Visual Design as the Impetus for Access and Utilization of Information in Digital Resource Platforms in University Libraries

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Abstract

The study sought to examine the visual design in digital resource platforms in selected public universities in Kenya. The study adopted a descriptive survey research design. Data was collected from a targeted population comprising of 86 academic staff, 23 library staff in charge of e-content and 4 university librarians from four selected universities namely: University of Nairobi, Kenyatta University, Moi University and Egerton University. Questionnaires were administered to academic staff and library staff in charge of e-content while an interview guide was used to gather data from university librarians. Data was analyzed using descriptive statistics, and presented in form of tables, charts and graphs and verbatim reports. Findings showed that the layout of content was unappealing, no clear paths for navigation, use of images and color for attraction was lacking while search features were complicated to understand. The visual design in the digital platforms lacked user consideration and did not adequately facilitate effective access and utilization of information. The study concludes that visual design is an important component in digital resource platforms for attracting users to access and utilize digital information hence the need to develop user-centered platforms.

Subject Areas

Educational Technology

Keywords

Visual Design, Access, Digital Resource Platforms, Utilization, University Libraries

1. Introduction

Digital resource platforms have been recognized as valuable instrument for teaching, learning and research in universities. They allow for broad access, sharing and dissemination of information resulting from the advancements of Information and Communication Technologies (ICTs). However, users of the digital resource platforms within universities are unable to effectively access and utilize information due to the intricacies of the digital resource platforms as they encounter difficulties with navigation resulting from the mismatch between user expectations and information platforms. This may adversely affect teaching and research output that are core mandates of universities. Therefore, university libraries which have been established to provide information services to their users to support learning, teaching and research functions of the universities need to effectively deliver on this mandate. Consequently, these libraries have established and subscribed to digital resource platforms for effective access and utilization of information by their users. Library staff should therefore put in place strategies that promote access to information in digital resource platforms.

Kautonen and Nieminen (2018) [1] observe that visual design of library websites including content design and color is important for attracting users' decision to pursue the information in a platform. Visual design focuses on the aesthetics of a site and its related materials by strategically employing images, colors, fonts and other elements (Anyaoku, Echedom & Baro, 2018) [2]. A successful visual design does not take away from the content on the page or function. Instead, it enhances it by engaging users and helping to build trust and interest in usability (Azadbakht, 2017) [3]. Digital platforms provide a single point of access to a magnitude of multimedia information that is available to diverse types of users with different psychological, educational, social backgrounds and information needs over the Internet (Handa & Bhatt, 2015) [4]. These differences among individuals bring into play various preferences or biases when it comes to visual design. Nathaniel, Makinde & Ogunlade, (2021) [5] observe that designing good usable digital resource platforms requires knowledge about the users and the reason for use, context and the environment in which they will use, and the technical and logistical feasibility.

Digital resource platforms are interactive systems with growing numbers of users and to provide usable and useful interactive systems. Designers therefore need to ensure that good design features are incorporated into systems by taking into consideration users' needs and cultural backgrounds to encourage access (Venkatesh, Thong, & Xu, 2012) [6]. According to Bowen (2018) [7] a net-based world where eyes are drawn to digital screens every day, there is need for academic library content to be visible to users if the libraries are to be part of the users' research process. Digital resource platforms need to make their resources and services findable and usable and this principle extends to the visual design and organization of these resources and services on the library's website (Firozjah, Dizaji & Hafezi, 2019) [8]. It is necessary to ensure that the visual design of

content in digital resource platforms attracts users and this will serve as a catalyst for access and utilization.

These platforms have opportunities to use images, design and text to promote a library's desired qualities through providing users with a positive aesthetic experience. Gaona-Garcia, Martin-Moncunill and Montenegro-Marin (2017) [9] observe that users' encounter challenges in integrating visual search interfaces into digital libraries and repositories. Specifically, they include information visualization, the use of knowledge organization systems and metadata quality. Visual design can be used as a principle to make a digital platform and its resources visible, findable and usable to users (Chemulwo, 2018) [10]. Poorly designed content, an unfriendly interface, unappealing colors (dull or faint) demoralizes users from accessing digital information (Anyaoku, 2018) [11]. If the content is systematically organized for example according to disciplines and the interface is user-friendly thus well guiding and with appealing screen colors then users will be motivated to access information (Weng'ua, Rotich, & Kogos, 2017) [12]. Well organized content enables users to navigate through the digital resource platform moving from one database to another and from one source to another with ease.

Nevertheless, websites provided by academic libraries are challenged by the fast growth in ICTs that have created various alternatives and channels for information sources that are easily accessed through the Internet (Katabalwa & Underwood, 2017) [13]. Also, users of digital resource platforms are challenged by the complexity of finding information and those related to the organization of content on library websites causing users to rely on Google (Lee & Kim, 2021) [14]. The reliance on Google may compromise the quality of information academic staff access and use because the information may not be necessarily authentic and may affect their output in terms of teaching, research and innovation. Zhang, Liu and Mathews (2015) [15] noted that visual design can be discussed in terms of layout design, images, color and search features.

Digital resource platforms have provided new opportunities for users to access and utilize various information resources. The platforms exist to facilitate easy, faster and timely access to information in appropriate formats and adequate amounts. However, literature (Xie, Babu, Lee, Castillo and Hanlon (2020) [16] show that users are unable to effectively access and utilize information in digital resource platforms within their universities due to the intricacies of these platforms. The need for user focus is necessary when developing digital resource platforms in university libraries. Kumar (2016) and Jones *et al.*, (2020) [17] observe that involving users at this stage would facilitate effective access and utilization of information. Mayende, Awuor and Namande (2021) [18] concur that academic libraries can only realize improved usage of their library services if they are customer-centered but this has not been considered in many platforms. Unattractive visual designs have led to ineffective access to digital resources in university libraries resulting to limited information utilization hence contribute

to low quality teaching and research output. It is not clear in literature whether visual design in digital resource platforms that are available in universities facilitate effective access and utilization of information or not. The study therefore seeks to unearth the underlying issues with regard the role content layout, use of images, use of color, and search features in ensuring effective access and utilization of information in digital resource platforms in university libraries. Although there were other old and well-established universities, this study was limited to four main public universities in Kenya: University of Nairobi, Kenyatta University, Moi University and Egerton University as study sites.

2. Methodology/Design

The methodological point of this research is strengthened by philosophical position regarding how knowledge is gained, choices of methods and frames for analysis, which direct research design at all stages. Three paradigms generally dominate in the acquisition of social scientific knowledge: positivism, interpretive and pragmatism. Creswell and Creswell (2018) [19] explain that paradigms are fundamental sets of beliefs that direct action, also referred to as worldview, epistemologies and ontologies. The study used the pragmatic paradigm approach. Feilzer (2010) [20] observes that ppragmatism is a deconstructive paradigm that advocates for the use of mixed methods in research and avoids the controversial issues of truth and reality and instead focuses on "what works" as the truth with regard to the research question under investigation. The study therefore used mixed methods which granted the researcher the opportunity to benefit from the strengths of both qualitative and quantitative methods and also compensated for the weakness of either method. The approach also provided for a blend of both qualitative and quantitative research. The application of pragmatic approach was also informed by the view that access and utilization of information in digital resource platforms in universities involves more than one stakeholder and would require different approaches to gather accurate data. This presented an opportunity for choosing appropriate investigative techniques to address the research questions hence adequate relevant data was collected and accurately informed the study outcome.

The study adopted a descriptive survey design which was appropriate for collecting data on opinions, attitudes and feelings of a population (Kothari, 2004 [21]. Descriptive surveys are found to be appropriate because information can be collected without manipulating the variables being studied and allow researchers a wide scope of investigating many aspects of phenomena at the same time in their natural environment (Pickard, 2013) [22]. The study adopted a mixed method approach where the researcher combined quantitative and qualitative techniques, methods, approaches, concepts into a single study. The mixed method approach gathers integrated facts that are supported by numbers, images, words and narratives and which presents deeper and meaningful answers that other methodologies would not be able to yield (Johnson and Christensen, 2008) [23].

The mixed method approach also helped avert the inherent weaknesses of either qualitative or quantitative methods making it appropriate for the study.

The study targeted schools/departments offering LIS programmes. The LIS departments were selected because the academic staff are both users of the digital resource platforms and trainers in information management hence considered key in providing reliable and authoritative information for the study. Participants in the study included LIS academic staff, university librarians and library staff in charge of e-content from the four selected universities. Moi University has an established School of Information Science with three departments namely: Library, Records and Information Studies (LR & IS) which has 11 teaching staff; Publishing and Media Studies (PMS) with 29 teaching staff and Information Technology (IT) with 9 teaching staff. For purposes of this study, academic staff in PMS and IT departments were also included because of the relatedness of their areas of specialization with LIS and provided useful information with regard to promoting access and utilization of information in digital resource platforms.

At the University of Nairobi, the LIS department is administered under the faculty of Arts and Social Sciences and had 6 (six) teaching staff while at Kenyatta University the LIS department is administered under the school of Education with 20 teaching staff. At Egerton University the LIS programme is administered in the faculty of Arts and Social Sciences under the Department of Languages, literature and linguistics and has 11 teaching staff. The study also targeted University librarians and librarians in charge of e-content from all the four selected universities. The academic staff from LIS discipline were the key respondents for this study and provided authoritative and reliable information on access and utilization of information in digital resource platforms. This is because besides being users of the digital resource platforms, the staff are involved in training learners in managing information collections and systems that facilitate access to information. The staff therefore richly contributed to the study by sharing their expert knowledge as trainers and personal experiences with the digital resource platforms as users.

Librarians in charge of digital content formed the second category of respondents and were useful in providing information about the delivery of information services through digital resource platforms and the functionality of the systems. The third category comprised of university librarians who are part of the universities' top management. The staff are involved in decision-making and policy formulation with specific reference to library and information services through the digital resource platforms in the universities. The staff provided valuable information for the study in regard to access and utilization of information in digital resource platforms.

The study used purposive sampling for universities and census sampling techniques for all the three categories of respondents. The four universities were purposively sampled because they were the oldest to be established and are the

top universities offering online courses in Kenya (Commission for University Education, 2019) [24], hence considered to portray a clear picture on access and utilization of information in digital resource platforms in Kenyan universities. The census sampling technique was used because the numbers for the three categories (LIS academic staff, University Librarians and library staff in charge of e-content) of respondents were manageable to study. The three categories were key in providing expertise information that would yield to authoritative and verifiable findings because they directly interact with digital resource platforms either as users and/or as the information providers through the platforms.

Census sampling was used to draw academic staff respondents who teach LIS programme because their numbers were not large and therefore manageable. Purposive sampling was used to select universities, university librarians and library staff in charge of e-content from the four participating universities. Table 1 is a representation of the sample size used for the study.

The study used two sets of questionnaires and interview guide to collect data from respondents. One set of questionnaires was administered to academic staff and another to library staff in charge of e-content while the interview guide was used to collect data from university librarians. The study used open-ended and closed-ended questions to gather information from academic staff and library staff in charge of e-content. Participants freely provided additional information in the open-ended questions that would not have been captured in closed-ended questions. Closed-ended questions used a Likert scale where respondents only indicated their responses. Questionnaire enables the respondents to express themselves anonymously without fear since one is free to give opinions on the research questions given. Two sets of questionnaires with different but related questions derived from the study objective were used to collects data from academic staff and library staff in charge of e-content. The questionnaires were self-administered in collecting data from academic staff and library staff in charge of e-content. Questionnaire was preferred for collecting data from the respondents because it has a high response rate and only required to be distributed to respondents to complete. The tool required less time to be administered, offered the possibility of anonymity and data collected was first hand. Questionnaire enables the respondents to express themselves anonymously without fear since one is free to give opinions on the research questions given.

Table 1. Sample size.

University	University Librarians	Library Staff in Charge of E-Content	Academic Staff	Total
University of Nairobi	1	7	6	14
Kenyatta University	1	5	20	26
Moi University	1	6	53	60
Egerton University	1	5	15	21
Total	4	23	86	113

The questionnaire consisted of both closed and open-ended questions which were administered to 86 academic staff and 21 librarians in charge of e-content from the four selected universities. The open-ended type of questions allowed respondents to freely provide additional information that may not have been captured in the closed-ended questions while other questions were Likert scale for rating purposes.

The interview guide used to collect data from university librarians was intended to fill the gaps that the questionnaire may present. The interview guide contained uniform predetermined questions asked to all the university librarians participating in the study. The questions specifically addressed the objective of the study and interviews allowed the opportunity of probing for clarifications and additional information that was used to enrich the study. The semi structured interviews were administered through face-to-face interviews which were conducted with four university librarians. Punch (2003) [25] observes that interviews allow researchers to access people's views, meanings, and definitions of situations and constructions of realities. Interview as data collection method is characterized by some questioning where the interviewee provides the required information to the interviewer orally on a face-to-face interaction. The face-to-face interviews presented an opportunity for the researcher to probe for more information and seek clarifications. The researcher keenly listened and took notes of responses from the interviewees and also noted the non-verbal expressions for incorporation in data analysis. Proceedings of the interviews were captured using a phone recorder while back up notes were recorded in a notebook for accurate reporting. The research used semi-structured face to face interviews which allowed for probing for more information where it was necessary. The researcher made summaries of each interview session separately which was analyzed thematically while quantitative data was analyzed using Statistical Package for the Social Sciences Software (SPSS). Descriptive and inferential statistical techniques were used to make inferences and draw conclusions and recommendations. Descriptive statistics helped in indicating characteristics that were frequent to the entire sample and summarized data on a single variable. Interviews elicited words, phrases and concepts which were analyzed thematically. For purposes of anonymity university librarians were referred to as UL1, UL2, UL3 and UL4.

3. Literature Review

3.1. Visual Design in Digital Resource Platforms

Visual design focuses on the aesthetics of a site and its related materials by strategically employing images, colors, fonts and other elements (Baro, 2018) [26]. A successful visual design does not take away from the content on the page or function. Instead, it enhances it by engaging users and helping to build trust and interest in usability. Digital platforms provide a single point of access to a magnitude of multimedia information that is available to diverse types of users with

different psychological, educational, social backgrounds and information needs over the Internet (Bhatt, 2015) [27]. These differences among individuals bring into play various preferences or biases when it comes to visual design. The variation of digital resource platform users may present different responses or reactions in terms of content layout, type of content whether audio or visual which may influence access and utilization.

Rezna, Khosravi and Dong (2017) [28] observe that designing good usable digital resource platforms requires knowledge about the users and the reason for use, context and the environment in which they will use, and the technical and logistical feasibility. Digital resource platforms are interactive systems with growing numbers of users and to provide usable and useful interactive systems, designers need to ensure that good design features are incorporated into systems, taking into consideration users' needs and cultural backgrounds to encourage access (Venkatesh, Thong, & Xu, 2012) [29]. In a net-based world where eyes are drawn to digital screens every day, there is need for academic library content to be visible to users if the libraries are to be part of the users' research process. Digital resource platforms need to make their resources and services findable and usable and this principle extends to the visual design and organization of these resources and services on the library's website (Firozjah, Dizaji & Hafezi, 2019) [8]. Similarly, Wissel and DeLuca (2018) [30] affirmed that the visual design and organization of content directly affect the perception of the library as a quality instrument to use in addressing users' information needs. It is necessary to ensure that the visual design of content in digital resource platforms attracts users and this will serve as a catalyst for access and utilization.

Although a significant resource of digital content has been established with a large number of potential users, (Gbadamosi, 2012) [31] notes that a challenge still remains in developing appropriate facilities to promote world access and use of the growth of digital information. Digital resource platforms are established as a response to the needs of a particular user group whose input should be sought at the onset to facilitate user-centered design (Waithaka, Onyancha & Ngulube, 2018) [32]. In so doing, it will be easy for users to accept, learn and use the system. However, Bader (2018) [33] explains that when implementing digital libraries users are often not involved in the design phase. The idea that visual design principles are processes through which Web design may be constructed further ties these principles to a library profession that has accepted both constructivism and visual literacy as two of its basic tenants (Makokha & Mutisya, 2016) [34]. Academic librarians need to be complacent in considering the graphic and navigational design of library websites. Zhang, Liu and Mathews (2015) [35] for instance, noted that visual design can be discussed in terms of layout design, images, color and search features.

3.2. Influence of Content Layout on Access of Information in Digital Resource Platforms

The layout design is the arrangement of text and visuals in the websites. The ef-

fectiveness of every type of design from print to web is largely influenced by layout (Comeaux, 2017) [36]. The grouping of similar elements together on a webpage result in greater acceptance of a page. The websites that provide enough images and text to communicate needed information to those using the site are optimal for serving their purpose while not being perceived as overly complex (Omette, 2016) [37]. The layout needs to be designed in a way that reflects what resource users want to see in the library homepage, how long a page can be before they find it cognitively overwhelming and how many elements they can observe on a page and still find it uncluttered (Habib, M. N. *et al*., 2020). [38]. The layout needs to consider the aspect of how spatial placement of the elements can best present library resources and services, and what balance of text-to-graphics they find optimal.

Well organized content enables users to navigate through the digital resource platform moving from one database to another and from one source to another with ease. Besides, websites provided by academic libraries are challenged by the fast growth in ICTs that have created various alternatives and channels for information sources that are easily accessed through the Internet (Habiba & Ahmed 2020) [39]. However, in some cases, users of digital resource platforms are challenged with the complexity of finding information and those related to the organization of content on library websites causing users to rely on Google (Lee & Kim, 2021) [14]. The reliance on Google may compromise the quality of information academic staff access and use because the information may not be necessarily authentic and may affect their output in terms of teaching, research and innovation (Gokoffski, Chatterjee & Khaderi, 2019) [40].

An effective layout looks attractive and helps the user understand the message the design conveys (Owusu-Ansah, Rodrigues & Van Der Walt, 2018) [41]. Understanding layout is key when in creating user-friendly, engaging designs, particularly in the realms of web design. The layout design has the role of structuring the information on a site both for the website's owner and for users (Domitrovich, Durlak, Staley & Weissberg, 2017) [42]. It provides clear paths for navigation within web pages and puts the most important elements of a website front and center. Website layouts define the content hierarchy that guides digital resource users around the website. If the content is systematically organized for example according to disciplines and the interface user-friendly thus well guiding and with appealing screen colors then users will be motivated to access information. Designers need to provide efficient ways to structure information and represent it digitally using computers (Bosire, 2021) [43].

Academic staff may be attracted to well-organized content which facilitates easy access and use. Moreover, visual design centers on the question of whether the site's observable layout and content make sense to a viewer such that he or she can use the site for his or her intended purposes. Comeaux (2017) [36] suggests that digital resource platforms can use visual design to reduce the level of cognitive load required by users to intellectually process and understand the site such that users may use it effectively and efficiently. Digital platforms' websites

are virtual public faces hence should give some kind of identity and encourage repeat visitations. The visual design of a website affects its acceptance and recommendation among users who have interacted with it. The graphic interface of a library's website plays a direct role in its navigation system in which both influence the sites' usability and aesthetic appeal which attracts access to information (Guchacha, 2019) [44].

3.3. Role of Images in Promoting Access and Utilizing Information in Digital Resource platforms

Digital resource platforms have opportunities to use images, design and text to promote a library's desired qualities through providing users with a positive aesthetic experience. Users' encounter challenges in integrating visual search interfaces into digital libraries and repositories. Specifically, they include information visualization, the use of knowledge organization systems and metadata quality. Visual design can be used as a principle to make a digital platform and its resources visible, findable and usable to users. The use of images in websites play a fundamental role because they capture the attention of the visitor on the website (Anyim, 2018) [45]. Relevant images that have the purpose to look pretty enhance the user experience. They deliver a contextual message which answers the need for information. Images in websites play a role on users interpretation of the design of websites particularly images placed on these sites. A study conducted by Daramola (2016) [46] note that images breaks block of text on web pages thereby making the information presented on the page easily digestible. Focusing on the images themselves Chowdhury (2016) [47] ties constructivism to visual imagery (specifically photographic imagery) on library websites.

One of the key components of the visual design layout is introducing images that ease the search of the information. Placement of images is necessary in sending a particular message to those intending to use the information. Attractive images are expected to enhance the possibility of looking forward to returning to those websites. According to Iroaganachi and Izuagbe (2018) [48] website users more often accept a site as valuable if it includes a picture of a contact person instead of no picture. The picture enables easy identification of where the information is placed. Anuradha (2017) [49] argued that digital resource platform users appreciate the ability to visually see the librarians they interact with when using a library website. The role of images in digital resource platforms cannot be overlooked because images attract the users' attention because they stick to the mind of individuals promoting repetitive visits. Albertson (2015) [50] observe that images in websites breaks the monotony of long texts making searches and reading more interesting for users. Thus, it can be concluded that images on the websites are potent in promoting the visibility of the websites.

3.4. Impact of Color and Search Features on Promoting Access and Utilization of Information in Digital Resource Platforms

The visual design of library websites including color, content design is very im-

portant for attracting users' decision to pursue the information or not. Poorly designed content, an unfriendly interface, unappealing colors (dull or faint) demoralizes users from accessing digital information (Agosti, Ferro & Silvello, 2016) [51]. In addition, choosing the right colors for the design of the website is crucial for online success. Colors can be the most powerful tool to gain a reaction from the targeted audience (Larson, 2017) [52]. The colors on the websites or digital resource platforms can stir the emotions of users or respond to a call-to-action on the website (Madu, Vadu & Chagwa, 2018) [53].

Color helps people to process and store images more efficiently than colorless (black and white) images. This can help increase brand recognition and help prompt more users to the sight to act. The use of colors in instructional materials has proven to play an important role in creating different emotional reactions and capturing learners' attentions (Niqresh, 2019) [54]. The color of the website is key in influencing the attraction of the website users. The importance of color design stems from the significance of color to the human mind. Color creates ideas, expresses messages, sparks interest, and generates certain emotions among the students and even the lecturers (Omah & Urhiewhu, 2019) [55]. Color affects behavior as well as cognitive abilities, performance, and intentions of the users of particular content (Blake & Gallimore, 2018) [56].

Some scholars (Appleton, 2016) [57] observe that colors help learners increase their arousal. Delaney and Bates (2015) [58] indicate that color portrays different meaning and thus an organization needs to look for a universal color. Zha, *et al.*, (2020) [59] indicates that warm colors such as yellow and orange rather than cold colors such as gray used in materials can enhance students' learning. Colors have different meanings in different cultures thus may have a positive or negative influence on the acceptance of a digital resource platform. For example, red color psychologically may signify danger in some communities while black spells doom hence the need to blend carefully. Mwanzu and Wendo (2017) [60] opine that libraries should consider the psychological effects of color with regard to marketing the library to attract and retain users. The authors further observe that dull colors may subdue excitable behavior, while bright colors stimulate behavior and evoke an inviting image with a sense of efficiency in digital resource platforms. This communicates to information professionals about the need to adopt a fashionable approach to color and materials selection.

On the other hand, search features are important in helping the website users to find relevant content by specifying keywords or phrases without navigating through the entire website (Domitrovich, Durlak, Staley & Weissberg, 2017) [42]. Beyond online catalogues, databases and e-journals, researchers start to place their pre-prints or post-prints on the websites of faculties and research groups. A well-designed search system will help those looking for particular information to have ample time of locating to the exact information (Kamau, 2018) [61]. The search system is fundamental for looking for information from the websites of schools or universities. A reliable search system provides a list of results that best match what the user is trying to find out from the internet

(Rahman & Mohezar, 2020) [62]. The search results are generally presented in a line of results often referred to as search engine results pages (SEROs). The basic functions of a search engine can be described as crawling, data mining, indexing and query processing (Habiba & Ahmed, 2020).

4. Results and Discussion

The analysis of data was done in the context of the problem of the research objective.

Layout of content in the digital resource platforms

Academic staff were asked to assess the layout of content in the digital resource platforms on specific aspects that constitute a good visual design. The responses are summarized in Table 2.

Table 2 indicates that respondents agreed that similar and related items were grouped together with a mean score of 3.83. The arrangement of similar and related items together facilitates easy access to more information that would have not been possible when similar items are scattered. Sijane (2017) [63] observes that an orderly arrangement of information items in terms of their relatedness enhances utilization. When related items are juxtaposed, they promote a serendipitous experience among users hence creates awareness of new items of information that may be useful to their needs. However, some respondents disagreed that images and text were provided to communicate needed information with a mean of 1.95 and that the layout was attractive and enabled users interpret messages the design conveys with a mean of 1.83. Images create a lasting impression on the users' mind and a sense of identification with particular information documents with regard to re-known authors or publishers. This may influence the frequency of visits to the digital resource platforms to utilize the information. When the layout of the platform is attractive and users are able to interpret messages conveyed then its use becomes easy. The findings show that although university libraries have developed digital resource platforms to enable fast, easy and limitless access to information the layout of these platforms does not effectively support utilization of information by users.

Table 2. Assessing layout of content in digital resource platforms.

Statement on Layout of Content	SD (1)	D (2)	N (3)	A (4)	SA (5)	Score	Mean
Similar and related items are grouped together	0	8	12	28	17	249	3.83
Images and text are provided to communicate information	27	20	12	6	0	127	1.95
Layout is attractive and enables users interpret messages the design conveys	35	13	10	7	0	119	1.83
Clear paths for navigation are facilitated creating content hierarchies that guide users	36	16	12	1	0	108	1.66
There is good balance between text-to-graphics	38	15	12	0	0	104	1.6

Further, the respondents disagreed that clear paths for navigation were facilitated creating content hierarchies that guide users with a mean score of 1.66 and that there was good balance between text-to-text graphics with a mean of 1.6. Systems that are used to provide users with the required information in the digital environment need also to facilitate the users with simple and clear means of accessing the information. When navigation paths are not clear users get lost or confused in the midst of information search and may get discouraged in the process and eventually not find the information which they need.

Also, university librarians were asked to describe how the layout of content in digital resource platforms facilitated utilization of information.

UL1 observed:

S*ometimes the library website gets too crowded; you find too much information on the user interface even with obsolete information yet there is very little the library can do and this makes it unappealing to users.*

Users are attracted to information that is arranged in an orderly manner because it is easy to understand, retrieve and use. When the website is overcrowded users get mixed up and lose track of the information they are interested in and may give up along the way (Nelsen & Ganter, 2018) [64].

UL2 said:

The content is arranged systematically but the problem is that even old items still crowd the platform.

This showed that the library website was hardly updated to remove items that have become obsolete to create space for new items. This portrayed the platform as poorly managed and therefore failed to appeal to users.

UL3 noted that:

In as much as the layout is systematic, some of the content cannot be utilized because it has not been paid for. This makes users feel the website is unnecessarily crowded and disappointing.

UL4 stated:

A digital resource platform such as Science Direct has about 40000 *titles, but because of inadequate finances, the library sometimes can only subscribe to* 4000 *titles. In this case, users will see the* 40000 *titles but can only access the* 4000 *titles subscribed to which is discouraging. We also subscribe to ebrary where we are given a full package of which many of the titles are not necessarily relevant to the needs of our users. This makes the layout of content unnecessarily packed and unattractive.*

Library collections should be based on ascertained needs of users and anything outside the needs is noise. This may also explain the reason for overcrowded Library website with irrelevant materials that do not serve the users interests or packed with items that cannot be accessed hence making the layout unappealing. User interaction with an information system may be affected by some specific design features in digital resource platforms. Some design features may lead to poor user performance and which information professionals should seek to improve from time to time.

Use of images in digital resource platforms

The academic staff were asked to assess the use of images in digital resource platforms. The results are presented in Table 3.

Table 3 indicates that the respondents disagreed with all the statements about the use of images in digital resource platforms with a mean ranging between 1.85 to 1.72. This implies that the use of images had not been embraced despite being an important component of the visual design that helps in communication and identification of information in digital resource platforms. The role of images in digital resource platforms cannot be overlooked because images attract the users' attention because they stick to the mind of individuals promoting repetitive visits. Jabeen, Qinjian, Yihan & Imran (2017) [65] observe that images in websites breaks the monotony of long texts making searches and reading more interesting for users.

Responding to the question on use of images in facilitating utilization of information in digital resource platforms, university librarians gave varying responses.

UL1 stated:

We integrate as much images as possible especially when digitizing conference papers that have the authors' photographs which we upload as they appear with the cover. Since we initiated this, we have experienced an increase in the use of conference proceedings.

UL2 said:

As at now the library has no capacity to do such technical exercises since no staff has been able to go for training for skills enhancement due to lack of financial support for staff from the university management.

UL3 pointed out:

We have not uploaded any images. To be able to design a library website with full consideration of users' expectations requires support from the university management. But as long as the management still beliefs that it is the ICT staff that have the capacity to do any ICT related work in regard to the website, we have a long way to go.

Table 3. Use of images in digital resource platforms.

Statements about Use of Images	SD (1)	D (2)	N (3)	A (4)	SA (5)	Score	Mean
Relevant images have been used to enhance user experience	32	18	9	5	1	120	1.85
Images have been used effectively to break blocks of text	34	14	12	4	1	119	1.83
Attractive images have been used to enhance repetitive use	36	13	12	4	0	114	1.75
Images of contact persons are included for ease of information identification	35	17	9	4	0	112	1.72

The findings showed that the use of images has not been considered in digital resource platforms because of varied reasons. Library staff lacked the expertise to embed pictures and photographs that identify with the content. On the other hand, a respondent pointed out that the university management had entrusted the ICT personnel with the technical work in regard to the website management and library staff were not involved to provide what could be useful for information utilization. However, a respondent indicated that images of authors were uploaded with their conference papers which had improved usage among users. The use of images that can be helpful for identification of information is an important aspect of visual design. The integration of images and text on a webpage result in greater acceptance of a page and therefore attracts more users to use information. This means that not only does the systematic arrangement of content facilitate access but also breaking the monotony of text. Libraries should be supported to make the visual design of digital platforms as attractive as possible by enhancing the staffs' skills through training so that the staff can provide expertise services.

Use color in digital resource platforms

Academic staff were further asked to assess the use of color in digital resource platforms. The responses are presented in Table 4.

Table 4 indicates that the respondents agreed that colors in digital resource platforms were dull and did not attract frequent use with a mean of 4.09 and that the colors were monotonous and were not appealing for repetitive visits with a mean of 3.89. When colors are unexciting people tend to lose interest because they want to relate to items that are attractive. Digital resource platforms are information service points and should therefore bear colors that are appealing to users. In addition, the respondents disagreed that colors were well blended to enhance user experience with a mean of 2.14 and that colors sparked interest among users and help in processing and storing images with a mean of 1.75. The findings show that the use of color in digital resource platforms did not meet the doorsill of attractiveness among users.

The colors used in a website are an important factor in drawing users to it and if ignored may cause a dislike of the website by users. Color communicates messages in the human mind and also creates certain feelings about what they see.

Table 4. Use of color in digital resource platforms.

Statements about Use of Color	SD	D	N	A	SA	Score	Mean
	(1)	(2)	(3)	(4)	(5)		
Colors are dull and do not attract frequent use	1	4	13	17	30	266	4.09
Colors are monotonous and not appealing for repetitive visits	1	7	13	21	23	253	3.89
Colors are well blended to enhance user experience	13	40	5	4	3	139	2.14
Colors used spark interest among users and help in processing and storing images	37	13	11	2	2	114	1.75

Libraries should consider the psychological effects of color with regard to marketing the library to attract and retain users. The authors further observe that dull colors may subdue excitable behavior, while bright colors stimulate behavior and evoke an inviting image with a sense of efficiency in digital resource platforms. This communicates to information professionals about the need to adopt a fashionable approach to color and materials selection.

Responding to the question on the extent color had been used to attract users in digital resource platforms, all the four (4) university librarians indicated that the institutions' colors were a policy issue and the universities have corporate colors which they identify with and are predominantly used.

UL3 noted:

In as much as we try to blend with other colors but university colors must out do any other color and which may be difficult to please every user's preference.

The findings show that colors have been used as a matter of policy and that libraries have to adhere to the universities' policies. Many academic libraries have limited room to choose colors for their websites because their home university requires them to follow specific color guidelines for branding. Whether the colors adopted by the universities are appealing to majority of the stakeholders is a matter for consideration because color reinforces the appeal on customers and creates an inviting stimulating place to visit.

Search features in the digital resource platforms

Further, academic staff were asked to assess the search features in Digital Resource Platforms. The responses are summarized in Table 5.

Table 5 shows that respondents agreed that they were provided with limited keywords and phrases to facilitate information searching with a mean of 4.45. This means that users of these digital resource platforms had few options and narrow scope for searching information. Chapman (2018) [66] recommends that librarians need to provide additional links to information to improve navigation within databases for effective utilization of information. Information systems that do not provide adequate keywords and phrases limit users in their searches

Table 5. Assessment of search features in digital resource platforms.

Statements about Search Features	SD (1)	D (2)	N (3)	A (4)	SA (5)	Score	Mean
Limited keywords and phrases have been provided for searching information	0	1	4	25	35	289	4.45
Users browse the entire website in search of relevant information	2	3	5	22	33	276	4.25
Search features are complicated to understand and use	1	4	9	21	30	270	4.15
Links to publishers and other sources not in the collection has been provided	20	35	3	4	1	120	1.85
Filters have been provided for ease of identification of relevant information	38	18	5	3	1	106	1.63

and this may result to users getting frustrated and giving up while others may opt to look for the information from other sources.

Respondents further agreed that users browse the entire website in search of relevant information with a mean of 4.25 and that search features were complicated to understand with a mean of 4.15. Academic staff are involved in various activities of academia including teaching, research and innovation that requires them to use a wide scope of information. The staff therefore needs to be adequately facilitated to effectively utilize information in digital resource platforms. Searching the entire website to find relevant information may be frustrating and discouraging for users. This may imply that the search features do not assist in linking users to the specific information that they search for. Consequently, this may negatively impact on the performance of academic staff that may not have the luxury of time to spend on information searching because of the heavy teaching workloads and expectations for them to research and publish. It would be necessary to provide users with features that are simple; easy to comprehend and use in finding information and without searching through the entire website. Users appreciate concise terminology and resource descriptions that avoid jargon (Sasongko & Hartanto, (2016) [67] for easy understanding and use.

5. Conclusion

The study concludes that search features and filters should be provided to enable users easily identify relevant information and thus save time which also makes the system easy to use and attractive. The importance of using images particularly of authors for information identification was untapped and the choice of color lacked an attractive blend. Users were also impatient with information searches because of unclear navigation paths and few search links. The visual design of digital resource platform is one of the important determinants of effective access and utilization of information in the platforms. The study established that the visual design of digital resource platforms was unattractive and did not effectively support access and utilization of information. It was established that Library staff who are key when it comes to user information requirements and preferences were not involved in the development of library websites resulting to inappropriate designs that lack user focus. The study recommends that library staff in charge of e-content should be fully involved in the whole process of developing library websites. The staff is aware of user needs and their involvement would be useful in designing a user focused platform that will attract users. Effective access and utilization of information in any digital resource platform are determined by how well it responds to user expectations.

Conflicts of Interest

The authors declare no conflicts of interest.

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