

Using QR codes to Promote Information Services and Products in Academic Libraries in Kenya

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Abstract

A quick response (QR) code is a matrix barcode readable by smart-phones and other mobile phones with cameras. The QR code typically appears as a small white square with black geometric shapes. The information encoded in a QR code can be a URL, a phone number, an SMS message, a V-card, or any text. QR codes use low level but cost-effective technologies which can be applied to support diverse library functions given that virtually all academic library users have mobile phones. The purpose of study which led to this chapter was to explore how QR codes can be used to enhance the access and use of academic library services and products through effective promotion. The specific objectives of the study that generated this chapter were to assess the level of use of QR codes in academic libraries in Kenya; examine the factors which influence the use of QR codes in academic libraries in Kenya; and propose how QR codes can be used to promote the services and products of academic libraries in Kenya. This study applied an exploratory survey design. Primary data was collected from systems librarians in chartered private and public universities in Kenya. Additional data was collected from relevant literature through documentary analysis. This study confirmed that a large number of systems librarians in Kenya are unaware of QR codes technologies. Consequently, only four academic libraries in Kenya are currently using QR codes. The libraries already using QR codes have adopted them because they are portable; can be read using diverse devices; are simple to use; and do not require advanced ICT skills. Academic librarians in Kenya are encouraged to adopt QR codes to support library orientation; promote outreach events; disseminate information about digital spaces from which users can download essential files; create games; and promote library spaces.

Keywords: QR Codes, library promotion, library marketing, academic libraries, Kenya.

1 Introduction

Academic libraries have been traditionally described as the ‘life wire’, ‘nerve centre’ of any university. They are neutral places where students and faculty from different disciplines meet not only to share, exchange and challenge ideas but to also bring ideas to life; they are part of an educational process (Thanuskodi, 2009; Igbokwe *et al.*, 2010). In the 21st century, academic libraries face a myriad of problems. In the past the main challenges revolved around insufficient funding and the paucity of information resources; today we talk of ‘information explosion’, ‘advancing technologies’ and ‘millennials’. The situation is characterised by technological and infrastructure ‘trauma’; diverse and incessantly changing needs and expectations of library customers; continuous budget decline; negativity towards libraries; need for librarians to update and/or acquire technology skills; and the shift to a ‘user-centred’ paradigm (Chutia, 2015; Chaudhry *et al.* 2002; Yi, 2016). Management challenges include pressures of attaining performance indicators, demonstrating value for money, and fostering a ‘business-like’ approach (Pinfield *et al.* 2017). Nicholson (2015) terms this the ‘McDonaldisation’ of academic libraries whereby library services are commodified and dominated by ‘managerialism’.

Clearly, academic libraries are under extreme pressure. The value of a library to a university’s strategy and its priority in budget allocation can no longer be taken for granted. As university managers make tough decisions about where to allocate scarce resources, academic libraries have to defend their worth. Marketing and promotion is vital for libraries to enhance their visibility and usage. By adopting marketing principles and techniques, libraries can understand their users’ needs better, justify their budget requests, communicate more effectively, achieve greater efficiency and optimal results in the delivery of services and products (Spalding and Wang, 2016).

Libraries have recognised this need. Ndung’u (2016) observes that the shift in collections and services, competition for funds, and the need to justify expenditure is moving librarians out of a comfort zone and seeing them initiate and implement marketing and promotional activities. Spalding and Wang (2016) refer to the misconceptions many users have about libraries with many believing that the World Wide Web (WWW) provides access to the entire world’s knowledge. In academic libraries, students and faculty are not aware that their passwords afford them access to databases that are not free on the web; they underestimate the contribution information literacy programmes can make to their teaching and learning goals. It is imperative therefore, that libraries continually create and communicate their role and value in the institution so as to raise their profile and enhance visibility.

According to Bhardwaj and Jain (2016), application of the concept of marketing in academic libraries started in the period 1969 to 1973 when scholars wrote a number of articles in the field. Marketing as a concept is considered a business philosophy that makes the customer the focus of all organisational activities. It is defined as the process of planning and executing the conception, pricing, promotion and distribution of goods, services and ideas to create exchanges with target groups that satisfy customer and organisational objectives (Kotler, 1996). Igbokwe *et al.* (2010) explain that marketing was adopted in libraries as a way of ensuring that library users' needs are met. It is indeed a factor of survival in the world of information competition and dwindling financial resources. Marketing is thus conceived in this chapter as the activities performed to promote library services and products to the satisfaction of users.

Academic institutions invest big sums of money in collection development. These collections, as observed by Kaur and Rani (2007), many a time, remain underutilised resulting in wastage. Since availability of information does not always mean accessibility and use, libraries have the responsibility to ensure that their services and products are used. A survey of literature shows that libraries have used various approaches to attract users, generate non-user awareness, create awareness about the available resources as well as cause users and non-users to act (Yi, 2016). Promotional tools that are used include digital media; e-mail lists; blogs and podcasts; print materials such as posters, hand-outs and giveaways; events such as tours and workshops; library publications; contests; brochures; direct mail; peer training; word-of-mouth; Web 2.0 applications and displays (Yi, 2014; Ndung'u, 2016). Yi (2016) found that rigorous and disciplined marketing approaches have been embraced by libraries.

2 Literature review

According to Ashford (2010), quick response (QR) codes are a type of barcodes, appearing as a small white square with black geometric shapes, which are readable by smart-phones. Rouillard (2008) reports that QR codes were developed in 1994 by Denso-Wave, a Toyota subsidiary, and were initially used for tracking inventory in vehicle parts manufacturing. Shin *et al.* (2012) explain that a QR code consists of black modules arranged in a square pattern on a white background. According to Jupiter (2011), the QR code was designed to allow its contents to be decoded at high speed. Ashford (2010) adds that QR codes can hold much more information than a regular barcode. The information encoded in a QR code can be a uniform resource locator (URL), a phone number, an SMS message, a V-card, or any text.

Soon (2008) avers that QR codes are popular because they have a higher data density than ordinary barcodes; can be used free of charge; have a data structure standard which is not a prerequisite for current usages; have an all-direction high speed reading capability; exhibit resistance to distortion when used on curved surfaces; possess data restoration capacity because they are resistant to smudged or damaged symbols; and possess ease of encryption thus enhancing the confidentiality of data. According to Ashford (2010) and Walsh (2010), QR codes are a convenient way to add the virtual to the physical so as to provide useful content, often at the time of need. The codes are a low-threshold technology which is low-cost, easy to implement, and easy to use. Their ease of use is such that they can prompt a mobile phone to display encoded text, go online to URLs, ring a phone number, start a text message or import contact details on a V-card. They are also decoded fast and save the user's time to obtain the information or help needed.

QR codes have been used in various industries. One such use was reported by Rouillard (2008) who stated that McDonald's food chain uses QR codes to inform users about the nutritious value of its burgers. Forssman *et al.* (2016) reported the use of QR codes to map an archaeological site in South Africa. They concluded that the use of QR codes in archaeological research enhances studies by improving the accuracy of site records, and by posing an efficient alternative to conventional recording methods. They also identified the benefits that QR codes offer archaeologists to include: 1) the ability to record information rapidly and reduce the occurrence of errors; 2) the availability of free code-generating and -recording applications; 3) the safe storage of data that is immediately loaded online or stored in the code itself; 4) a reduction in the amount of paper used in recording contextual information; and, importantly, 5) its ability to augment publications by allowing the reader to view additional or non-essential information, enhancing the content of research.

Kwanya *et al.* (2014) suggest that research and academic libraries can use QR codes to direct users to library resources, instructional videos or useful web sites as well as applications or contact information from their mobile phones. Walsh (2010) explains that academic libraries can use QR codes to provide virtual reference services through SMS; directions to a physical library or virtual library tours; context-appropriate information resources; supplementary information; or to store information for future reference as well as other forms of user support at the point of need. QR codes can also be stored on library posters, bulletin boards, catalogues, staff directory pages, study room doors, receipts, magazines or business cards. Kwanya *et al.* (2014) argue that the use of QR codes removes the need of the user to memorise or type the URL of a resource. They explain further that the fact that QR codes are scanned using mobile devices, which are becoming steadily ubiquitous in research and academic environments, also makes them handy for library users.

QR codes are considered suitable for marketing and promotion in libraries. According to Ashford (2010), QR codes can be used in library exhibits to link to songs, videos, web sites, surveys, contests or other information that augments

the exhibits; library stacks and end caps or magazine areas that point to online electronic holdings of print materials or related subject guides; resources which link to library audio tours for orientations; print hand-outs to link to additional information on mobile-friendly sites; text that loads the library's text message reference service and other contact information into the patron's phone; art shows or permanent art in libraries linking to the artists' web sites; catalogue records to offer patrons basic information about an item, including the location and call number; staff directory pages and research guides that go to mobile-friendly sites for later reference; audio book cases for author interviews or books for reviews; study room doors connecting to room reservation forms; and link to individual videos or YouTube playlists of videos.

The use of QR codes in academic libraries has been reported by many studies. Walsh (2010) reports that at the University of Huddersfield in the United Kingdom, QR codes are used to deliver context appropriate help and information directly to the users at the point of need. The other academic libraries reported to be using QR codes include the University of Colorado at Boulder which is using QR codes on signage to link patrons to maps and instructions (Hicks and Sinkinson, 2011); the San Jose State University Library which is using QR codes to link to mobile versions of their websites (Oasay, 2011); the University of Miami Library is using the codes to support readers' advisory functions (Miami University Libraries, 2011); while Indiana University's Fine Arts Library is using QR codes in course syllabi to link to library resources (MacDonald, 2012). Mohamed (2014) conducted a study at the University of Cape Town on the potential to use QR codes to support the delivery of information services to law students. The study revealed a lack of awareness of the value of QR codes among students and librarians. She recommended that libraries should be encouraged to experiment with QR codes to deliver services. At the Nnamdi Azikiwe Library in the University of Nigeria, QR codes are used to provide quick access to various resources, social media platforms, and to chat with a librarian. Closer home, a study by Kasusse and Holmner (2016) reported that Makerere University library used QR codes to help voters to identify their polling stations correctly during the 2016 presidential elections in Uganda. This study, however, does not report whether the library used QR codes to support the delivery of its core services.

Although the use of QR codes was initially confined to Japan, its popularity is increasing by the day as the symbols appear in magazines, advertisements, product wrappings, t-shirts, passports, business cards and on subway billboards in many countries. In spite of its popularity, some challenges hamper its widespread use. Shin *et al.* (2012) explain that QR codes have limited interaction capacity. They also explain that the fact that QR codes can only be used on smart-phones somehow limits their use by persons who do not have smart-phones. Other challenges affecting the use of QR codes are identified by Walsh (2009) to include a lack of appropriate knowledge and hardware devices (smart-phones) to encode and decode QR codes effectively; lack of awareness of QR codes amongst librarians and users; and potential prohibitive data charges on users' mobile phones.

3 Rationale of study

It is evident from the foregoing that literature on the application of QR codes in libraries in Africa is limited with only a few cases being reported. No study on the use of QR codes to support library services was identified in Kenya. This finding may imply that libraries in Kenya do not use QR codes or that no study has been undertaken to identify and report the use of QR codes in Kenyan libraries. Recognising the fact that Kenya is one of the countries in Africa with a high mobile-phone density, the potential of libraries in the country to use QR codes to reengineer the design and delivery of their services is high. Therefore, low or non-use may be a result of a lack of awareness amongst librarians about the potential value of QR codes in supporting the delivery of library services. This chapter draws the attention of the academic librarians to QR codes as a means of promoting its adoption to support their activities.

As pointed out earlier, academic libraries are currently competing with alternative sources of information exemplified by the Internet. Most of the library users hardly visit the physical library spaces. In fact, some of them never visit the library at all. Their information universe revolves around Google, their friends, and friends of their friends. Academic libraries must intervene to mitigate this loss of patronage (user flight) which, to a large extent, is caused by a lack of awareness of what the libraries have to offer. One way of averting user flight is by intensifying the promotion and marketing of library services and products. Given that QR codes are mobile-phone based, they stand a high chance of reaching most of the library users who are constantly on their mobile phones.

This chapter explores how QR codes can be used to enhance the access and use of academic library services and products through effective promotion. The specific objectives of the study that generated this chapter were to assess the level of use of QR codes in academic libraries in Kenya; examine the factors which influence the use of QR codes in academic libraries in Kenya; and propose how QR codes can be used to promote the services and products of academic libraries in Kenya.

4 Methodology

This study applied an exploratory survey design. According to Shields and Ranganathan (2013), exploratory survey is research conducted for a problem that has not been studied more clearly. Babbie (2015) explains that exploratory surveys are used on concepts which are new and have not been studied exhaustively. According to Powell (2006), exploratory surveys can increase the researcher's familiarity with the phenomenon under study and help to clarify concepts and identify priorities for future studies. Babbie (2015) adds that exploratory surveys are flexible and address diverse research questions. According to Pinsonneault and Kraemer (1993), the whole purpose of an exploratory survey is to elicit a wide variety of responses from individuals with varying viewpoints in a loosely structured manner. The authors used an exploratory survey approach because the use of QR codes is relatively new in the Kenyan context and has not been studied exhaustively.

The study aimed to collect primary data from systems librarians in all chartered private and public universities in Kenya. According to the Commission for University Education (2017), there are 31 chartered public and 18 chartered private universities in Kenya. Therefore, the population of the study comprised all the 49 systems librarians in these chartered public and private universities. Given the low number, the authors used a census to include all the systems librarians in the study. Primary data was collected through online semi-structured questionnaires developed using Google Forms. A list of all systems librarians and their contacts was compiled using content from university library portals. Both e-mail and telephone were used to contact the systems librarians and invite them to participate in the study. Online data collection approach was preferred because of its ease of use, low cost, convenience, and lack of intrusion on the privacy of respondents. Additional data was collected from relevant literature through documentary analysis. The collected data was analysed thematically and presented using descriptive statistics.

5 Findings and Discussions

A total of 35 systems librarians responded to the study. This represented a response rate of 71.4 per cent. Authors such as Morton *et al.* (2012), Baruch and Holtom (2008) as well as Baruch (1999) observe that response rates in empirical studies have been on a decline for many years now. Nonetheless, they emphasise that high response rates lead to large data samples which ultimately generate findings which have a higher credibility among the stakeholders. Several authors have recommended thresholds for response rates. For instance, Roth and BeVier (1998) suggest 50 per cent as the minimal level while Fowler (2013) suggests 60 per cent. The response rate of 71.4 %, inspires confidence that the findings of this study meet the minimum response threshold and are, to that extent, valid.

5.1 Familiarity with QR codes in academic libraries in Kenya

The majority 21(60%) of the respondents reported that they were familiar with QR codes while the rest were not. This finding indicates that a large number of academic librarians in Kenya are unaware of the technology and its potential benefits to their libraries. Since the respondents were systems librarians who should keep abreast of emerging technologies, this finding is worrying given that QR codes have been in use for decades. Walsh (2010) reports a 2009 study on the awareness of QR codes by students at the University of Huddersfield in the United Kingdom. The study revealed that only 8 per cent of the students were aware of QR codes. He adds that at the time, the percentage of the library staff who knew about QR codes was even lower than that of the students. Awareness of QR codes among librarians in Africa has grown over the years as highlighted in the literature review. Therefore, the low awareness level of the technology amongst systems librarians in academic libraries in Kenya is cause for worry.

Out of those who confirmed familiarity with QR codes, only four (4) librarians indicated that their libraries were using the technology. Asked whether they knew other academic libraries in Kenya using QR codes, 13(61.9%) reported that they did not know of any. These results corroborate the finding on awareness of QR codes and indicate that the level of use of QR codes in academic libraries in Kenya is extremely low. Nonetheless, adoption of technologies is known to start with a few, the early adopters, who embrace and popularise the innovation. Thereafter, the innovation is adopted by a critical mass that relies on the experience of the early adopters with the technology. The authors forecast that the level of use of QR codes in academic libraries in Kenya will grow as more librarians become aware of the technology through the experience of their peers. As with any other technology, it is probable that some academic libraries may not use QR codes at all.

5.2 Current use of QR codes in academic libraries in Kenya

The respondents who were familiar with QR codes reported that they were aware that academic libraries in Kenya use the technology in many ways. Some of these are reported verbatim hereunder:

"We use WebOPAC QR Code. This enables access between smart phone and library management server to retrieve real time status of the documents they are searching for in the library's shelves."

“We place QR codes on e-book dummies to facilitate quick access to e-book collections and provide a visual representation of what cannot be seen.”

“We use QR codes to link e-resources and e-books subscribed to by the consortium. These are put on brochures and posters and given to members.”

“We place QR codes on printed books to link readers to related online resources.”

“QR codes are used as links to academic videos, demonstrations, to point out to e-resources, library tutorials, etc.”

“Shelf guides are placed on a shelf to show the classes contained in that shelf; researchers’ profiles.”

“QR codes are used to provide hyperlinks to surveys, notices, e-resources, staff profiles, website, and social media pages.”

The respondents explained that they use freely available online tools to generate QR codes which they then put on such physical resources such as print books, posters, brochures, doors, shelves and other devices. Asked to explain the factors which have so far influenced the use of QR codes in academic libraries in Kenya, most respondents identified portability (17), ability to be read using diverse devices (16), simplicity of the technology (14), and low requirement for advanced ICT skills (14) as the drivers of the use of QR codes in Kenya. Factors impeding their popularity also emerged. They include low ICT skills, user disinterest and resistance to change. These factors present a need for continual education efforts in the library, both for librarians and library users. Figure 1 summarises these results.

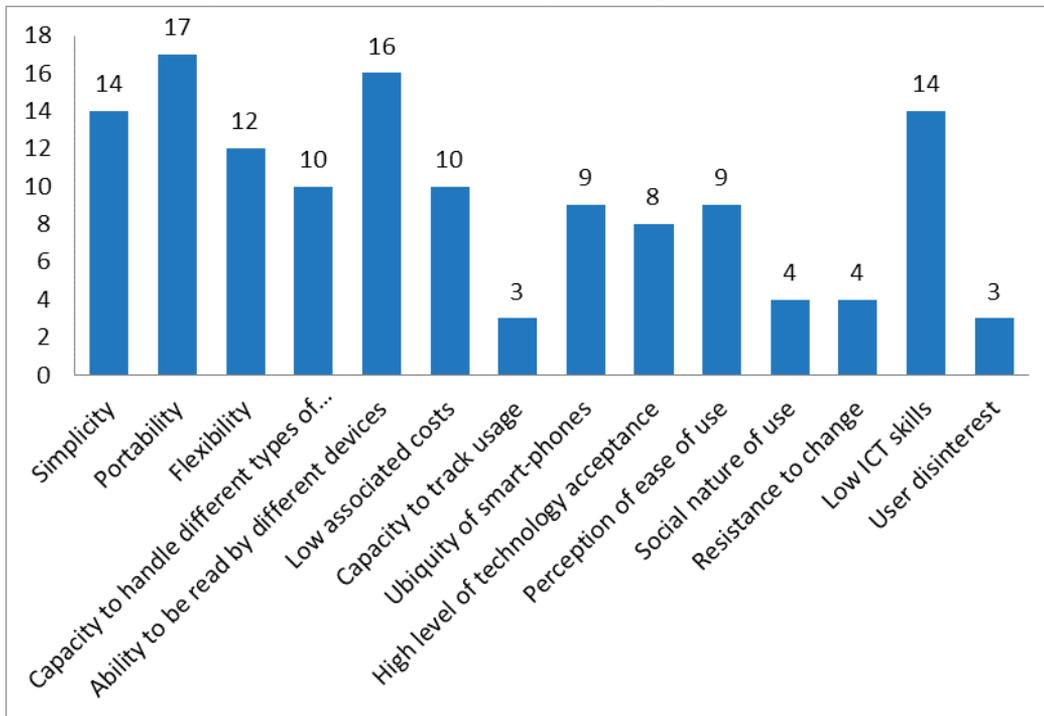


Figure 1: Factors influencing the use of QR codes in academic libraries in Kenya

5.3 Marketing of academic libraries in Kenya using QR codes

Academic libraries face many challenges with regard to marketing and promotion of services and products. Those identified by the respondents include cutthroat competition with alternative sources of information such as search engines; lack of awareness of new services and products acquired or made available in the library; declining visits to the physical library; failure by library patrons to make the best use of library resources; poor perception of the image and place of the library in today’s connected information universe; and inadequate budgetary support for marketing and promotion programmes.

Asked to indicate the seriousness of the challenges, 56% of the respondents said that they were “serious”; 40% perceived them as “very serious” while only 4% considered them as being “not serious”. These findings imply that 96% of the respondents consider inadequate marketing as a serious challenge hampering the effective access and use of library services and resources. These findings are in tandem with the view of Yi (2016) that libraries in the modern generation are not the only option for students and faculty. They, therefore, have to devise and deploy effective marketing strategies to attract and/or retain library users. Essentially, libraries which will not market themselves adequately risk being rendered redundant or irrelevant by their actual and potential users.

As reported above, only four academic libraries in Kenya were identified as using QR codes. The respondents provided the following views, reported verbatim, about the potential of QR codes to enhance the marketing of academic libraries

services and products in Kenya:

“I feel QR codes if well displayed and clearly understood by users can promote library services and resources and increase the usage. Most, if not all users, have smart phones so QR codes can be an effective way of promoting library services and products/resources.”

“QR codes can be used in innovative ways to provide unique services to users but unless users are informed on how to use the QR codes, it ends up being a waste of time.”

“I think by adopting the use of QR codes, it will reduce the cost of collection development and space utilisation in academic libraries.”

These statements indicate that these libraries are experiencing success with the use of QR codes and are able to see the potential of increased application. Indeed, the use of these codes as posited by Shettar (2013) makes it possible to deliver required information to 21st century library users and give them quick access to information wherever and whenever they want it. Their flexible nature allows for scores of applications in marketing and promotion initiatives in academic libraries.

6 Conclusion and Recommendations

Academic libraries in Kenya are facing serious challenges emanating from poor marketing of their services, space and products. Consequently, many of their actual and potential users do not make the best use of their services and products. QR codes are a low level but cost-effective technology which can be applied to support library promotion programmes given that virtually all academic library users have mobile phones. This study confirms that a large number of systems librarians in Kenya are unaware of QR code technologies. Results of this study further indicate that only four academic libraries in Kenya are currently reported to be using QR codes. These libraries perceive QR codes as having a great potential in marketing and promotion of their services and products. These libraries have adopted QR codes because they are portable; can be read using diverse devices; they are simple to use; and do not require advanced ICT skills.

Based on the findings of this study, the authors recommend the following opportunities to use QR codes in the promotion of services and products of academic libraries in Kenya:

1. *Library orientation* – Librarians can utilise QR codes to improve library orientation programmes in the university. Ordinarily, orientation is offered to new users, that is, new students or faculty in a university setting. Despite the fact that orientation is useful, many potential library users do not participate effectively in library orientation programmes. Some of them think they know everything they need to know about libraries while others see no need to spend time getting inducted to a library they do not intend to use. To allow new library users to learn about the library at their comfort, QR codes can be used to link library video, audio and or virtual tours introducing new users to the library spaces, resources and services.
2. *Signage* – Academic libraries are large and can be confusing even to the frequent users. QR codes can be pasted on library signage to inform the users where they are, where they have been, and where they could go. This will not only enhance findability of library resources; it will also make library usage less taxing for the users who would rather be somewhere else. To be effective, librarians should organise library spaces in a systematic manner to enable ease of description and identification. Such enhanced signage could also facilitate the benefits of serendipity whereby users discover resources, locations and services they did not know about before coming to the library.
3. *Games* – Most academic librarians are netizens – born in the Internet age. This group of users prefers infotainment to traditional communication. They love fun and cherish services and products delivered conveniently in an exciting manner. Librarians can create strategic games and fun pages which promote the location and use of library resources. For instance, libraries can create treasure hunts of library materials consisting of QR codes spread throughout the library as cues. Such games would enhance the understanding of the users about library processes, systems and spaces. The games can also increase the users’ familiarity with library services and materials thereby leading to better patronage.
4. *Digital marginalia* – In this era of citizen media, many people rely on the recommendations of their friends, peers or “friends of friends” to identify valuable resources. In the ancient libraries, readers made comments on the margins of the books to provide information or explain points made in the page. These markings in the form of text or underlines were known as marginalia. They helped subsequent readers of the material to interpret or contextualise the content. Today, marginalia has migrated to cyberspace, for instance, in the form of ratings and social bookmarks. QR codes can be used on print books to link to web locations where people who have used the books provide their assessment of the book. This information can be useful for people experiencing information overload and who may not commit time to do original search for materials.
5. *Contacts* – Librarians in the digital age strive to take library services beyond the library walls. This is largely achieved by providing remote access to library services and products. In spite of its advantages in “opening” the library around the clock, remote access is hinged on self-service with limited access to librarians. QR codes can be used

to provide contacts to librarians who can offer help at the point of need. The QR codes can be placed on physical facilities in and outside the library, business cards, merchandise, freebies, shelves, hostel noticeboards and other spaces library users are able to access easily. This way, the library users are linked faster and easily to such reference services as Ask-a-Librarian and live chat.

6. *Outreach* – Academic libraries in this era need to reach out to their users. This is usually through events, promotional materials and publicity campaigns. QR codes placed on posters, flyers, bookmarks, and banners can be used to provide quick links to campaign materials, events and pages. This strategy can mobilise library users to participate and benefit from library organised events and activities. Thereafter, the codes can provide hyperlinks to additional information and contacts to keep discussions and engagement alive.
7. *Downloads* – Libraries generate a lot of content in terms of guides, manuals, software and other learning materials. QR codes can be used to disseminate links to digital locations where these can be downloaded easily. The users can also be enabled to share the links or materials within specific organisational frameworks.
8. *Electronic resources* – Academic libraries in Kenya through consortia now provide access to a large number of academic electronic databases. This format of academic literature is relatively new and librarians have to work towards not only increasing awareness but also training library users on how to access and use electronic resources. QR codes linking to individual database can be pasted on publicity materials and subject guides. Once scanned, the QR code saves the URL and location of the database, in a complete and clear manner, to the mobile device for later use.

As academic librarians struggle to find relevance in a world that is increasingly technological and interest students who are more social and connected than ever, QR codes have great potential. They provide easier ways to not only make resources available and visible but also to increase engagement with today's student. While success with QR codes will vary among institutions, librarians have to be continually creative and experiment with different uses, increase the odds of how to use the codes and provide education as they seek to add value to the learning, teaching and research experience.

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