

Social Media Marketing of Academic Digital Library: An Insight-Driven Discovery of the Effectiveness on Service Quality

Mohd Razilan Abdul Kadir, Mohd Ridwan Seman @
Kamarulzaman and Safawi Abdul Rahman

School of Information Science, College of Computing, Informatics and Media, Universiti Teknologi MARA (UiTM), Puncak Perdana Campus, 40150 Shah Alam, Selangor, Malaysia

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i6/17476> DOI:10.6007/IJARBSS/v13-i6/17476

Published Date: 26 June 2023

Abstract

Social media opens wider rooms for enhancement of academic digital library to expand its services/collections/functionalities for greater benefits of its students' community. By using social media, libraries can engage with their clientele and enable them to participate in the production of library products/services. Moreover, the use of social media marketing of academic digital library marked the technological advancement in library science for its value added in provisioning library and information services. This paper presents an insight-driven discovery analytic to visualize and analyze using *R* software, on the effectiveness of digital library service quality with the use of social media marketing. A total of 252 private university students participated in the survey where this discovery found meaningful insights via *R* visualization technique to aid library management's decision making by penetrating the basic issue unseen before. Overall, students satisfied with the university's digital library however insight of this study is also giving us lead that male students age below 30 years with Diploma level are having challenges of using digital library via social media. Hence, a more deep-dive study is reckoned to library management to identify those challenges and so forth to overcome the issue.

Keywords: Digital Library, Insight, Visualization, Service Quality, Social Media Marketing.

Introduction

Social Media opens wider rooms for enhancement of academic library to expand its services/collections/functionalities for greater benefits of its students' community. Social media platforms such as Facebook, Twitter, Instagram and MySpace are widely used globally where these platforms are not only meant to share personal stories/photos/videos but more than that. Garoufallou et al (2013) state that besides promoting library products and services, these social media platforms also allow their users to contribute content, as well as to communicate, interact, and exchange views and ideas. By using social media, libraries can

engage with their clienteles and enable them to participate in the production of library products. Moreover, the use of social media marketing of academic digital library marked the technological advancement in library science for its value added in provisioning library and information services. Lewis et al (2022) claim that COVID-19 pandemic era had plunged changes in library practice. where they were undergone by a fast technology transformation from creation, discovery, provision of access to, and preservation of scholarly content. Likewise, due to campus lockdown scenario, the reliance on online and social media tools were high (Leung et al., 2022; Yu et al., 2022). The lockdown has resulted the high usage of internet which has given means to social media to market library services as indicated by Khan and Bhatti (2012) that it is the way of advertising library, its brand product and services via web 2.0 technologies. Today we may witness it opens the opportunity for business and marketing activities. Due to this trending, librarian should never turn a blind eye to the fact that how powerful the social media can serve to bring academic libraries to the next level in collecting, organizing and disseminating information resources. It is worth to note that, as mentioned by Ali and Richardson (2018), the growth of social media and networked technologies had altered the cycle to include newer media such as blogs, podcasts and networking sites, all of which expanded a scholar's profile in new and increasingly interactive ways. The desirability for scholars to share their publications has long moved to next level via social network sites. According to Ali and Richardson (2018), apart from building an effective academic profile, social network is capable of spreading the reach of their ideas and as well as maximizing their impact in building meaningful and lasting relationships (Relojo and Pilao, 2016); and can be used for assessing an aspect of the usage of publications based on numbers of downloads, views or registered readers (Wilsdon et al., 2015). Bookmarking services like Academia.edu, Mendeley and ResearchGate offer the prospect of the earlier prediction of papers that will become highly cited, and the measurement of social media sharing, and other online mentions of research, raises the possibility of quantitative data that provides some evidence for the impact of research beyond its value in academia (Wilsdon et al., 2015: 118).

Onifade (2021) claimed that the core function of a library is the provision of library services and resources to its users in the right format, regardless of abilities or disabilities, or physical form of users. Marketing is not a new concept for social media to play their parts promoting the library sources and services to the library users (Anwar and Zhiwei, 2019). Begum and Parvin (2019) on their study at East-West University library found that libraries can be the best promoters of their materials by proactively sharing their resources and services through social media. Nevertheless, it would not only bring accolades but as indicated by again Anwar and Zhiwei (2020), in some cases with the potential positive impacts, libraries are facing too many problems in using social media to market their sources and services, such as lack of proper budget, lack of skills and knowledge and lack of interest from library staff. According to Rachman et al (2018) cited in Lam et al (2023), libraries did not optimize the advantage of social media tool's comprehensive features which hindering them to understand deeper the users' needs, behavior and preferences. The trend to use digital technology to provide content, connect learners, and engage in learning anytime, anywhere is increasing however it is also challenging to engage students in technology-mediated learning (Henrie et al., 2015). It is also echoed by Babalhavaeji et al (2010) where they addressed that there is also a lack of authoritative guidelines for library professionals in defining the quality of an academic library's performance. Despite of these obstacles, to successfully using social media marketing in academic library setting, the institutional support is crucial to facilitate the platform's

infrastructure and as well as to promote interests of students' community to consistently exploiting library services through social media platform. This paper proposed a discovery analysis via insight driven analytics to investigate the effectiveness of academic digital library service quality by adopting social media for library marketing. The overarching of the study is to reach to these two objectives: 1) To provide insight analytics using *R*, and 2) To deep dive selected questionnaires of service quality related overlay with respondents' profiles for generating new/hidden/unknown insight.

Concept of Social Media

Social media are interactive computer technologies and as addressed by Waterloo et al (2018), the past decade witnessed social media became a core and meaningful part of our lives daily. YouTube, WhatsApp, Flickr, Facebook, Weblog, Twitter, MySpace and LinkedIn are among social media tools / platforms widely used by libraries for marketing library and information resources and services. Dewing (2012) indicated that social media is the wide range of internet-based and mobile services that allow users to participate in online exchanges apart from contributing user-created content or joining online communities. Whilst Anwar and Zhiwei (2019) defined social media is the technique, tools that allow users to create, share and receive information cooperatively from one to another individual. In addition, Burke (2013) identified social media as media (content) that one uploads whether a blog, video, slideshow, podcast, newsletter, or eBook. Social media tools are basically technologies allowing people to contribute contents and create a socially networked web environment (Andersen, 2007).

Enis (2017) stressed that social media has become like a universal means of communication. A study by Nijssen and Ordanini (2020) showed the importance of developing and implementing a social strategy pays off which will help the company to expose to new challenges to their new Research and Development (R&D). Their finding concluded that social media effectiveness is highly integrated with traditional internal ones. It also indicated that industries / organizations would learn better in managing their social media tools and become more proficient in aligning external and internal resources.

Social Media and Library Marketing

Library marketing involves philosophical thinking, strategic outlook, and operational tactics for library and information science, thus clearly putting marketing above simple advertising, promotion, or public relations part of marketing (Gupta and Savard, 2010). In simpler words, social media marketing of libraries is a way of advertising the library and its products/services via web technologies. It is hard though to deny its capability of bringing users closer to any products/services offered to users/customers. As echoed earlier by Potter (2012), cited in Jones and Harvey (2019), social media allows us, much more so than traditional forms of marketing, to do more than just talk at our users, it affords us the ability to engage them in conversation and, since many of users are on social media, it is the right place for us to be. The term of marketing from a library context, which is to determine the wants and needs of the user communities, to develop the products and services to respond, as well as to encourage users and potential users to take advantage of those products and services (Johnson, 2014). Cheng, Lam and Chiu (2020) stated that social media tools provide a fast-spreading method for advertisements and promotions of libraries. Hence it is not surprising that, libraries all over the globe have not failed to embrace social media for promoting and marketing their resources and services (Tofi, 2019).

Tofi (2019) highlighted Facebook, YouTube, Twitter, Pinterest, Timblr, Blogs and RSS Feed as the most frequently use social media platforms for marketing library and information resources and services. Most importantly is should take advantage of the engagement features by interacting with people through broadcasting live videos with the help of tools like Periscope, Facebook Live, and YouTube. Findings by Cheng et al (2020) that studied on the effectiveness of using social media as a platform in marketing, proposed these four elements: to increase the effectiveness of library marketing, avoiding unnecessary content, using causal language and streaming videos of popular events. Moreover, Garoufallou and Charitopoulou (2011) cited in Onifade (2021) observed that YouTube is a widely used social media devices.

Service Quality

The Service Quality (SQ) concept was developed in the library science based on market research in the commercial sector (Einasto, 2014). Participatory and immersive technologies such social media tools and mobile internet connectivity) to assist both people and governments to take advantage of and interacting synchronously with each other to improve decision-making and allow productivity (Al-Aufi et al., 2017). Similarly echoed by Pääkkönen and Jokitulppo (2017) that service quality of social media refers to the organization for decision making purposes. Service quality also defined as customer expectation on the organization. As mentioned earlier by Jamali and Tooranloo (2009) quality is the basic philosophy and requirement of library service and all libraries strive to deliver the highest quality of service. Razilan et al (2009) had also discussed the importance of service quality dimension in past researches for evaluating academic digital library. In Ahmad and Abawajy's (2014) study also implied similitude where their finding indicated that quality of service (QoS) has become paramount importance for evaluating the performance of the digital library service provisioning. It was also supported by Syasya and Razilan (2021) where service quality possesses a highly significant positive relationship with students' satisfaction during Malaysia's lockdown period due to recent pandemic issue. In another study conducted by Razilan et al (2016) on user satisfaction in using online resources provided by National Library of Malaysia, their finding showed that both service quality and system quality has the strongest correlation with user satisfaction.

Past researches witnessed the model-oriented techniques were applied where authors' focal scope geared to more towards advanced models like structural equation model (Gomez-Cruz et al., 2020), partial least squares (Yan et al., 2017) and factor analysis (Zemblytė, 2015). Lack of insight-driven analytics to deep dive the specific measurement items might hinder librarians to gain better visibility and knowledge on what phenomena triggered in relation to the effectiveness of service quality by adopting social media for library marketing. Basic issue triggered via insight analysis might serve as an eye opener to a larger one, which is commonly unseen and hidden. Prioritization to handle basic issues may lead to hinder them from worsening.

Methods

The study opted a survey method with questionnaire as the instrument for collecting data. The questionnaire was designated with bipolar response items and distributed to all postgraduate and undergraduate students of the selected faculties of the varsity. The questionnaire was inclusive of open and close ended questions. Likert scale based on agreement questions are used with scale from 1 "strongly disagree" to 5 "strongly agree".

The total of 252 respondents from a private university in Selangor involved in the survey. For confidential reason, the name of the university and faculties are not directly shared in this article. The analytics tools used for this study is *R*, an open-source tools for data analytics. In specific, *R* is a language and environment for statistical analyses that provides a wide variety of statistical and graphical techniques (CRAN, 2022).

Results

Reliability Analysis

Pilot study was conducted on 30 respondents to identify the reliability of the measurement items used in the survey. In this study, the items were tested using Cronbach alpha to determine the reliability of the instrument produced. As stated by Heir et al (2006) Cronbach alpha is a test to measure internal reliability in multi-item scales and turns to its consistency. Based on previous works, it was highly recommended to accept the items with > 0.6 due to the reason that the score below it is considered as unreliable. The index of reliability for service quality as shown in Table 1 is 0.931, which is acceptable, as well as the rest of the dimensions.

Table 1

Reliability indexes of internal consistency of the scales used in the survey

Dimension	Cronbach's Alpha	Total items
Perceived Usefulness	0.892	5
Perceived Ease of Use	0.889	5
Technology Features	0.778	5
Service Quality	0.931	10

Respondents' Profiles

Table 2 exhibits the distribution of respondents' basic profiles by gender, age, faculty and level of education. Majority of them are female (63%) which made about two thirds of the total sample. Dominant respondents were coming from students who are doing their Diploma program (35%), age group of 18-24 years (64%), and from faculty F3 (35%).

Table 2

Demographic profiles of the respondents (n=252)

Profiles	Category	Frequency	%
Gender	Female	159	63
	Male	93	37
Age	18-24 yrs	161	64
	25-30 yrs	56	22
	> 30 yrs	35	14
Faculty*	F1	5	2
	F2	42	17
	F3	89	35
	F4	29	12
	F5	1	0.4
	F6	49	19
	F7	24	9
	F8	13	5
Level of education	Certificate	18	7
	Diploma	108	43
	Bachelor Degree	87	35
	Master	39	15

*Note: Due to confidentiality aspect, the name of faculties are not given in this paper.

Age and Gender

Age distribution by gender, as exhibited in Table 3, is skewed to the younger group i.e. 18-24 years; with almost proportionate between female students (59%) as compared to male (41%). However, the percentage of female is more than three folds for the 25-30 years age category.

Table 3

Distribution of age and gender

Age (years)	Gender		Grand Total
	Female	Male	
18-24	95 (59%)	66 (41%)	161
25-30	43 (27%)	13 (8%)	56
> 30	21 (13%)	14 (9%)	35
Grand Total	159	93	252

Cross-tabulation of Gender, Age and Faculty

Tabulating between gender and age/faculty (Figure 1) shows the followings: For both male and female students, they are skewed to younger age category i.e. between 18-24 years (bachelor degree and lower level of study). It is expected that due to majority of students at this age range entering higher learning institutions. For age categories of 18-24 and 25-30 years, the number of female students is almost two times higher than male students. More female students continue their study at higher age (31 and above) as compared to male students. More male students embarked in technical background study compared to female students. Overall, the sample of study represents more female students than male.

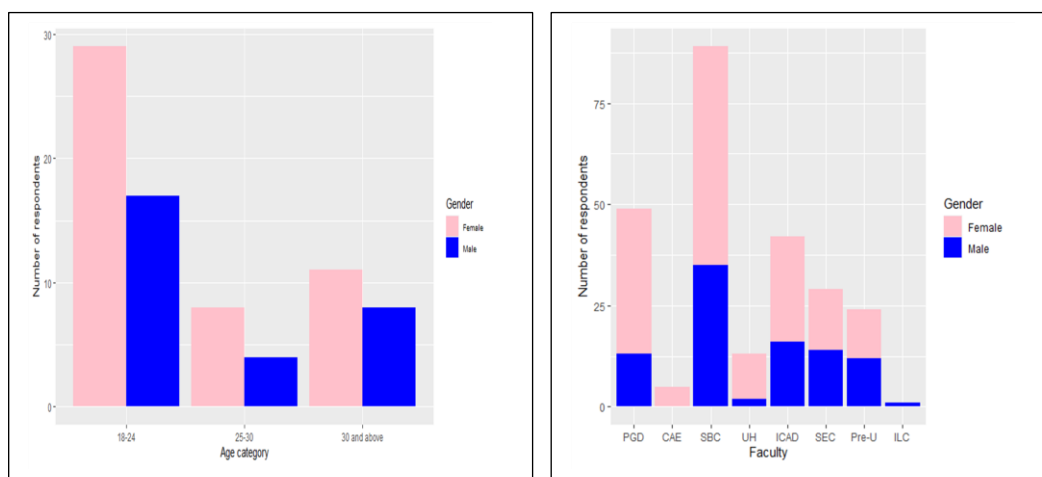


Figure 1: Gender distribution versus Education level (left) and Faculty (right)

Summary Statistics

The following sections present the insights generation of the study data. The summary statistics for Service Quality are as displayed in Table 4.

Table 4

Summary statistics of measured items

Items for Service Quality	Mean	SD
The library service is reliable and useful for my study.	4.040	0.935
I can distinguish between trustworthy and untrustworthy information	4.079	0.876
I feel confident on my searching for study material when use library service.	4.071	0.987
My academic performance is improved because I managed to find accurate information.	4.040	0.989
I am satisfied with the library services	4.028	0.912
I am happy with the library services.	4.111	0.881
Using social media to find academic information is not very challenging.	3.429	1.233
I manage to find correct information using social media	4.052	0.907
Social media indeed helps me throughout my study journey	4.135	0.878
Social media gives me current information of library and its services	4.079	0.894
Overall	4.006	0.724

The item boxed with red line shows the lowest mean value (3.429) which is below the overall mean i.e. 4.006. This may be indicative of significant difference result as compared to other items measured for this variable. Hence, a discovery of a relevant and previously unrealized reality could be surfaced on the existing issue related to SQ of varsity’s digital library. Moreover, for the purpose of this study only five main items in SQ section of the questionnaire are analyzed for insights generation. The selected questions are as follow

1. Social media indeed helps me throughout my study journey.
2. I am happy with the library services.

3. *Social media gives me current information of library and its services.*
4. *I manage to find correct information using social media.*
5. *Using social media to find information is not very challenging.*

Visualizing Response Data

Distribution of the responses (of the five questions as mentioned above) was tabulated in *R* using libraries such as *likert*, *survey*, *tidyverse*, *devtools* and *ggplot2*. Figure 2 and 3 show three ways of visualizing the SQ responses. The visualization of the three plots exhibit four questions are highly skewed to the right. It is an indication of higher weightage of respondents' agreement of the SQ questions asked **except** one question. This question, "Using social media to find information is not very challenging" received mixed of responses where the *strongly disagree* and *disagree* responses are total up to 23%, which is 2% higher than the neutral response. Such finding might trigger an early detection of implying student might face difficulty in relying to social media for their digital library activities.

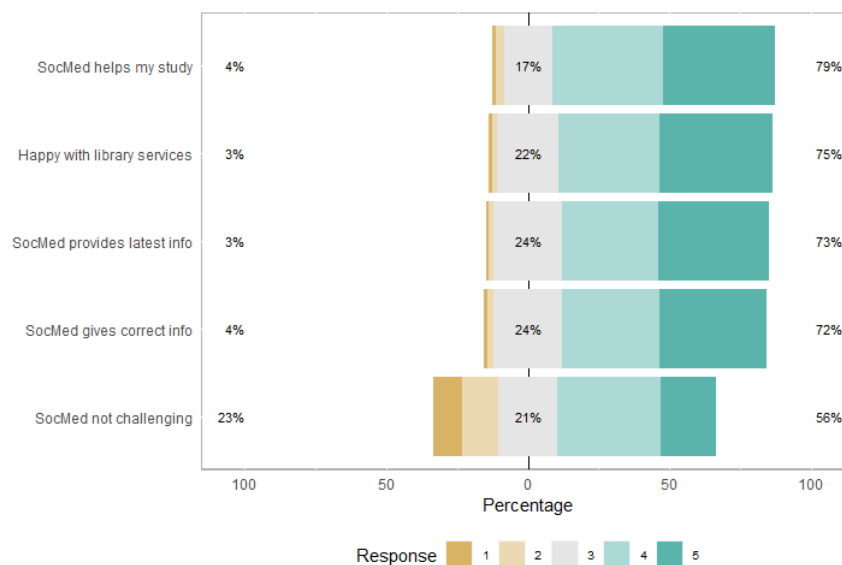


Figure 2: Diverging stacked bar chart of SQ responses

The beauty of this diverging stacked bar chart in *R* is its capability in visualizing the spread between values especially for Likert scale with positive and negative values. The most left percentage values are the total of below the average i.e. for scales 1 and 2 (*strongly disagree* and *disagree*). The middle values are the average (3 or *neutral*) and so forth the right values are total of scales 4 and 5 (*agree* and *strongly agree*).

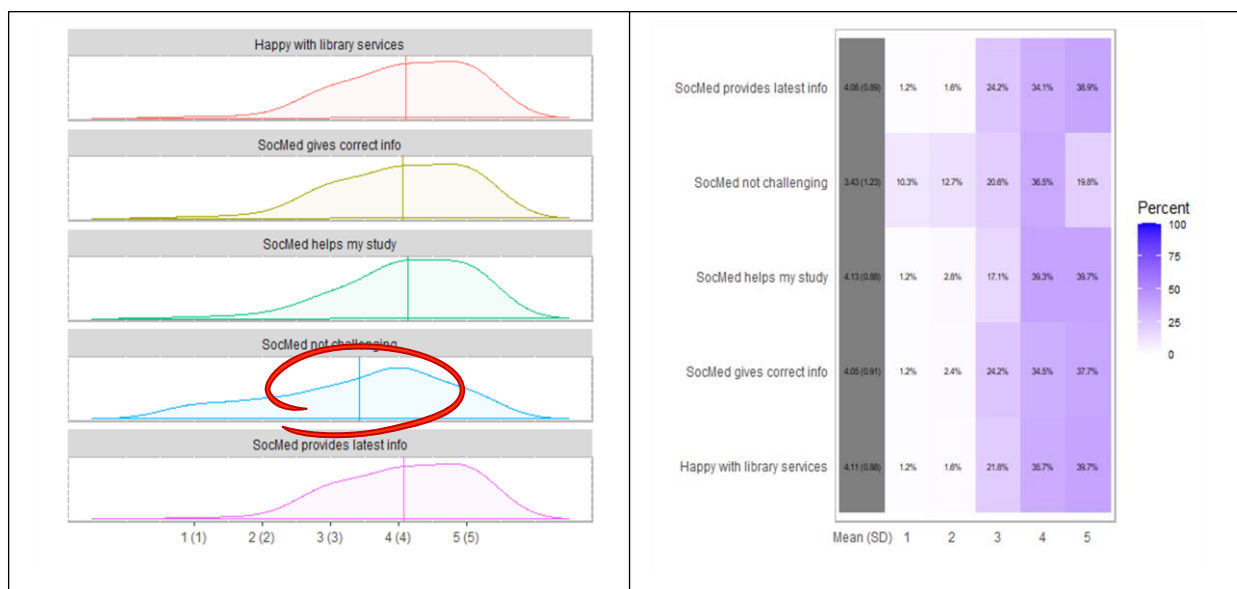


Figure 3: Visualizing the SQ responses distribution using Density plot (left) and Heat map plot (right)

Apart from diverging stacked bar chart, questionnaire responses can be visualized via density plot or heat map plot, which may give faster identification upon specific phenomena and what insight that can be pulled out for further investigation. The density plot in Figure 3 displays the difference of one question's response distribution as compared to others. The difference can be easily seen from the middle point (or mean) of the other distributions. Heat map is another visualization technique that is very useful in visualizing density through different tones of colors. Generally, the darker the colors, the greater the data density. Heat map plot in Figure 3 (right panel) clearly shows the density of question "Using social media to find information is not very challenging" which having different density from the rest of the questions. This is also such a quick way of identifying anomaly in any case investigated.

Deep-dive Insight

The findings above provide meaningful insight to be further investigated. By having density or merely proportion of respondents' responses for each question may not sufficient enough to lead to answering question like who, why and how does such phenomena happens. For this study, a discovery such as scooping who is actually lies in this pool of disagreement might assist librarian / library management to in their decision-making process. Thus, this section provides visual analytics to deep dive further on this scenario. Respondents' demographics are one of critical elements in deep diving scope to identify how/why such situation happens and/or by whom. The initial step is by analyzing by gender, as per displayed in Figure 3.

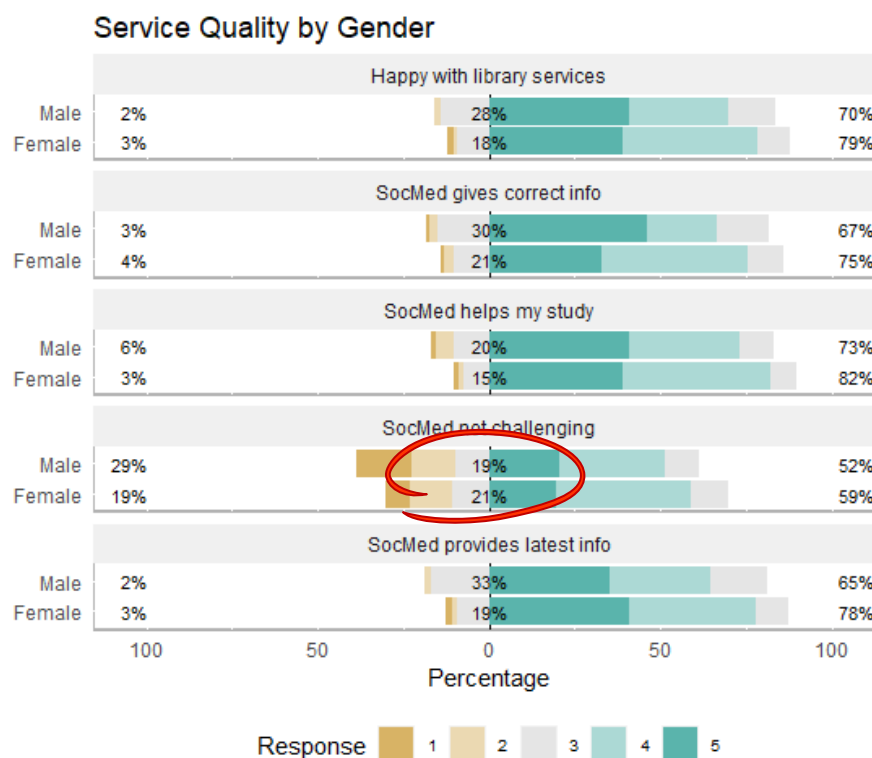


Figure 4: Diverging stacked bar chart of SQ responses by Gender

In Figure 4, a diverging stacked bar is again plotted using *likert* package in R. All the values shown in the chart corresponds to the percentage of responses for that respective level (as explained earlier), by male and female respondents. Most of the responses are skewed to agreement except for question “Using social media to find information is not very challenging”. This question clearly shows much higher disagreement as compared to the rest of the questions. It is an indication of dissatisfaction on digital library service quality exists among students in terms of challenges faced in using social media platform. Further analysis from the chart discovered that *strongly disagree* proportion of male students were about two times higher from the female students. This insight clearly triggers the male student might be having satisfaction issue using social media for digital library.

In another facet of dimension, a slice and dice technique in Figure 5 shows a discovery where almost 40% of Diploma level students having dissatisfaction with social media marketing for digital library. Such proportion is considered high and alarming to be ignored due to reason that it may cause further problems to students’ study performance. This brings the authors to drill down further by observing the hierarchical perspective of students’ profiles.

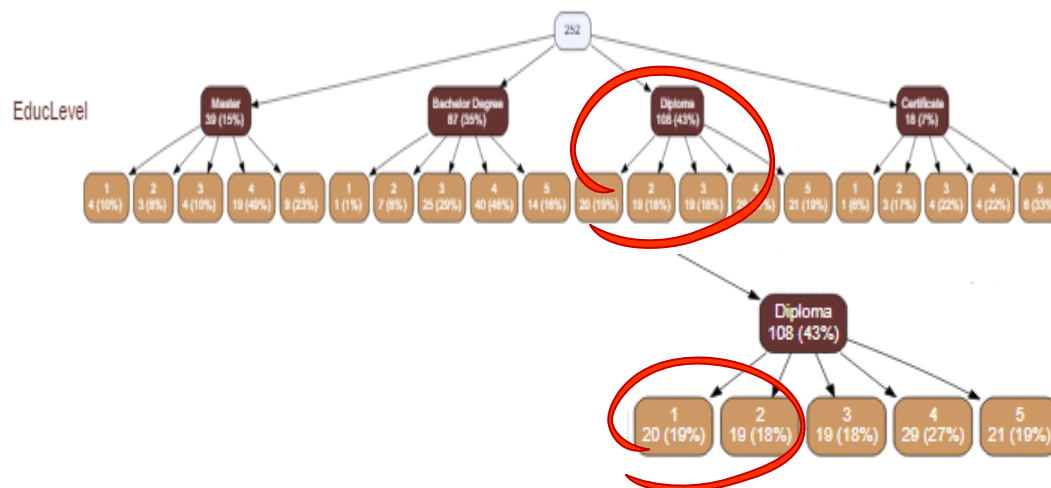


Figure 5: Tree chart of SQ responses by Education level

Finally, from the results generated and visualized in Figure 4 and 5, the data is further sliced and diced as presented in Figure 6. The finding leads to a discovery of *male* students of Diploma level that identified as a pool of students that need an attention especially the ones with age *below 30 years old*. They might have difficulties with using digital library products/services through social media platform. Once such insight is generated, it may describe a specific phenomenon (of related issue) which required human decision-making to overcome it or otherwise, the issue may impact more on the digital library service quality. In findings by Lam et al (2023) where they compared students' use of Instagram with other social media tools (Facebook and YouTube), Instagram may not be a popular and frequently used social media tool among students. It is possible Instagram is less favorable platform used by this Diploma level students which lead to such finding.

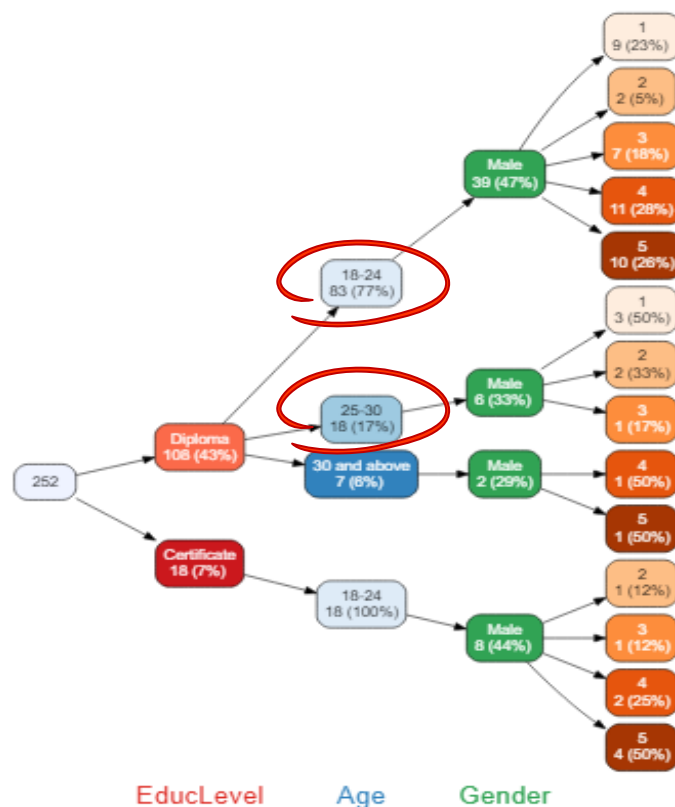


Figure 6: Tree chart of Service Quality responses by Education level (Diploma and Certificate only), Age and Gender

Conclusions

This paper presents the insight-driven analytics using R tool on the effectiveness of digital library service quality with the use of social media marketing. This insight finding serves to a larger part of study where in this paper only the domain SQ is highlighted. Overall, findings of the study show positiveness towards social media marketing w.r.t. the digital library SQ. Students of the private university are mostly students satisfied with the university's digital library and found that information/services/activities blast through social media is good, and as well as they are happy using it. This finding may indicate positive impact on student's satisfaction with social media marketing activities prepared for them. Moreover, the study also surfaced insights on the role of social media towards digital library SQ where observing higher level may not sufficient to leverage the goodness of fit of what digital library can provide to students. Insight of this study gave a lead that a specific age group of male students with Diploma level are the ones having concern with challenges of DL using social media. Thus, this finding offers actionable insights to implement specific strategies governing the 'what' and 'how' issues w.r.t. Diploma students that can be unraveled. Following to these valuable insights, library management should plan and strategize to take necessary action as it may impact the library service quality if it's not being taken care of. This insight may also be used by the library personnel in developing digital collections of open content based on the library's own special collections as well as the collections of community partners besides addressing the related concern to improve its service quality. Insights are important because it provides the interpretation on students' digital library usage data and as well as understanding on students' behaviors that is potentially to be consumed for library

management to take action accordingly. These insights are capable of helping them obtaining a better view on students' usage behavior when it comes to social media marketing decisions. Such insights may also provide a deeper understanding of how students' respond and can help library management to plan ahead.

Acknowledgement

I would like to express my gratitude to Universiti Teknologi MARA (UiTM) for giving me the opportunity to share this piece of research and also much appreciated to all authors for the commitment and knowledge contributed to this paper.

References

- Al-Aufi, A. S., Al-Harhi, I., AlHinai, Y., Al-Salti, Z., & Al-Badi, A. (2017). Citizens' perceptions of government's participatory use of social media. *Transforming Government: People, Process and Policy*, 11(2), 174-194. <https://doi.org/10.1108/tg-09-2016-0056>.
- Anwar, M., & Zhiwei, T. (2019). Social Media and Library Marketing: A New Approach in the 21st Century, *International Journal of Technical Research & Science*, IV(XI), November 2019. <https://www.researchgate.net/publication/340009517>
- Anwar, M., & Zhiwei, T. (2020). What is the relationship between marketing of library sources and services and social media? A literature review paper. *Library Hi Tech News*, 37(3), 1-5. <https://doi.org/10.1108/lhtn-10-2019-0071>
- Ahmad, M., & Abawajy, J. H. (2014). Digital library service quality assessment model. *Proceeding of Social and Behavioral Sciences*, 129, 571-580. <https://doi.org/10.1016/j.sbspro.2014.03.715>
- Babalhavaeji, F., Isfandyari-Moghaddam, A., Vahid Aqili, S., & Shakooii, A. (2010). Quality assessment of academic libraries' performance with a special reference to information technology-based services. *The Electronic Library*, 28(4), 592-621. <https://doi.org/10.1108/02640471011065409>
- Begum, D., & Parvin, S. (2019). Incorporating Social Media into Library Services: Present The scenario at East-West University Library. *Library Philosophy and Practice (e-journal)*. Available at: <https://digitalcommons.unl.edu/libphilprac/2746>
- Burke, F. (2013). Social Media vs Social Networking, available at: http://www.huffingtonpost.com/fauziaburke/social-media-vs-social-ne_b_4017305.html
- Cheng, W. W., Lam, E. T., & Chiu, D. K. (2020). Social media as a platform in academic library marketing: A comparative study. *The Journal of Academic Librarianship*, 46(5), <https://doi.org/10.1016/j.acalib.2020.102188>
- Gomez-Cruz, M. E., Harari-Betancourt, V., & Vergara-Mendoza, G. (2020). Quality indicators and user satisfaction in university libraries. *Journal of Academic Librarianship*, 46(6), <https://doi.org/10.1016/j.acalib.2020.102230>
- Dewing, M. (2012) Social Media: An introduction. Canada: Library of Parliament.
- Einasto, O. (2014). E-service quality criteria in University Library: A focus group study. *Procedia - Social and Behavioral Sciences*, 147, 561-566. <https://doi.org/10.1016/j.sbspro.2014.07.163>
- Enis, M. (2017). Social skills: TechKnowledge. *Library Journal*. <https://doi.org/10.1108/08880451111169223>
- Hair, Jr., J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, L. R. (2006). *Multivariate Data Analysis*. Pearson International Edition

- Henrie, C. R., Halverson, L. R., & Graham, C. R. (2015). Measuring student engagement in technology-mediated learning: A review. *Computers & Education*, 90, 36-53. <https://doi.org/10.1016/j.compedu.2015.09.005>.
- Jamali, R., & Tooranloo, H. S. (2009). Prioritizing academic library service quality indicators using fuzzy approach. *Library Management*, 30(4/5), 319-333. <https://doi.org/10.1108/01435120910957977>.
- Jones, M. J., & Harvey, M. (2019). Library 2.0: The effectiveness of social media as a marketing tool for libraries in educational institutions. *Journal of Librarianship and Information Science*, 51(1), 3-19.
- Johnson, P. (2014). *Fundamentals of collection development and management*. Chicago: American Library Association.
- Garoufallou, E., & Charitopoulou, V. (2011) The use and awareness of Web 2.0 tools by Greek LIS students. *New Library World*, 112 (11/12), 490-498.
- Greenwood, S., Perrin, A., & Duggan, M. (2016). *Demographics of social media users in 2016*. Pew Research Center: Internet, Science & Tech., <https://www.pewresearch.org/internet/2016/11/11/social-media-update-2016>.
- Gupta, D. K., & Savard, R. (2010). Marketing library and information services, *Encyclopaedia of Library and Information Science*. 3rd ed.
- Lam, A. H. C., Ho, K. K. W., & Chiu, D. K. W. (2023), Instagram for student learning and library promotions: a quantitative study using the 5E Instructional Model, *AsLib Journal of Information Management*, 75(1), 112-130. <https://doi.org/10.1108/AJIM-12-2021-0389>.
- Moidunny, K. (2009). The effectiveness of the National Professional Qualifications for Educational Leaders (NPQEL) [Unpublished Doctoral dissertation]. Universiti Kebangsaan Malaysia, Bangi.
- Nijssen, E. J., & Ordanini, A. (2020). How important is alignment of social media use and R&D–marketing cooperation for innovation success? *Journal of Business Research*, 116, 1-12. <https://doi.org/10.1016/j.jbusres.2020.04.056>
- Onifade, F. (2021). Application of Social Media Devices: Effective Instruments for Library Services Provision to Physically Challenged Academic Library Users in Nigeria, *Global Journal of Computer Science and Technology: G Interdisciplinary*, 21(2/1.0), 59-68.
- Paakkonen, P., & Jokitulppo, J. (2017). Quality management architecture for social media data. *Journal of Big Data*, 4(1). <https://doi.org/10.1186/s40537-017-0066-7>.
- Potter, N. (2012) *The Library Marketing Toolkit*. London: Facet.
- Rachman, Y. B., Mutiarani, H., & Putri, D. A. (2018), Content analysis of Indonesian academic libraries' use of Instagram, *Webology*, 15(2), 27–37.
- Rafique, H., Almagrabi, A. O., Shamim, A., Anwar, F., & Bashir, A. K. (2020). Investigating the acceptance of mobile library applications with an extended technology acceptance model (TAM). *Computers & Education*, 145, <https://doi.org/10.1016/j.compedu.2019.103732>.
- Razilan, A. K., Abdul Kadir, W. D., Fatimah, A. S., & Singh, D. (2009). Academic Digital Library's Evaluation Criteria: User-Centered Approach. *International Journal of Social and Human Sciences*, 3,744-749.
- Razilan, A. K., Rosnita, A. G., Amzari, A. B., Ap-Azli B., & Ridwan, M. S. (2016). Factors Influencing User Satisfaction using Electronic Resources. [Paper presentation]. 27th International Business Information Management Association (IBIMA), Milan, Italy.

- Relojo, D., & Pilao, S. J. (2016). Key contributions and future directions of academic social networking services for the digital academic. *International Journal of Humanities & Social Science Studies*, 2(5), 94–101.
- Syasya, S. S., & Razilan, A. K. (2021). User Satisfactions on Digital Library: A Correlational Study. *Journal of Information and Knowledge Management (JIKM)*.11(2), 254-269.
- Tofi, S. T. (2019). Marketing Library and Information Resources And Services Using Social Media Platforms. *Library Philosophy and Practice* (e-journal), <https://digitalcommons.unl.edu/libphilprac/2792>.
- Waterloo, S. F., Baumgartner, S. E., Peter, J., & Valkenburg, P. M. (2018). Norms of online expressions of emotion: comparing Facebook Twitter Instagram WhatsApp. *New Media Soc*, 20,1813–1831
- Winn, D., Rivosecchi, M., Bjerke, J., & Groenendyk, M. (2017). MTL 2.0: A report on the social media usage and user engagement of the “Big Four” academic libraries in Montreal. *The Journal of Academic Librarianship*, 43(4), 297-304. <https://doi.org/10.1016/j.acalib.2017.04.006>
- Yan, Y., Zhang, X., Zha, X., Jiang, T., Qin, L., & Li, Z. (2017). Decision quality and satisfaction: The effects of online information sources and self-efficacy. *Internet Research*, 27(4), 885-904. <https://doi.org/10.1108/intr-04-2016-0089>
- Yu, F., Ruel, L., Tyler, R., Xu, Q., Cui, H., Karanasios, S., Nguyen, B.X., Keilbach, A., & Mostafa, J. (2020). Innovative UX Methods for Information Access Based on Interdisciplinary Approaches: Practical Lessons from Academia and Industry. *Data and Information Management*, 4(1), 74–80.
- Ali, Y. M., & Richardson, J. (2018). Usage of academic social networking sites by Karachi social science faculty: Implications for academic libraries, *Library Associations and Institutions*, 44(1), 23–34.