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Revitalizing Research Services: Adapting to the Digital Needs of the Google Generation

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Abstract:
The study explores the challenges faced by academic libraries in meeting Google generation digital demands. It explores how library research services have changed due to these difficulties. It examines how the needs of the current generation of consumers affect library research services. This article emphasizes the various strategies for adapting research services; including incorporating digital tools and platforms, improving information literacy initiatives, and providing personal assistance are some of the techniques suggested in this study to transform research services. The study highlights the need for collaboration and partnership with researchers and technology professionals to foster innovation and meet changing demands. This study stresses continuous development through customer feedback and service performance evaluation and examines information management functionality. This study contributes to our understanding of how libraries may reinvent their research offerings for a more diverse user base. Libraries may enhance their offerings, stay current, and support Google Generation academic goals using these tactics.

Keywords: Google Generation; Research Services; Library Users;

1. INTRODUCTION

Academic libraries have played a vital role in advancing research across all fields and disciplines in their host institutions and colleges. However, there has been a significant shift in recent years **(Brown & Swan, 2007).** The growth of technology and the ease with which information resources are now accessible online have altered both the methods of conducting research and the services that academic libraries offer to their research communities. Both scholars and librarians have embraced the advantages of these innovations, quickly adjusting to them and aiming to fully realize their potential. Both anticipate further changes in the years to come.

In academic libraries, research services are crucial because they offer assistance and materials for intellectual and academic endeavours. Libraries have long been the go-to destination for researchers seeking information, guidance, and assistance However, The Google Generation, who is known for their digital proficiency and dependence on online resources, has, however, given rise to new issues for libraries in addressing their changing requirements. Libraries offer a range of tools and services referred known as "research services" to help in research. As libraries strive to meet the demands of the Google generation, they now face special challenges. This generation of library users or researchers grew up in a digital age characterized by instant access to large amounts of information. As a result, these users have very specific expectations and digital preferences.

To serve this generation, libraries must adapt to their demands and provide interesting content and information search strategies. Libraries need to develop strategies for showcasing their distinctive offers and proving their value in the digital era **(Muir & Hawes, 2013).** The new generation researchers rely heavily on digital resources and anticipate easy access to internet content. The materials and services offered by libraries must be accessible in the formats that this age prefers while keeping up with digital changes. This involves having access to electronic books, databases, and archives. Furthermore, the new age researchers prefer using web-based search engines as their main source of information, which is a distinct information-seeking behavior. Libraries need to adapt to this transformation by highlighting the need of information literacy, evaluating sources critically, and the use of library resources to facilitate thorough and thorough research. In order to serve the demands of these users, libraries must aggressively revitalize their research related offerings. Libraries may continue to be crucial allies in the journey of these researchers by comprehending their preferences, adopting modern technology, and highlighting the special value they offer.

2. UNDERSTANDING THE GOOGLE GENERATION

According to Rowlands and others **(2008)** the term "Google generation refers to a generation of young people, born after 1993, growing up in a world dominated by the internet". They can be identified by their skills in computer technology and their reliance on web-based information sources for information seeking. This generation's characteristics and aspirations are due to their digital education. The Google Generation is known for technical sophistication and online navigation. They can easily use search engines, social media, and mobile devices to get information and communicate with people **(Prensky, 2001; Rowlands et al., 2008).**

Earlier generations who "gained their knowledge through books and conventional libraries", but Google generation expect instant access to information from any place at any time, they appreciates electronic tools and access to online information. They often rely on online sources of information because they are used to the efficiency and speed of Internet search engines such as Google. These people often prefer digital resources because of their accessibility, usability, and quick response to their requests. The Google generation places a high emphasis on digital resources like databases, e-books, and online journals. They appreciate the adaptability and mobility afforded by modern formats that allow people to access information across platforms and devices. This generation also loves multimedia content such as podcasts, interactive tools, and movies that enhance their learning and engagement **(Head & Eisenberg, 2010b, 2010a; Rowlands et al., 2008).**

3. CHARACTERSTICS OF GOOGLE GENERATION LIBRARY USERS

To better understand their interests and behaviours, researchers Williams and Rowlands **(2007)** examined at Google Generation. These traits place a strong emphasis on technical expertise, high standards for information and communication technology, and a preference for interactive and visual content. They can multitask well and desire quick access to knowledge while enjoying their educational experience. The Google generation enjoys continual interactions with others and peer streams, and they frequently turn to hands-on training to pick up new skills. They excel at web searches and appreciate short and to-the-point information. However, it is worthwhile to critically evaluate these attributes, as some may be based on urban legends and prejudices rather than solid research. Negative stereotypes about the Google generation include the idea that they like something readily

available on the Internet. Information formats and intellectual property rights are not considered. It is critical to understand that not all people share these qualities and that successful information literacy does not require computer skills.

Knowing these characteristics, libraries can provide materials and services that meet the Google generation's demands and preferences. Libraries can engage and effectively serve the Google generation by providing interactive and visual materials, meeting technology integration expectations, and responding quickly to their information needs.

4. REVIEW OF RELATED LITERATURE

The characteristics and aspirations of the Google generation, often called the next generation or millennial, have been the subject of several studies. Researchers (**Kennedy et al., 2008; Prensky, 2001; Rowlands et al., 2008**) pay attention to the use of technology to access information, the preference for digital resources, and the level of digital literacy. As part of their learning and research processes, this generation emphasizes collaboration and social networks. It expects quick and easy access to information. With their digital choices and changing research habits, libraries are struggling to meet the demands of the Google generation. Scholars (**Sharma & Chauhan, 2019; Shukla et al., 2022**) have considered how libraries should respond to the changing information-seeking habits of users, adapt to technological improvements, and transform their role as information producers and mediators in the digital age.

The rise of digital technology and researchers' changing demands have shaped the evolution of library research services. Research shows (**Borgman, 2010; Kato et al., 2021; Singh, 2012; Vial, 2019**) how traditional referral services are replaced by electronic platforms, virtual referrals, and one-to-one help. Libraries have embraced digital tools and platforms to improve access to information and provide cutting-edge services to support research. The "Google generation" has greatly influenced research services in libraries and patron expectations. To meet the changing research needs of this generation, researchers emphasize the need for libraries to provide seamless access to digital resources. Libraries should promote information literacy programmes and adopt user-centered technologies (**Guo & Goh, 2016; Tait et al., 2016**). Various researchers (**Dhawan, 2020; Muir & Hawes, 2013**) discussed strategies to transform research services to meet new generation demands, such as using digital tools and platforms, increasing information literacy programs, providing one-to-one assistance, fostering collaboration, evaluating and improving services based on library users feedback and others.

5. THE CHANGING LANDSCAPE OF RESEARCH SERVICES

Teaching and learning, scholarly communication, and "traditional" research library services are undergoing drastic changes in the digital world. Many of these developments are due to technology and the Internet. Moreover, they are the result of the proliferation of electronic "content" made possible by electronic publishing, mass digitization initiatives, and other digital technologies. The amount of full-text material a user can now freely search, view and print from a desktop computer or a mobile device is almost immeasurable. And the new age library users have rapidly evolved into information consumers who can instantly switch between search engines, social networks, wikis, bookmarked resources, and electronic services offered by the library based on their information needs (**Nicholas & Rowlands, 2008**).

Library research services have changed significantly in response to the quick advancement of digital technologies. To increase access to and the delivery of research services, libraries have adopted digital platforms and resources. Library digitization is a significant aspect of that progress. Books, periodicals, and archive documents have all been digitally preserved by libraries, enabling internet access and extending the reach of their collections. Due to this digitalization, academics now have remote access to a variety of materials, which facilitates efficient cooperation and saves time **(Borgman, 2015).** In order to promote effective information retrieval, libraries have also implemented sophisticated search tools and databases. Online directories and search engines offer powerful search capabilities that let scholars browse enormous collections and discover the information they need right away. To increase the discoverability and accessibility of scholarly literature, libraries are now connected with outside systems like Google Scholar. In addition, researchers can now use digital research tools and software provided by research libraries to conduct more detailed analyses and data visualization, leading to more reliable research results. These tools and software allow researchers to effectively transform and analyze data.

Impact of the Google Generation on the delivery of research services

The research services offered by libraries have been significantly impacted by the Google generation. Libraries have had to modify their offerings and services to satisfy patron expectations as a result of growing reliance on digital resources and web based information. The transition to customized and user-centric services has a significant influence. The Google Generation demands individualized assistance and experiences. In order to cater to the special requirements and research interests of this generation, libraries have responded by providing one-on-one research consultations, workshops, and subject-specific support. In addition, libraries have improved the discoverability and usability of digital collections as a result of the Google generation's predilection for web resources and search engines. To simplify academic access to important materials, libraries are putting a lot of effort into upgrading their web presence, their web design, and their search interfaces **(Asher et al., 2017).** Libraries have adopted technology-based communication channels to provide real-time support and virtual research desks. The new generation of researchers can now easily and remotely get assistance.

Additionally, the growth of collaborative research spaces in libraries has been influenced by the Google generation's dependence on digital technologies and online communication. Libraries now provide multimedia-enabled collaborative workspaces that let academics work together, share resources, and take part in cross-disciplinary initiatives **(Borgman, 2015).** Digital developments and the expectations of the new age patrons have transformed library research services. Libraries have embraced digitization, implemented sophisticated search systems, and provided access to specialized software and tools. They also adapted their services, improved internet access and introduced technology-based communication channels. Adapting to the needs of the Google generation, libraries have updated and revitalized their research services to meet the changing demands of modern researchers.

6. ADAPTING RESEARCH SERVICES FOR THE GOOGLE GENERATION

A. Incorporating digital tools and platforms
Libraries must embrace digital tools and platforms that correspond to the preferences of the Google generation for online access and discovery if they are to satisfy their demands. Libraries might make full use of the popularity and familiarity of Google services to increase

the usability and discoverability of their resources. By improving their online presence and utilizing SEO strategies, libraries may make sure that their digital collections and research services stand out in search results **(Wilders, 2017).** To meet the needs and requirements of the new age generation users or researchers libraries should provide access to the various online databases including archives, research publications and other materials and libraries should promote and create awareness of these online databases so that users can easily access the information **(Bawden, 2001).**

B. Improving Information Literacy Programs
Media and Information Literacy programmes are crucial for all the library users especially for the new age researchers to effectively use the web base resources. Academic libraries play a crucial role promoting and conducting such programmes to critically evaluate the digital resources. Libraries can organize or sponsor training programmes for researchers to raise awareness of web search strategies. Programmes may include things like creating search queries, advanced search and other search strategies. Libraries also provide various research tools to conduct effective research **(American Library Association, 2015).** Promoting critical evaluation of digital sources: Libraries can also design educational resources to help the researchers to evaluate the digital sources based on the resources authority, accuracy, timeliness and relevance. Promotion of critical evaluation of web based resources enables new age users to take decision in selection and consultation of resources **(Kato et al., 2021).**

Libraries can also design educational resources to help the researchers to evaluate the digital sources based on the resources authority, accuracy, timeliness and relevance. Promotion of critical evaluation of web based resources enables new age users to take decision in selection and consultation of resources. By implementing digital tools and platforms and improving information literacy programs, libraries can adapt their research services to the needs of the Google generation. These strategies facilitate access to resources and equip researchers with the skills to navigate the digital environment.

7. PROVIDING PERSONALIZED SUPPORT

A. Reference and research assistance in the digital age

Virtual reference services and chat support: To assist researchers in real time, libraries can provide virtual reference services such as online chat support or instant messaging. The Google generation no longer needs to physically visit the library thanks to these services that make it easy to get help from anywhere. Libraries can participate in interactive discussions, answer questions about specific topics, and help researchers make the most of library resources **(Radford & Connaway, 2013).**

Subject specialists and liaison librarians: Subject specialists or liaison librarians with competence in a particular topic might be assigned by libraries to offer specialized research help. These librarians may provide customized help, direction, and suggestions specific to the Google Generation's research demands. In addition to offering insights into discipline-specific resources and procedures, they can work with researchers, instructors, and students to establish specialized research plans **(Jaguszewski & Williams, 2013; Tennant et al., 2001).**

B. Tailoring services to individual research needs

Customized research consultations and workshops: Libraries can provide individual guidance and support to researchers through personal research consultations. Through these conversations, librarians can understand the unique learning goals, passions, and struggles of different scholars. Librarians can help develop research questions, select relevant sources, and create effective search techniques based on the researcher's topic or field. Libraries can also host workshops that focus on specific research techniques or tools that meet the special needs of the Google generation **(Kvenild & Calkins, 2011).**

Collaborative research support: By designing spaces and offering services that enable multidisciplinary research collaboration, libraries may promote the practice. The Google generation is encouraged to cooperate, exchange ideas, and take part in multidisciplinary research projects. This is done via collaborative spaces outfitted with cutting-edge technology, multimedia features, and group study places. To encourage information exchange and cooperation, libraries might also plan research collaboration activities like hackathons or data analysis seminars **(Borgman, 2015; McGowan, 2019).** Libraries can effectively respond to the special research needs of the Google generation by providing personalized assistance through virtual reference services, subject matter experts, customized consultants, and collaborative research support.

8. COLLABORATIONS AND PARTNERSHIPS

A. Engaging with researchers and academic communities

Building relationships with faculty and research centers: Libraries can actively engage with academic institutions and research institutes to understand research interests and assist intellectual pursuits. Libraries can collaborate on research projects, provide specialized resources, and provide specialized support services through close ties. Thanks to the collaboration, libraries can adapt their research services to the demands of the academic community. In addition, they can ensure that they meet the Google generation's specific standards.

Supporting interdisciplinary collaboration: The Google Generation frequently works on multidisciplinary research initiatives that call for cross-disciplinary cooperation. By setting up locations where academics from many fields may congregate, share resources, and exchange ideas, such as research commons or collaborative spaces, libraries can encourage and foster interdisciplinary cooperation. Additionally, libraries might plan multidisciplinary conferences, workshops, or seminars to promote communication and knowledge exchange among academics from other fields **(Atkinson, 2019; Doherty et al., 2016).**

B. Collaborating with technology experts and developers

Harnessing emerging technologies for research services: Libraries can collaborate with technology experts to conduct research and use cutting-edge technologies to improve research services. For example, libraries and developers can jointly develop mobile applications or platforms that make it easier for smartphone users and other mobile devices to access library resources and services. In addition, libraries can encourage better research practices using technologies, such as data analytics, artificial intelligence, and virtual reality. This has enabled new forms of scholarship **(Borgman, 2015).**

Collaborative projects for innovative research support : Together with technological professionals, libraries may launch projects to provide state-of-the-art tools and services to help research. Data management research platforms, visualization tools, and data mining software are required for these activities. This aids in research data management, interpretation, and management. Libraries can maintain their position at the vanguard of technological advancement and provide Google Generation with cutting-edge research support by collaborating with technology experts. Strong partnerships between libraries may promote creativity and enhance research services for Google generations. Researchers, academic groups, and IT industry experts were consulted during this process.

9. THE ROLE OF DATA MANAGEMENT

A. Addressing data management needs

Providing guidance on data organization and preservation: Libraries can guide and support researchers in managing and organizing research data. They can provide resources and guidance on data management best practices, including file management, version control, metadata standards, and data documentation. Libraries can collaborate with researchers to organize, record, and protect information about management strategies over time (**Mayernik, 2019).**

Supporting researchers in complying with data management requirements: Researchers must follow unique data management guidelines set by many funding organizations and institutions. Libraries can help researchers understand and adhere to these criteria. To ensure that researchers meet their responsibilities for data sharing, accessibility, and preservation, they can provide information on data management practices, guidelines, and resources. Libraries can also guide researchers through data management platforms and tools that promote compliance (**Tenopir et al., 2014).**

B. Facilitating access to research data

Utilizing data repositories and open data initiatives: Libraries can collaborate with researchers and use data warehouses to increase research data availability and discoverability. They can advise the preservation of data in institutional repositories that serve the scientific community or adhere to disciplinary standards. Libraries can help researchers pursue open data efforts by guiding them through the process of making research data public, thereby advancing knowledge (Gordon et al., 2015).

Promoting data sharing and collaboration: Libraries may actively encourage data sharing and collaboration among academics by facilitating platforms and networks for data exchange. They can plan activities that encourage academics to share their data, work together on multidisciplinary projects, and identify possible research synergies. These activities included data hackathons, data fairs, and data visualization workshops. Libraries may also offer data citation tools and services to help scholars who share their data receive correct credit and acknowledgment. Libraries assist data-driven research methods of Google Generation by solving data management demands, easing access to research data, and encouraging data sharing and cooperation.

10. EVALUATING AND IMPROVING RESEARCH SERVICES

A. Collecting user feedback and assessing service effectiveness

Conducting surveys and user studies: Libraries can design surveys or user surveys to gather feedback from researchers regarding their experiences with research services. These feedback mechanisms can capture user satisfaction, identify areas for improvement, and reveal the specific needs and wants of Google Generation. Libraries can use information from these studies to evaluate the effectiveness of their services and make decisions related to data-driven service improvements **(Andaleeb & Simmonds, 2017; Deo, 2016; Gyau et al., 2021; Kuhar & Merčun, 2022).**

Analyzing usage statistics and metrics: By examining usage patterns and data, libraries may learn a lot about how the Google generation utilizes research services. Metrics like website traffic, resource use, and service engagement may be used to measure the popularity and efficacy of certain services. Additionally, libraries can examine user patterns and behavior to find areas that may need improvement **(Harley et al., 2006).**

B. Implementing continuous improvement strategies

Engaging in professional development: Library employees must take part in on-going professional development to keep current on the newest trends, technologies, and best practices in research support. Attending webinars, seminars, or workshops on information literacy, digital technology, and research services could be necessary for this. By being informed and current, library personnel may better grasp the evolving needs of the Google generation and modify their services.

Collaborating with stakeholders: Libraries must actively engage with stakeholders, including researchers, professors, students, and other library users, to get ideas and opinions on research services. Libraries get a greater understanding of their customers' requirements, preferences, and difficulties by involving them in the decision-making process. Collaborations may result in the co-design of research services in order to make them user-centric and cater to the demands of the generation that grew up with Google.

Monitoring and benchmarking: Libraries may monitor the performance of their research services and evaluate it against industry or academic standards. Regular evaluation, comparison of outcomes with those of other institutions, and evaluation of results in light of predetermined standards or requirements are a few examples of this. By comparing their offerings to outside benchmarks, libraries may pinpoint potential growth areas and work to deliver high-quality research support. To satisfy the evolving needs of the Google generation, libraries can enhance their research offerings. This is accomplished through obtaining user input, assessing service performance, and putting continuous improvement techniques into practice.

11. CONCLUSION

In this study, we examined the significance of updating library research services to satisfy the needs of the Google generation. We discussed about the unique issues that this generation's traits and expectations—including a preference for online and digital resources—present for libraries. By taking care of these problems and revamping their services accordingly, libraries

may make sure they remain relevant to the new age generation users. The growth of research services is largely influenced by technological advancements and shifting customer expectations. Libraries must continuously adapt and improve their research support techniques if they are to remain effective in the Google era. In order to do this, it is necessary to integrate digital tools and platforms, increase information literacy programs, offer individualized support, promote cooperation and partnerships, address data management needs, and assess and improve services based on user feedback.

With the use of these technologies, libraries may create a dynamic setting that caters to the unique needs of the Google generation. By presenting themselves as crucial research partners via on-going adaptation and innovation, libraries can support the academic and scientific endeavours of the Google generation. Future libraries must maintain a dynamic, adaptive, and flexible nature. In the digital age, libraries may still be important forces in promoting top-notch scholarship and advancing knowledge creation. This is accomplished by adjusting to the shifting needs of researchers and leveraging new technological options. In short, research services are crucial for libraries in the Google era. Libraries may successfully address this generation's research demands by recognizing their unique characteristics, embracing digital advancements, and encouraging cooperation. Their academic progress will increase as a result.

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