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Never Waste a Crisis: Digital Inclusion for Sustainable Development in the Context of the COVID Pandemic

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Editor's Note On February 8–17, 2021, the United Nations (UN) Commission for Social Development held its 59th session with the priority theme — Socially just transition towards sustainable development: the role of digital technologies on social development and well-being of all. To welcome the 59th session and show the collective will and common pursuit of librarians around the world, IFLA issued a statement in October 2020, calling on governments and libraries to take positive actions and emphasizing that governments and libraries must become active promoters of digital inclusion. In order to show the common voice of the Chinese library community and the international library community, the column of Experts' Written Talks of *Library Journal* specially invites domestic and foreign library leaders and well-known experts and scholars to discuss the theme of “Library and Digital Inclusion”, and to arouse wider attention of the Chinese library community and more active participation in the “Library Pledge for Digital Inclusion” initiated by IFLA and “Call to Action”.

Bridging Digital Divide and Promoting Digital Inclusion: The New Mission of Libraries in the Information Society

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Abstract In responding to United Nations' Sustainable Development Goals in 2030, the International Federation of Library Associations and Institutions recently launched the mutual commitment of Library Pledge for Digital Inclusion and its Call to Action along with other international organizations. Domestic and foreign library leaders and well-known experts and scholars discuss the theme of Library and Digital Inclusion. Rao Quan points out that with the development of modern technology, the digital divide has become a growing problem. The National Library of China has put forward an idea of building a “National Smart Library System”, to lead public libraries to realize smart transformation and to play a more active role in promoting digital inclusion; Christina McKenzie explains that the purpose of this article is to describe the work of the International Federation of Library Associations and Institutions (IFLA) in supporting the United Nations 2030 Agenda and the Sustainable Development Goals and in particular Goal 16: ‘Achieve peaceful and inclusive societies, access to justice for all, and effective and capable institutions’, emphasizing how governments and libraries must become active promoters of digital inclusion; Gerald Leitner points out that, any effort to promote digital inclusion needs to consider all three aspects — connectivity, content and competence. Without them, it is impossible to fully realize digital inclusion. Through their role as public spaces in the heart of communities, as storehouses and portals to content, and as experienced educators of information literacy, library has a unique role to play in any wider government strategy in the field; Chen Chao points out that both history and reality, theory and practice, have long taught us that public

libraries should shoulder the inescapable mission of promoting human society's inclusive development of human society. Public libraries must take on the responsibility of "bridging the digital divide and promoting digital inclusion", providing everyone with the opportunity to go online and enabling everyone with equal access to information and knowledge; Wu Jianzhong argues that we should actively participate in IFLA's appeals and initiatives and make a strong voice on behalf of the library community at home. First, we should vigorously publicize our country's policies and measures to protect citizens' rights to obtain basic public cultural services. Second, we should actively promote the application of the Internet and digital technologies in libraries. Third, we should continue to improve the quality of media and information literacy services; Reflecting on the complexity of the digital divide from the perspective of the individual's information world concept proposed, Yu Liangzhi sees social inclusion and digital inclusion as mutually conditioning and argues that public libraries have greater potentials for contributing to digital inclusion in this context than hitherto realized and recognized; Xiao Long argues that, while supporting the statement on digital inclusion issued by IFLA, Chinese academic libraries should be aware of the great information gap in a society and strive to reduce the regional information gap, thus protecting the information rights and interests of different groups and promoting the intensive development of higher education; Amanda Reed and Kim M.Thompson suggest that when crisis, changes, and challenges arise, it is also time to take a step forward. Her essay provides examples from a US library to demonstrate how public libraries can meet local needs and support sustainable development of communities toward a more digitally inclusive society in face of the COVID-19 crisis; Jin Wugang thinks that the library should strengthen the function of popularization of science, actively participate in the development of new media products, integrate into the public media communication platform, help the public distinguish the authenticity of online information, inquire and obtain correct information, and solve the deeper issues in digital inclusion; Based on the current technological changes, Wu Dan and Liu Jing focus on the interaction between human and technology. They extend the connotation of digital inclusion through two paths. One is "technology→human" and the other is "human→technology" and they also put forward the development strategies for the field of LIS.

Keywords Digital divide, Digital inclusion, Information society, Digital technology, *Agenda 2030 for Sustainable Development*, Libraries, Public libraries, IFLA

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To better promote digital inclusion with smart transformation

Rao Quan

At present, a new round of technological revolution led by advanced technologies, such as the 5G network and artificial intelligence, is booming and we are entering a new development stage of "smart society". Meanwhile, the uneven development of information infrastructure, the high price of digital publications and citizens' lack of digital skills have made the digital divide an increasingly important global issue. According to statistics, as of the end of 2019, the Internet penetration rate in developed countries has reached 86.6%, while the least developed countries' online population only accounts for 19.1%^[1]. The International Telecommunication Union (ITU)

stated in a report released in September 2020 that as the COVID-19 had spread globally, the digital inequalities had become more highlighted^[2]. In this context, the Commission for Social Development of the United Nations has set the theme of the annual meeting in 2021 as "transition to sustainable development in a socially just way: the role of digital technologies on social development and the well-being for the people", which fully demonstrates the commitment of the international community to bridge the digital divide and promote digital inclusion.

In China, there is still about one-third of the population without access to the Internet^[3], and

the digital divide has increasingly attracted the attention of the CPC and the central government. In 2016, President Xi Jinping emphasized on the security of national network and informatization, We must adapt to the expectations and needs of the people, accelerate the popularization of information services, reduce application costs and provide people with accessible, affordable and convenient information services, so that letting hundreds of millions of people have the sense of gain in sharing the fruits of Internet development.”^[4] The Fifth Plenary Session of the 19th CPC Central Committee further proposed the goal of “improving the digital skills of the whole population and achieving full coverage of information services”, making exact strategic arrangements for the bridging digital divide and promoting digital inclusion. Against this background, the library field also urgently needs to establish a new type of sustainable knowledge service format, relying on intelligently interconnected management system and service network, to further extend the coverage of public knowledge services and to enable the public to have equal access to basic information necessary for daily life, study and work. The new format, at the same time, can provide professional and systematic guidance and technical support for readers’ timely discovery, effective screening and convenient access to credible and useful knowledge resources among the massive information of the Internet, and improve their digital survival and development capabilities, so as to better play the role of public libraries in ensuring social information equity and bridging the digital divide.

Over the past two decades, the National Library of China has implemented the National Digital Library Project and the Digital Library Promotion Project, united with public libraries at all levels across the country to build a nationwide digital service network and promoted the extension of high-quality digital library resources and

services to urban and rural communities. The National Library has been making unremitting efforts to ensure special groups’ opportunities of equal access to digital reading and learning resources through constructing China Digital Library for People with Disabilities, launching public training such as “Caring for the aged, Classroom for the Elderly”, and providing fixed-point assistance for remote and poor areas. Today, under the new situation of the rapid development of advanced technologies such as artificial intelligence, the National Library has done further research and proposed the idea of building a “National Smart Library Network”, in the hope of promoting the smart transformation of public libraries at all levels, thereby playing a more active role in promoting digital inclusion.

The first is to apply cloud computing technology to create a public sharing knowledge content integrated management platform. It can provide one-stop support and service of knowledge collection, production and processing for public libraries at all levels nationwide, and other public welfare, commercial and non-profit institutions. It aims to promote a more extensive, efficient and convenient common understanding, co-construction and sharing of high-quality reading and learning resources, so that the diverse reading and learning needs of different users can be targeted to meet.

The second is to build a centrally integrated smart library management system based on cloud infrastructure. It can provide unified, stable and reliable software and hardware support for public libraries at all levels and their service points. It can also support basic level libraries and their service points in urban and rural areas to effectively break through the bottleneck of the lack of professional and technical personnel and equipment, and to access the smart knowledge service network at the lowest maintenance cost, providing the public with more opportunities of equal participation in

digital life.

In the meantime, in the process of smart space design, smart technology application, digital resources and smart service provision, public libraries should also take into full consideration difficulties in digital intelligent technology application facing special groups, such as the less

educated, low-income earners, the elderly, minors and the disabled. Libraries should continue to strengthen digital skills training for these special groups, help them learn and make good use of digital network facilities and equipment to fully enjoy the convenience brought by the development of “smart society”.

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IFLA: libraries and digital inclusion

Christine Mackenzie

IFLA is the global voice of the library and information profession. Founded in 1927, IFLA has 1,500 members in 150 countries around the world. Membership comprises national associations, international associations, institutions, individual members and other organisations. Its aims are to promote high standards of provision and delivery of library and information services; encourage widespread understanding of the value of good library and information services; and represent the interests of members throughout the world. Its vision is A strong and united library field powering literate, informed and participative societies.

In September 2015, the 193 Member States of the United Nations adopted Transforming our world: the 2030 Agenda for Sustainable Development. There are 17 Sustainable Development Goals (SDGs) and 169 targets to achieve this Agenda. The United Nations Secretary

General at the time, Ban Ki-moon, said that “The Global Goals represent a universal, transformative and integrated agenda that heralds a historic turning point for our world.”

IFLA participated in developing the UN 2030 Agenda, and was at the table when the goals were being formulated. Since 2012 it has been advocating for the following to be included in the Agenda:

- Ensuring access to information
- Safeguarding of cultural heritage
- Universal literacy
- Access to information and communication technologies (ICT)

For five years now IFLA has been promoting the SDGs and advocating for and to libraries on the role they play in making the world more sustainable. The COVID-19 pandemic has further underlined the importance of everyone being able to get online and make full use of the

internet, to support learning, research and cultural participation.

Digital inclusion is one of the key issues of our time. Tim Unwin, Emeritus Professor, Royal Holloway, University of London, UNESCO Chair in ICT for Development (ICT4D), writing in the Development and Access to Information 2019 report, says that technology is increasing inequality. While digital technologies offer vastly increased free (to end user) knowledge sharing, 44% of the world does not have access to the internet (April 2019) and without universal access inequality will increase. Unwin also says that “content and information alone do not reinforce power.” We as librarians must recognise that simply providing library collections is not enough to improve equality. People need skills and infrastructure to access the knowledge that is contained in the content libraries hold. Simply having a connection, a device, and even content is not enough to solve the digital divide. People need to feel confident, and have the necessary competencies to make the most of being online.

Libraries play a very important role in promoting information literacy, and helping people navigate the online environment, as we have moved from information scarcity to information abundance. Libraries are available to all members of the community and provide content in many different formats across many media types. As well, they are helping people gain skills and a greater awareness of the benefits and pitfalls of being online. Libraries provide free access to use the internet, and also the support and training people need to become skilled and confident internet users.

IFLA is promoting three documents to help address the digital divide and promote digital inclusion.

IFLA has worked with like-minded organizations to develop Call to Action — Libraries in Response: Every Community Connected. It calls

on governments to support investment in wider connectivity and also investment in the libraries that help users access online information. The document has been presented at United Nations and Internet Governance Forum events and its purpose is to gather support and consensus for putting libraries at the heart of efforts to ensure meaningful connectivity and respond to the pandemic.

The second is the Library Pledge for Digital Inclusion — a pledge to do all in our power to promote digital inclusion. This sets out libraries’ readiness to promote maximum connectivity, access to content, skills support and to advocate for public access. Over 500 associations, institutions and individuals have already signed the pledge.

The third is Get Connected: Public Access Policy Toolkit. IFLA has worked through the Dynamic Coalition on Public Access in Libraries at the Internet Governance Forum to produce the toolkit. It provides an overview of the different policy areas where it may be necessary for governments to act and it is intended for libraries and library associations who can use the diagnostic toolkit at the beginning to decide on priorities. It offers a short introduction to different policy issues relevant to public access in libraries; sets out some key advocacy points which library associations and libraries could make; and offers links to more information.

There is urgency about ensuring access to online information and libraries have an important role in advocating for meaningful access to information. Let’s work together to bridge the digital divide and become active promoters and enablers of digital inclusion.

Christine Mackenzie is the president of IFLA and a freelance librarian from Melbourne, Australia. She has had a 40-year career in public libraries in Australia and has held a number of roles in IFLA. She was President of ALIA and is a co-founder of the INELI Oceania program and the Pacific Libraries Network. She has served on state and national government advisory boards relating to libraries and has contributed to international organisations promoting technology and the internet.

Digital Inclusion through Libraries: A Pressing Priority, A Natural Mission

Gerald Leitner

On 16 October 2020, the International Federation of Library Associations and Institutions (IFLA), alongside partner organisations, launched *Every Community Connected: A Call to Action*^[1].

Developed in preparation for the 2020 Internet Governance Forum, itself forced to take place online due to the COVID-19 pandemic, the Call aimed to raise awareness among decision-makers of two key facts: the urgency of bridging the digital divide, and the role that libraries can play in doing so.

The digital divide is clearly not a new idea. Indeed, ever since the internet was first developed, there have been those who are connected and those who are not.

Yet as the internet has become more and more central to our economic, social, cultural and civic lives, the costs of not being part of it — in terms of exclusion — have grown.

Crucially, it is not just a case of more information being created online, but also less being created offline. Newspapers and journals that used to be printed are now online only. Government services are increasingly digital. Even cultural activities such as the physical renting of films is a thing of the past.

The access to information that libraries have long championed as a driver of personal and community development, it seems, is increasingly dependent on having the possibility to get online and use the internet.

Pre-COVID, the digital divide was therefore already an emerging crisis. The pandemic has simply accelerated this shift, closing off many opportunities for access to the physical services which provided a safety net for people who were still offline.

The challenge now is to prevent the digital

divide from becoming a digital chasm, and to ensure that everyone has the possibility to benefit from the possibilities that digital tools offer.

It is a challenge to which libraries provide a uniquely powerful response.

The Market is not Enough...

The most common understanding of the digital divide is between those who do – and who do not — have a connection to the internet.

In 2019, just over 57% of households have internet access, and just over 51% of the world's population as a whole would therefore count as being on the right side of the digital divide, leaving billions offline^[2].

Critically, this leaves around 4 billion people excluded from even the chance to make the most of the internet.

This is a sub-optimal situation. Governments and economies have much to gain from a connected, enabled society, even if citizens' ability — or willingness — to pay is too low for a company to make the investment.

This is where libraries can come in, providing public access solutions that can act as a stepping stone towards home connectivity for many, a backstop for those resistant to have the internet at home, and a complement for users who may feel more comfortable going online with others.

During the COVID pandemic, in some parts of the world, we have seen libraries direct their Wi-Fi routers towards car parks so that patrons can access the internet from their cars. Others have remained open purely in order to allow for computer access. Still, others have bought and lent Wi-Fi hotspots^[3].

That people are ready to spend time in a car park, travel to the library during the lockdown, or wait in a queue for a hotspot underlines the need

that exists, and that is not met by the market.

In effect, libraries appear to be filling in the gaps left by the market. Once the pandemic is over, there is a strong case for making public access to the internet in libraries part of any country's overall broadband strategy.

While we would argue that direct government support for public access to the internet seems likely to pay off in terms of better access to education, work and entrepreneurship opportunities, another option for supporting this access could be universal service funding^[4]. Once libraries are connected, they can even act as hubs from which new Wi-Fi technologies bring connectivity into people's homes.

But Also, Connectivity is Not Enough!

The physical possibility to connect to the internet is of course a pre-condition for being able to participate fully in a digitalised economy, society and polity.

However, we cannot simply stop at getting everyone online. As we have arguably seen, during the pandemic, a lack of content, and of competences, are just as significant as barriers to meaningful digital inclusion.

Content — the existence of information that can help, educate and entertain us — is of course a key reason why people go online in the first place. After cost, a lack of interest in the internet content available on the internet is often cited as a reason for remaining offline^[5].

This can be because content isn't seen as relevant or isn't in a language that is understood. It can also be because content is hidden behind paywalls, or subject to other copyright restrictions. In particular in the pandemic, we have seen the ability of schools, universities, research centres and heritage institutions to use the internet to enable continued access to content restricted by the terms of licences, or simply a lack of relevant exceptions.

The second major barrier is competence. Using the internet fully and effectively depends

on high levels of literacy in general, and in particular acute information literacy skills, itself a core part of digital literacy^[6]. The rise of online misinformation places a major responsibility in the hands of internet users to make judgements, something they too often are asked to do without meaningful support.

This has an obvious effect in terms of under-use of the potential of digital tools. It can also cause harm when people are misled online, share misinformation themselves, or fall victim to frauds or scams which can create fear of the internet for life.

Once again, there is a real role for libraries to play. As concerns content, libraries have always had the role of ensuring that access to knowledge is not the preserve of those who can build their own private collections. Online too, libraries have been able to buy access to databases and resources which can then be made available to users.

Clearly, this is not a given. There are concerning stories of major publishers, in particular in the academic space, trying to work directly with students and shut libraries out. More widely, copyright laws have not help up with the times, restricting libraries' ability to give access to content digitally. Action is needed on both if we are not to end up in a situation where knowledge becomes a luxury good. On skills, too, libraries bring a long history of supporting information literacy among their users. As highlighted above, this is an increasingly essential competence in a digital world. Through both informal and non-formal learning, librarians are building the capacity, and the confidence among users to make fuller use of digital tools. Indeed, as a pre-existing network, libraries offer an infrastructure for developing digital skills — and so digital inclusion — for people of all ages.

Conclusion

In short, any effort to promote digital inclusion needs to consider all three aspects — connectivity, content and competence. Where one

is missing, full digital inclusion is not possible. And where people are not digitally included, they are less able to realise the potential of the internet to improve their own lives and those of the people around them, as well as to contribute to wider economic, social and civic life.

In turn, libraries offer a set of characteristics and strengths that makes them uniquely powerful as drivers of digital inclusion. Through their role

as public spaces in the heart of communities, as storehouses and portals to content, and as experienced educators of information literacy, they have a unique role to play in any wider government strategy in the field.

I encourage libraries everywhere to advocate for the inclusion of libraries — and the relevant legal and financial support — in such strategies for the benefit for the people we serve.

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Bridging Digital Divide and Promoting Digital Inclusion: The New Mission of Public Libraries in the Information Society

Chen Chao

Alvin Toffler, the renowned American futurist, put forth the concepts of “information rich”, “information poor”, “information divide”, and “digital divide” in his book *Powershift: Knowledge, Wealth and Violence at the Edge of the 21st Century* published in 1990. He maintained that the digital divide is in terms of information and electronic technology, which led to the divergence between developed and underdeveloped countries. Today, the informatization process of human society has entered a stage characterized by data and intelligence. The digital divide has always been a global problem in the information age. Not only is a country divided internally by people with different degrees of information and technology ownership, application and innovation capabilities,

but also countries are divided according to the different levels of development in the information industry and information economy in the process of global informatization. The very essence of the North-South problem is about social justice and inclusiveness in the information age.

Research shows that the difference caused by the digital divide is becoming China's “fourth major difference” after the “three major differences”, namely, the difference between urban and rural areas between industrial workers and peasants, and that between physical and mental labor. It is not just a technical issue and is becoming a social problem. For example, senior citizens are typical of the “digitally disadvantaged group”. *The 46th China Statistical Report on*

Internet Development revealed that the number of Internet users had reached 940 million as of June 2020, and the Internet penetration rate 67%, but the percentage of Internet users aged 60 and above constituted only 10.3% of it. According to data released by the National Bureau of Statistics, there were approximately 254 million people in this demographic group, i.e., people aged 60 and above, by the end of 2019. In other words, hundreds of millions of elderly people have not yet embarked on the “Internet Express”. The General Office of the State Council issued the *Implementation Plan on Practically Solving the Difficulties of the Elderly in Using Intelligent Technology* in November 2020 to address the issue, whereas the World Bank conducted a related research as early as 2014, the findings of which were compiled into the report entitled *Fostering a Digitally Inclusive Aging Society in China: The Potential of Public Libraries* that pointed out the great potential of Chinese public libraries in fostering digital and social inclusion of senior citizens.

Both history and reality, theory and practice have long taught us that public libraries should shoulder the inescapable mission of promoting the inclusive development of human society. From its very birth, modern public library has been promoting individuals’ development by improving literacy and cultural literacy, and promoting the inclusive development of society by ensuring equal access to information and knowledge. Since the

mid 20th century, mankind has entered a process of informationization and is greeting the advent of an “ubiquitous information society”. Like any other technologies, information technology is also a “double-edged sword” that imposes arduous challenge of inclusive development in human society — the “digital divide”. That is why while “library science” is being changed to “library and informatic science”, the library has taken on the core task of cultivating and improving readers’ information literacy. Public libraries must take on the responsibility of “bridging the digital divide and promoting digital inclusion”, providing everyone with the opportunity to go online, and enabling everyone with equal access to information and knowledge. This is a long-term task, since informatization is a journey that never ends. The connotation of the “digital divide” is dynamic, so will the public library service develop with the times.

The so-called “digital divide” is essentially the “technology divide”, “knowledge divide” or “education divide”. Looking far ahead into the future, we could foresee other new “divides” after “digital divide” is bridged (such as “quantum divide”, “nano divide”, and “gene divide”?). Public libraries are indispensable for the human society to realize inclusive development.

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Everyone Connected, empowered and Informed

Wu Jianzhong

The 59th session of the Commission for Social Development (CSocD59) will take place in February, 2021 with the priority theme of “Socially Just Transition towards Sustainable Development: The Role of Digital Technologies on Social Development and Well-being of All”. Each annual

session of the Commission features a priority theme. Ever since the United Nations released the *Agenda 2030 for Sustainable Development*, all these priority themes are related to the achievement of the sustainable development goals by 2030.

In October 2020, IFLA submitted a statement

ahead of the CSocD59 on the stand of libraries regarding digital technologies and digital inclusion, representing the position of the international library community on digital technology and digital inclusion. IFLA also launched earlier the *Library Pledge for Digital Inclusion*^[1] and signed on *Every Community Connected: A Call to Action*^[2], along with other international organizations. The first document called for libraries to pledge “to promote the best possible internet access for communities, reliably and at no or low cost, so that no-one should lack connectivity for financial reasons”, “to promote the widest possible access to relevant digital content and services, supporting education, research, and economic, social and cultural participation”, “to promote the strongest possible support for the development of digital skills, giving users the ability to be successful and confident internet users”, and “to promote equitable broadband policies at all levels”. In the meantime, IFLA solicited signatures from organizations and individuals to the pledge online, and the University of Macau Library participated. The second document called on governments and libraries to provide everyone with access to the Internet with greater efforts, provide technologies and skills through more investments, and benefit people by using the Internet with more extensive resources. The full text of the *Statement* (E/CN.5/2021/NGO/) has been released on the Internet, which sets out three key goals: “Everyone Connected”, “Everyone Empowered” and “Everyone Informed”. These three goals are consistent with the *Call for Action*, emphasizing the role of governments and libraries as the active promoters of digital inclusion.

The reason why IFLA attaches so much importance to the CSocD59 is that the meeting was organized to address the 16th goal of the *Agenda 2030 for Sustainable Development*. IFLA has been committed to raising the voice of libraries in the international community, and requested the United Nations, when formulating a framework

for future goals, to mention the contribution of “libraries” and “information access” to sustainable development. With the strong appeal and active promotion, the United Nations finally added the content to the “Target 16.10”.

Not only must we not be left out this time, but we should actively participate in it, and make a strong voice on behalf of the library community at home.

First, we should vigorously publicize our country’s policies and measures to protect citizens’ rights to obtain basic public cultural services. With the promotion of the *Public Cultural Service Guarantee Law of the People’s Republic of China* and the *Public Library Law of the People’s Republic of China*, various libraries at all levels have been committed to narrowing the information gap in recent years, so that the general public have more opportunities to obtain and use information, and participate in social development to enrich their cultural life through learning information skills. Many grassroots public libraries, in particular, stand out for their efforts on information poverty alleviation.

Second, we should actively promote the application of the Internet and digital technologies in libraries. In the past decade, libraries have used modern technologies, such as big data and microservices, to innovate online and offline services, and enabled readers to fully utilize the resources in the library and beyond. Readers participate in various reading activities, enjoy a more prosperous cultural life and public cultural service of better quality.

Third, we should continue to improve the quality of media and information literacy services. Libraries at all levels and of all types should strive to improve library services in the new situation, incorporating media and information literacy projects into their core business, and committed to promoting readers’ information and digital skills through library learning and activities so as to adapt to the pace of the times and help promote social development.

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A Reflection on the Digital Divide and the Role of Libraries from the Perspective of the Individual's Information World

Yu Liangzhi

The digital divide is understood as the quantitative and qualitative disparity in access to and use of information and communication technologies (ICTs), between different regions or countries of the world, or between different sections of the population within a social system. Since the 1990s, it has become increasingly clear that owing to the rapid and constant upgrading of ICTs and their dependence on people's economic and intellectual ability for adoption. The digital divide is beyond the possibility to close up through market diffusion. It is also clear that due to the crucial role that ICTs play in social life and the high stake for having or not having access to them, the severity of the digital divide constitutes a significant threat to social development and justice^[1-2].

The concept of the individual's information world refers to an individual's the life sphere where his or her role as information agent is played and his or her information activities such as information creation, communication, search, access, and utilization are conducted. The state of one's information world is defined by its substances, dynamics and boundaries. The substances of a person's information world consist of information resources related to the person at different levels; dynamics consists of forces that propel the person's information world to develop and change, derived primarily from the information activities that the person is engaged; boundaries consist of spatial, temporal and intellectual delimiting

features that define the scope of accessible information resources and possible information activities^[3]. Seen from this concept, people are in fact related to ICTs in a multifaceted manner. They are first related to ICTs through substances of their information world, which can occur at different levels. Firstly, they can be related to ICTs at the level of availability, which determines whether digital facilities such as the Internet, computers, smartphones, and digital resources such as social media, online health services\ are within their easy reach. Secondly, they can be related to ICTs at the level of accessibility, where "accessible" means that a person has opportunities, abilities and willingness to access digital facilities and resources. This relationship determines whether a person will activate and use the digital facilities and resources available to him/her when needed. In today's China, a considerable proportion of elderly people make little use of their smartphones other than making and receiving calls. For these people, most digital resources available through smartphones remain inaccessible. Thirdly, people can be related to ICTs at the regular access level, where a person may regularly access certain types of accessible facilities and resources but not others. This determines whether one can be legitimately called a "user" of certain facilities and resources. Fourthly, people can be related to ICTs at the level of actual use, where a person's experience with certain facility items (e.g. a specific smart phone of certain brand) and resource items (e.g., a particular

App on the smart phone, a particular social media post) has actually taken place through specific actions of use. This relationship determines the amount and quality of knowledge, skills and information that one can claim as his/her own digital assets. It also exposes one to the impact of various recommendation algorithms and, if the person uses highly homogeneous items, to the problem of Information Cocoons.

People are also related to ICTs through dynamics and boundaries of their information world, each having implications for their positions in the digital divide. Dynamics, in particular, determines whether a person can keep pace with the rapid upgrading of ICTs.

These multilevel and multifaceted connections between people and the ICTs produce a highly complex digital divide. Against this complexity, libraries' roles in bridging the digital divide become all the more valuable and evident. Libraries, particularly public libraries, offer help to the disadvantaged on nearly all of the above dimensions and levels, by providing public access points, information literacy, reference services, integration of print and digital resources, libraries' own push/recommendation systems, etc. Of all the institutions recognized by WSIS for contributing to digital inclusion (e.g., schools, post offices, community centers, museums)^[1], few have so comprehensive a toolkit as libraries.

In fact, public libraries' potentials for building digital inclusion go much further. A recent study based on the concept of the individual's information world shows that one's information activities are primarily embedded in the social practices the person participates and are consequently shaped by these practices and the information environments established to support these practices^[4]. As information activities generate dynamics for one's information world to develop

and change, the latter is also arguably determined by the practices and practice-based information environments that a person participates. This suggests that the information world of people who are temporally or permanently removed from major social practices (e.g., the unemployed and the retired people) are most likely to be deficient in dynamics, and therefore, most likely to lag behind the rapid development of ICTs. For this reason, it is not accurate to simply say that digital inclusion is a condition for social inclusion. Participation in social practices (i.e., social inclusion) is also a condition for people to keep pace with ICT development (i.e., digital inclusion).

This suggests that libraries can leverage dynamics from practices and their embedded information activities to promote simultaneously social inclusion and digital inclusion. On the one hand, libraries can serve as a link between people and practices: they can, for instance, provide tailored self-learning supports for participants of certain practices, collaborate with employment department to help the unemployed back to practices, design practice-based information literacy, support local interest groups in their leisure practices, etc. On the other hand, libraries can even act as a creator or transformer of practices: they can, for instance, organize interest groups for retired people, create atmosphere for family learning, etc. Although most public libraries are already offering at least some of these services, they do not normally design these services with digital inclusion in mind. Nor do they explicitly market these services as public libraries' contributions to digital inclusion. When the practice is seen as embedding information activities, which in turn, is considered as generating dynamics for one's information world to keep pace with the rapid development of ICTs, it does reveal new possibilities and potentials for libraries to contribute to digital inclusion.

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Never Waste a Crisis: Digital Inclusion for Sustainable Development in the Context of the COVID Pandemic

Amanda Reed, Kim M. Thompson

An old adage notes, “Never let a good crisis go to waste;” or, more pithily stated, “Never waste a crisis”. While this idea was first phrased long ago, it has had a resurgence in government and business circles and even in medical fields during the pandemic. The idea is that when a crisis, change, or challenge arises, it is time to take a step forward in human development. Successful responses to hardships and changes include thinking of opportunities that arise from the situation that might create short- or long-term improvements to health, economy, politics, pedagogies, curricula, business, etc. Change incites creativity that would not have arisen had there not been that particular crisis. The goal is then to keep those innovative outcomes sustainable.

The International Federation of Library Associations and Institutions (IFLA, 2020)^[1] statement for the United Nations 59th Session of the Commission on Social Development identifies a new crisis, “for all of the challenges that digital technologies bring, the COVID-19 pandemic has illustrated the costs of being offline, with children excluded from education, adults from their work, patients from eHealth solutions, and people from their friends and families”. IFLA makes the

connection between the digital divides challenging us today and the ready responses to these issues as part of the core mission of libraries for social justice. How can society progress when some or many are left behind in the digital world — particularly during an emergency period when digital connections are possibly the only connections many are allowed to maintain? How might the social disconnect so many of us are experiencing with social distancing and isolation be ameliorated through digital inclusion? And what creative services can libraries provide to bridge these gaps?

The examples we will provide in this essay are based on services and processes explored at the Richland Library in Columbia, South Carolina, USA. Columbia is the state capital of South Carolina and Richland Library meets the needs in the urban center, regional, and rural settings spread throughout thirteen locations in Richland county, an area of more than 400,000 people (a mid-sized United States county). Richland Library has an annual budget of 34 million dollars (strong funding for a United States library system) and has an engaged Board of Trustees that asks questions, supports initiatives, and provides diverse points of view that help with decision-making for the

county library system. Richland Library (2019)^[2] has a strategic plan that includes goals of “advancing local communities by creating a strong and resilient economy” (e.g., support for small businesses), “bringing diverse people together to solve community problems,” and “transforming educational outcomes for youth.” Another goal is to enhance the customer or patron experience, specifically worded as patrons “are happier, smarter, and more productive by interacting with Richland Library”. These goals have influenced decision-making both pre-COVID-19 shutdowns, and also have strongly determined the public library’s response during the pandemic.

Traditionally, the Richland Library Executive Director, her library staff of librarians and paraprofessionals, technical staff, and volunteers, and the Board of Trustees gather input from the public via face-to-face conversations, surveys, user interviews, and web engagement opportunities to elicit information needs, including digital inclusion needs. Digital inclusion efforts are prioritized by the public service division of the library administrative team, which is called the Library Experience Division. When pandemic shutdowns began in South Carolina in March 2020, within a week this team was making shifts in the way library services were delivered to ensure as little patron interruption as possible. They answered phones to field user questions about not only library services, but also, “What is COVID-19?” “What do I need to do to be safe?” The librarians provided Center for Disease Control and Prevention and local government resources with relevant public health information at the moment it was needed.

It was quickly clear that digital services were going to be one of the most impactful ways to engage with the public and meet the demands for community information services and supports. Within weeks, the Library began providing online opportunities and social connections such as

virtual book clubs, online story times, and social media networks (including groups for parents and caregivers, and entrepreneurs and small business owners). When decisions were made to shift public school to online delivery for the final three months of public schools, the Library system offered free Wi-Fi in library branch parking areas and created digital tutorials and training for using online databases relevant to students.

Throughout the summer months, there was a clear divide observed related to digital inclusion of individuals with internet in the home and those without. Small business owners struggling to pay bills, job seekers, school-aged children, and people with housing insecurities and other vulnerabilities were at risk. Government-based unemployment and small business relief funding applications had to be completed online and the information about this funding was not always easy to understand. The Library in partnership with various agencies provided support for applicants via phone reference and online meetings. In September 2020, as schools reopened and most schools began virtual-only class delivery, the Library partnered with the local housing authority to acquire grant funding to provide portable Wi-Fi hotspots to households needing internet access. Once the grant funds were exhausted, the Library still identified additional need in the community, so its supportive “Friends and Foundations” team crowdsourced from the public to meet those remaining needs (Richland Library, 2020)^[3].

2020 was an unusual year, but it brought about opportunities to explore library services and outreach opportunities that would meet the needs of the public not only during a pandemic shutdown, but that could be also incorporated as part of the core library services to meet community needs in new and innovative ways. Rather than reduce the need or ability to use the public library, the social, physical, and knowledge needs for library services were increased. Richland Library

use data indicate high levels of digital public engagement, including 99% increase in program attendance for online events, a 13% increase in use of library Wi-Fi, and a 111% increase in page views of the Local History department's digital archives (FY 2020 Annual Report, 2020)^[4]. The pandemic has provided an opportunity for us to

take a step forward in social inclusion through digital inclusion, and public libraries are primed to be the leaders in this move forward. The impetus is on us as librarians to use every opportunity we face to find ways to evolve library services to be sustainable and meet the needs of all our patrons and potential users.

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Digital Inclusion in the Connotative Development of Higher Education

Xiao Long

Introduction: In response to the UN's theme of "Socially just transition towards sustainable development: the role of digital technologies on social development and well-being of all" , the International Federation of Library Associations and Institutions (IFLA) issued the Statement in October 2020^[1] , clearly stated that the digital era also calls for fair access to knowledge; Internet information and communication technologies should be applied on the basis of "Everyone Connected, Everyone Enabled, and Everyone Informed", and libraries should be committed to promoting such digital inclusion.

The above Statement was issued at an opportune moment. In the past few decades, people have gradually realized that, while the Internet is creating convenience and wealth for human society, it also aggravates the information

gap. In this context, various emerging concepts (e.g., digital gap, digital inequality, information differentiation, and information gap) have not only gradually become popular topics, but they have also affected social, political, economic, and educational development in reality.

As academic librarians, we must first realize and admit this point clearly. Here, take Peking University in eastern China and Shanxi University in central China as examples, in both which I am currently working. Peking University, a top-grade university in China, has a total population of approximately 45,000 students. Shanxi University, ranking first academically among the provincial colleges of Shanxi, has a total population of approximately 30,000 students. Due to an enormous gap in university funding, the funds for and varieties of digital academic resources

in the Shanxi University Library are merely one fourth to one third of those in Peking University Library. In terms of the structure of enrolled students, poverty students from regions with a low informationization level and with low income account for more than one fourth of the total enrolled students of Shanxi University. This also implies that there is an enormous gap in access to digital knowledge between the students of Shanxi University and those of Peking University. Two thirds of the graduates from Shanxi University stay in Shanxi to work, while others who are admitted to other universities (e.g., Peking University or Tsinghua University) or even going abroad rarely return to work in Shanxi. In other words, the local development of Shanxi Province is mainly dominated by graduates of Shanxi University and Shanxi's other local universities and colleges. The education received by college graduates of Shanxi Province will surely affect the social, political, and economic development of Shanxi Province, including the insufficient access to digital knowledge during the education process. This reveals the differences between elite-oriented higher education and general higher education, and between colleges in developed eastern China and those in less developed or undeveloped central and western China.

Second, the above Statement also reminds the librarians worldwide of the responsibility of the IFLA, as a public welfare institution, in promoting the development of digital inclusion. In China, there are more than 2,000 university and college libraries, forming a sizeable community. Although the library community is not powerful enough to structurally change the substantial gaps in higher education, we can call more attention to this problem and seek governmental investment to improve our existing public beneficial information service system, intervene in digital inclusion and fair access to information, try our best to reduce the digital information gap, and narrow the gap in

access to digital knowledge.

We can narrow the information gap across different regions through the library alliances by implementing related beneficial public projects. In the past two decades, Chinese academic libraries have carried out a number of co-construction and sharing projects (e.g., cooperative development of digital resources, joint cataloging and union catalogues, interlibrary loan and document delivery, and exchanges between librarians in eastern & western China) through national library consortia (e.g., China Academic Library and Information System—CALIS, China-America Digital Academic Library—CADAL, China Academic Social Sciences and Humanities Library—CASHL) and regional library consortia. Through the one-to-one aided construction between universities (e.g., Peking University provides assistance for Shanxi University), we have fruitfully conducted a considerable amount of poverty alleviation work, thus narrowing the gap in academic library services between eastern China and central and western China. In the future, our policy should be persistent and improvement, and will continuously make innovations in this respect.

We should be well aware of the needs of different groups and protect their rights by providing different types and levels of library services. For example, we should improve the network conditions of academic libraries to ensure that everyone can access the Internet within the libraries and through library VPNs. For information-disadvantaged groups, we should provide a variety of free services (e.g., Internet surfing, information retrieval and query, and copying). For information-poor people who lack skills related to information acquisition, and those who possess large amounts of information but do not know how to use and discriminate between pieces of information, we should conduct information literacy education and training with different orientations and at different levels to

help them effectively acquire and utilize digital information and knowledge. For those who can acquire knowledge but are not familiar with or have no digital resources, we should introduce, analyze, and add more resources to help them obtain the desired material. For those who are willing to use only traditional print resources and psychologically reject digital resources, we should patiently accompany them and provide them with more guidance. In this process, we should consider the interests of the majority of people, and ensure the fairness of access to knowledge for all groups, accommodating their needs and providing public welfare services.

In February 2019, the Central Committee of the Communist Party of China and the State Council of the People's Republic of China issued the *China's Education Modernization 2035*^[2], and the General Office of the Central Committee

of the CPC and General Office of the State Council of the PRC issued the *Accelerating the Implementation Program on Promoting Education Modernization (2018 to 2022)*^[3]. The main objectives specified in the first document to be reached by 2035 contain key words such as "all the people," "popularization," and "high-quality and balanced." The second document expressly encourages connotative development of higher education or, to be more specific, system structure optimization of higher education, improvement in school-running capabilities and quality, and full play to social service function of higher education. Undoubtedly, digital inclusion will be integrated into all beneficial public information services that academic libraries provide for different groups to ensure fair access to digital information and knowledge. In some ways, this promotes the connotative development of higher education.

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The role of libraries for people in losing their way on the Internet: navigation and escort

Jing Wugang

In the era of digital technology, digital inclusion has to solve two major problems: one is to promote public social access to the Internet and share the achievements of technological civilization; the other is to help citizens search freely and not lose their way on the Internet. As a community information center, the library provides all kinds of information and knowledge to the public, and it still has a lot to do with digital inclusion.

The library can provide a network environment and equipment to help the public to access the Internet. According to the latest data from the International Telecommunication Union, only slightly more than half of the global population currently uses the Internet; and the difference between urban and rural areas is significant. About 72% of urban households use the Internet, almost twice that of rural areas (38%)^[1]. China is significantly higher than the global average,

with an Internet penetration rate of 67%. Among them, the rural Internet penetration rate has also reached 52.3%, and the gap with the urban Internet penetration rate (76.4%) is narrowing^[2]. Behind the high popularity, the joint efforts of the Chinese library community are inseparable. Over the years, with the successful implementation of the “*Public Cultural Service Guarantee Law of the People’s Republic of China*” and the “*Public Library Law of the People’s Republic of China*”, the library has coordinated with various public cultural facilities to integrate the popularization of the Internet and the innovative development of online and offline high-quality services into the scope of legal protection. The various services carried out by the library are universal and even in both urban and rural areas, providing free Internet services and related training and guidance for the public. With the further expansion of network coverage projects, China’s Internet penetration rate is expected to reach a new high.

The library can also help the public to navigate the Internet, distinguish the authenticity, and query and obtain the correct information. The huge amount of information on the Internet, rapid updates, and a mixture of good and bad make people who are new to the Internet at a loss, especially the elderly. Especially during the COVID-19 pandemic, people in society are forced to stay at home and reduce going out, making it necessary to rely on the Internet to survive. The various online information services provided by the library, as well as the books and documents delivered online and offline, have unexpectedly become important spiritual food for the general public to fight the epidemic, and have played an inestimable role. However, online library products also have the phenomenon of unmatched supply and demand and homogenization of content. These products are not specially designed for the epidemic, and it is more difficult to adapt to the special requirements for the interactivity and uniqueness of online products when staying at

home for a long time.

However, there is no need for libraries to be frustrated because of these shortcomings, and to respond to pressure as motivation, do a good job of network navigation and escort for the public, and solve the deep-seated problem of digital inclusion.

First, strengthen the library’s function of popularizing science, and pay attention to the network organization and navigation of scientific and public health information. It is the statutory function of the library to provide services for reading and popularizing science for all. From the perspective of the use of online services of the epidemic library, the library has a reputation for reading services in the areas such as the remote use of professional databases, the download of digital reading materials, the watching of online lectures and exhibitions, and even the organization of online activities. However, from the perspective of the popularization of science, especially for transmitting public health, there is still a lot to do for the library. Even during the outbreak, many people gathered to rob the Internet rumors of various drugs with peculiar functions due to lack of common scientific sense, which altogether increased the risk of infection. According to statistics, the proportion of Chinese people with scientific quality currently only slightly exceeds 10%^[3]. Under the circumstance of the epidemic, the general public urgently needs scientific knowledge of epidemic prevention and scientifically develop health and hygiene habits. Libraries should reflect on how to organize and popularize scientific public health information via network services. The epidemic will eventually be over, but the library has a long way to fulfil its responsibilities and mission of popularization of science.

Second, innovate the application of library technology and provide new media online products with local characteristics and culture. During the epidemic, many libraries provided a large number of online products, which people

at home could use one by one. Since the network is unbounded, this is also an important time to test the applicability of various online products. The epidemic has amplified this difference. Looking at the online products with high click-through rate and popular market, there are two reasons: One is that the online products built with characteristic local culture as the core product are unique and attract people to use; the other is the short video and continuous MOOC form. Such a lecture format is presented to meet not only the needs of “fragmentation” but also the easy use of information by the people systematically and completely. Collecting local documents, protecting and inheriting local culture is another legal function of the library. Therefore, the library actively adapts to the new technological environment, develops and makes local documents live in MOOC, and inherits and promotes characteristic local culture, which is an important basis for standing in the Internet world.

Third, promote the integration of libraries into public media platforms and attract people to make rational use of online services. The times are changing rapidly; however, there are still lots of obstacles to network utilization. The access of

every network address and every App download is a mountain that is difficult to climb in the eyes of some people. If library services can be seamlessly integrated into WeChat, Douyin, Kuaishou and other public media platforms that are widely used by the public, as long as any patron turns on WeChat and/or Douyin, he/she will be able to access the library's online products and services through these public media, which will increase awareness rate, and redirect patrons to the library platform. During the epidemic, reading through mobile phones has become a popular phenomenon; however, there are still few library online products. This requires us to think out of the box, actively seek change, integrate our services into the public media platforms, do a good job in the promotion of information content, and escort the public to use the Internet. In the post-epidemic era, the strategy can still be adopted.

The Library should actively respond to the digital needs of the public, play a role in navigation and escort when people get lost on the Internet, and help them effectively inquire and obtain the correct information. The library should continuously expand the coverage and effectiveness of services, an important resolution for digital inclusion.

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Digital inclusion: The interactive development paths between human and technology

Wu Dan, Liu Jing

Digital inclusion has been proposed along with the digital divide. Although a unified and clear definition has not yet been formed, the

understanding of digital inclusion mainly focuses on the use of digital technology, the concern for the vulnerable groups, the reduction of the

digital divide and so on^[1]. In recent years, since the rise of some concepts like big data, artificial intelligence and machine learning, technology has become more permeable and guiding to society. In this context, we believe that the connotation of digital inclusion could be extended. We focus on the interaction between human and technology, making a new understanding of digital inclusion from the two interaction paths: “technology-human” path and “human-technology” path, and looking for the breakthrough point of innovation in library and information science (LIS).

First, the “technology-human” path emphasizes the impact of technological development on human beings. Digital inclusion at this level focuses on addressing the imbalance caused by the development of digital technology, which can be divided into two sub-concepts: resource inclusion and group inclusion. Resource inclusion means that all kinds of resources can be accessed and shared in digital form, and ensure that all people have access to and use digital resources in a digital environment (Everyone Enabled^[2]). Group inclusion refers to include all people in a digital environment. In order to equip all people with the ability to use digital technology and products, more attention should be paid to the vulnerable groups in the digital environment, and their needs should be fully considered in the design of infrastructure equipment and digital products (Everyone Informed, Everyone Connected^[2]).

Second, the “human-technology” path emphasizes human’s initiative to technological environment change. Digital inclusion at this level focuses on the use of digital technology, including technology inclusion and discipline inclusion. Technology inclusion requires libraries and other related subjects to accept and learn technology with an open attitude, and integrate technology thinking to expand and innovate services. Discipline inclusion requires researchers to apply the products of technological development such as big

data and AI to their researches. Educators should also use these products to educated students^[3], so as to achieve the purpose of knowledge expansion and innovative thinking cultivation, and promoting the process of discipline development.

In the context of the changing technological environment, we have expanded our understanding of the meaning of digital inclusion. Based on this, considering the challenges brought by the development of technological environment, how to conduct research and service innovation through the two paths of human-technology interaction and realize digital inclusion?

In the “technology-human” path, on the one hand, on the basis of achieving the digitization of resources, various kinds of digital resources should be effectively organized and integrated to develop digital products and services which match the needs of users. For example, libraries need to fully explore their own collection resources and cooperate with archives, museums and other institutions, helping help them promote the construction of digital resources and building a user-friendly resource integration service platform. On the other hand, during the process of realizing group inclusion, libraries should pay attention to basic infrastructure construction and information literacy education. Besides, the needs of special groups also need to be taken into account in the design of library services and products. It’s difficult for vulnerable groups to interact with technological products due to their unique physiological characteristics, behavioral characteristics and psychological characteristics. By integrating the needs and habits of special groups into the information organization and retrieval framework, libraries could design services and products that include the needs of vulnerable groups. It will not only make vulnerable groups better integrate into the digital environment, but also benefit the service efficiency of libraries.

In the “human-technology” path, as far as

technology inclusion is concerned, IFLA released “IFLA Statement on Libraries and Artificial Intelligence” in this year^[4], which provided advice to different subjects like libraries and library associations on how to deal with challenges in new environment. It is proposed that AI and machine learning should be applied in library information management and service innovation, and libraries need to actively provide supporting services for artificial intelligence researches and user education. In terms of discipline inclusion, we need to clarify disciplinary boundaries and maintain disciplinary characteristics when applying new technologies, thus rationally utilize technologies to promote LIS development^[5].

In the digital age of constantly changing

technological environment, digital inclusion provides an idea for the interactive development of the human and technological environment. Digital inclusion is not only the tolerance of technological environment to human, but also the tolerance of human to technological environment. Directing the environmental impact on human to a positive side and reducing the negative impact of technology through the “technology-human” path. Meanwhile, exploring new models of rational utilization of technology, and seeking new breakthroughs in researches and service in LIS through the “human-technology” path. Only by moving forward in parallel can digital inclusion be realized and the common development of the human and technology be realized.

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