spans communications, training and support, means building stronger local-level connections with organisations, networks and individuals. It also means fostering stronger communities that feel shared ownership for R4L rather than seeing R4L as a service that they are consumers of.

Appendix 1 – R4L learning session programme

DATE: 10th December 2020, 13:00-16:00 GMT

The key aims are to:

- Draw out key overall findings and broader learning
- Discuss and reflect on these findings
- Collectively agree the key actionable recommendations

The event will generate the following outputs:

- A set of reflections on the recommendations presented
- A ranked set of recommendations

Agenda

DAY: 10th December, 2020		Who?
13.00 – 13.10	Arrival & Settling in & Introductions	All/AP
13.10 – 13.20	Welcome and purpose of workshop	AP
13.10 – 13.25	Summary of findings	INASP
13.25 – 13.45	Review of recommendations 1 & 2: 1. Define how and why Research4Life's goal will be achieved; develop a Theory of Change 2. Build awareness, communication and community	Group work: Questions: • Is this a priority for R4L? • Why is it important? • How will it help R4L advance its goals
13.45 – 14.00	Plenary discussion on reflections	Comms Team – EH & DF
14.00 – 14.15	BREAK	
14.15 – 14.35	Review of recommendations – 3 & 4: 3. Expand and reconceptualise training 4. Improve support networks	Group work: Questions: As above
14.35 – 14.50	Plenary discussion on reflections	CapDev & Fundraising – GA & DD
14.50 – 15.10	Review of recommendations – 5, 6, 7 5. Ensure platform and technology support effective usage 6. Address gaps and sudden changes in content 7. Explore potential new avenues for work	Group work Questions: As above
15.10 – 15.25	Plenary discussion on reflections	Tech Team & Content Strategy Team – HM & MO
15.25 – 15.40	BREAK	
15.40 – 15.50	Ranking of recommendations – using Mentimeter	INASP
15.50 – 16.00	Wrap up	AP

Appendix 2 – list of participants

INASP (Verity Warne, Siân Harris, Femi Nzegwu and Josie Dryden)

Rob Johnson, Research Consulting

Andrea Powell – STM (Reviews Manager)

 and Kimberly Parker – WHO (Reviews Administrator)

Maria Folch – R4L Helpdesk

Richelle van Snellenberg – GOALI Programme Manager

Imma Subirats – AGORA Programme Manager

Angeline Djampou – OARE Programme Manager

Mussadiq Hussain – ARDI representative

Ylann Schemm – Elsevier (Chair of ExCo)

Gracian Chimwaza – ITOCA (Chair-elect of ExCo)

Daniel Dollar – Yale (Fundraising Ctte)

Domiziana Francescon – Elsevier (Communications Ctte)

Edit Horvath – ILO (Communications Ctte)

Gabriela Paz – UNITEC (User Rep)

Mary Ochs – retired (Content Strategy Ctte)

Brahim Jrah – CABI (Publisher)

Janet Remmington – T&F (Publisher)

Gehane Al Garraya – WHO (Capacity Development Ctte)

Lenny Rhine – retired (Capacity Development Ctte)

Appendix 7: Feedback received after the review

During the course of the research, some people consulted indicated willingness to provide feedback on the findings and be available for follow-up consultation by Research4Life. Some responses received by email are shared below with personal details removed.

Analysis of this feedback is outside the scope of this study but the responses broadly reiterate the findings of the review as a whole. These contacts may be useful in fostering community engagement and gaining deeper local-level insight, with some indicating they would be interested in conducting studies within their countries.

Respondent 1

I am one of those users who use Reserch4Life "a lot" and I think that the opinions of this group are more important than the opinions of "non-users" group (very high, 42%), whose opinions obviously need to be taken into account, also. It is interesting to understand the motivation of participation of such an impressive number of "non-users" in this survey; a) I think, it is a high interest of them in the program, but, b) may be, the most of the "negative" reactions come from this group, firstly, from the limitations they have, but also from the insufficient knowledge of the realities that the program offers for users (they use second hand information). For me, Hinari is something vital; I can't imagine now how I could live in my profession of a teacher, physician, researcher (and librarian) without this access to information. We are now witnessing those searches for solutions to the fight against pandemic COVID 19; I am sorry to note that many erroneous recommendations are made, namely due to lack of access to information of good quality with a sufficient degree of evidence. Hinari is extremely helpful in this context.

I, personally, greatly appreciate your efforts to further increase access to information and this survey is a research of a very good quality and very necessary in this context.

Respondent 2

I would like to share my experience on using the research4life database. Let me first of all introduce myself; I am Dr. XX Associate professor (teacher and researcher) from the University of Monastir (Tunisia). The first time I listen about research4life it was via my university to assist to a Mooc which presents the activities and the use of different databases given by research4life in different fields. Thus I discovered that I have a very rich knowledge database and information that I didn't used before in agriculture and environment resources. More than this, I discovered that my country has a free access via a password forwarded to my Institute. But the real use and useful of the databases it was in the covid-19 confinement period where you have given me a password to access at home. I have done a good research for me and my PhD students.

I have to thank you very much for these very useful services. But I wish that we will have an access at home to have more time to access to different publications and to avoid some disturb caused by internet connection at work and the change of the administration so the password is not given for all researchers.

Thank you again,

Respondent 3

I appreciate the tireless efforts R4L put in closing the information gap between countries. I find no problem sharing my details with the R4L for future engagements.

I'd like to comment on the 2nd Recommendation above; **"Build awareness, communication, and community".** This resonates well with the actual situation in my country, Kenya.

There seems to be limited awareness of R4L in tertiary institutions in Kenya, research organizations and even the government agencies. I'd suggest that we focus on the middle-level colleges, which handles the majority of the post-secondary students in Kenya. This is a niche that has very limited uptake of digital information, struggling to cope with the financial constraints but with the great need of up-to-date information resources to meet their dynamic demands.

I'd add that we need more outreaches, workshops and awareness campaigns in the region.

Respondent 4

Thank you for getting back. Sorry, school has just reopened and you can imagine the pressure on us with the Covid-19 pandemic hovering over us!

Yes, I believe Research4Life needs more promotion to highlight its benefit to university communities and am prepared to participate in any way possible to make it successful! I in my small way, have been creating awareness to faculty and staff through the institution's email. And am currently planning to organise a series of seminars in collaboration with the University's Quality Assurance Unit through zoom to faculty and staff of our university.

Thank you.

Respondent 5

Happy new year. Thank you getting in touch with me. I will be very happy to share my thoughts about research4life.

I will like to conduct a survey on knowledge and utilization of research4life in Cameroon, ow much people know about it, and who is using it and what challenges they face, and what they think can be done to improve their utilization. Thereafter, I will like to organize seminar on research. If there are existing tools to use, I will be grateful

Feel free to share my contacts.

Respondent 6

I am happy to hear from you!

Research4Life is a good project, particularly in the developing world, where policies are designed based on either inadequate data or insufficiently researched projects.

As a researcher, I partly blame the failure of programs and projects for the half-baked and do not fit the societies' development requirements. Therefore, I welcome the robust efforts aimed at increasing research and innovation in low-developed countries. Such a move will change the conceptual understanding of development in the developing world and generate new paradigms suitable and compatible with fighting poverty and other related problems. In essence, this will bolster a new wave of well-informed policy designs based on research and analysis.

Hence, based on the above, I am willing and ready to carry further the ambitions and aspirations of Research4Life, not only in Uganda but also in the East African Community.