

Examining the Mediating Effect of Technological Aspects on the relationship between Social Metadata Attributes and Continuance Use of the CLAPAM Facebook

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ABSTRACT

The CLAPAM Facebook page is used to research how technological aspects mediate the relationship between social metadata attributes and continuance use in health-oriented online communities. Using an Expectation-Confirmation Model-based questionnaire, the study examined continuous usage intents, social metadata traits, and technological aspects. Participants included n=607 people of varied demographics and social media literacy. Platform functionality and user-friendliness influence continued use more than social factors, contrary to earlier findings. This disparity is due to specialized health web platforms prioritizing health information and resources. Technological aspects influence the link between social metadata elements and continued use, underscoring their importance in sustained engagement. The study highlights technology to explain health-related online platform utilization. It proves the ECM's applicability and stresses the need for effective navigation, mobile optimization, and technical support to match users' social media literacy levels. Priorities include user-friendly design, adaptive functionality, and digital beginner resources. The study only investigated the CLAPAM Facebook page, but it suggests future research on other platforms and user demographics to generalize findings. It highlights how technology keeps health-focused online groups active, offering insights for platform design and user experience to meet their demands in social media usage.

INTRODUCTION

Social media platforms have transformed how people interact with information, communities, and advocacy groups. Cleft Lip and Palate Association Malaysia (CLAPAM), uses Facebook as its principal communication method to link people with cleft lip and palate problems, their families, and supporters. CLAPAM's Facebook page serves as an advocacy tool for its members, offering information, emotional support, and updates. However, retaining user engagement and assuring continued usage of the platform are key difficulties that require additional exploration. This study investigates how social metadata attributes, such as hashtags, influence the continued use of the CLAPAM Facebook page, while also looking

into the mediating function of technological aspects. In recent years, the usage of social metadata attributes, notably hashtags, has received significant attention in digital communication research. Hashtags serve a variety of functions, including categorizing content, increasing content discoverability, and building online community identification (Kwon et al., 2023). For advocacy-driven networks like CLAPAM, hashtags can be deliberately used to raise awareness about cleft lip and palate problems, rally resources, and foster a sense of belonging among its members. Beyond their technical role, hashtags increase content visibility across larger networks, allowing connections between people who share common interests or issues (Illias et al., 2020). Despite this, previous research has mostly focused on the role of hashtags in mainstream social media contexts such as entertainment and commercial marketing, with little attention given to advocacy platforms. Technological aspects are also crucial in this context, which include user interface design, platform features, personalization, and algorithmic systems that enable content discovery and navigation (McKelvey et al., 2019). Technological features can considerably improve user experience by boosting ease of access, engagement, and contentment, all of which are essential for the continued use of social media platforms. For example, an intuitive platform interface, effective content delivery algorithms, and smooth engagement tools all help to improve impressions of technological functionality.

Previous research indicates that technology factors frequently impact the association between user behaviours and engagement patterns (Busalim et al., 2021). CLAPAM believes that good technological components can help people identify and apply relevant hashtags, maximizing their impact on user engagement and platform longevity. Continuous use of social media platforms refers to users' consistent and recurrent use of the site throughout time. It is an important statistic for assessing platform loyalty and long-term user engagement (Chakrabarti et al., 2023). For advocacy groups like as CLAPAM, continued use has serious repercussions. Consistent interaction with the Facebook page allows the organization to broadcast essential health information, provide emotional and educational support, and develop a strong online community. To achieve continuous use, however, it is necessary to understand the interaction of content-related elements, such as social metadata traits, and technology features that affect user experiences. While substantial progress has been made in understanding user involvement on social media, the mediation effect of technology features in advocacy settings is still underexplored. Prior research has generally looked at technological features and social metadata attributes in isolation, without taking into account their interdependence. For example, Sun et al. (2020) investigated algorithmic recommendation systems but failed to consider their interaction with hashtags in content dissemination. Similarly, Mazumdar (2020) examined hashtag use during short-term events but not their impact on long-term platform participation in specialized groups. This study aims to fill these gaps by taking a comprehensive approach to investigating how technological features mediate the relationship between social metadata attributes and the continued use of the CLAPAM Facebook page. The results of this investigation have important theoretical and practical ramifications. It enhances understanding of how these elements interact and influence user behaviour over time, especially in specialized communities such as CLAPAM. Practically, the findings can help advocacy groups, legislators, and social media management leverage social metadata qualities and optimize technology features to increase user engagement and assure long-term platform use. For example, understanding effective hashtag methods and technical advancements can help CLAPAM customize its communication efforts, increase customer happiness, and strengthen its online presence. This study aims to fill research gaps by investigating the mediating effect of technological elements on the link between social metadata traits and continued use of the CLAPAM Facebook page. By focusing on a specialized advocacy platform, the study provides a more nuanced understanding of how social metadata and technological functions interact to influence user engagement and retention. The findings of this study will make significant contributions to the disciplines of social media engagement, advocacy communication, and technological adoption, ensuring that platforms like CLAPAM continue to thrive as critical support systems for their communities.

HYPOTHESIS

The hypothesis for this study is:

1. Technological Aspects mediate the relationship between Social Metadata Attributes and the Continuance Use of the CLAPAM Facebook Page.

The hypothesis is to investigate the impact of social metadata attributes (hashtags) on continued use, which is boosted when users perceive technological aspects as supportive and effective.

LITERATURE REVIEW

Social metadata attributes: The role of hashtags

Hashtags function as essential social metadata elements that improve content visibility and promote community interaction on social media platforms. By appending keywords or phrases with the "#" symbol, users classify content, enhancing efficient information retrieval and engagement in wider discussions. Empirical research has shown that the strategic application of hashtags markedly enhances user engagement measures, such as likes, shares, and comments. A study by Erz, et al. (2018) revealed that Instagram postings including pertinent hashtags saw a 70% rise in user interactions relative to those lacking hashtags. In the realm of advocacy organizations such as the Cleft Lip and Palate Association Malaysia (CLAPAM), hashtags serve as vital tools for enhancing awareness, galvanizing support, and fostering a unified online community. By utilizing specific hashtags associated with cleft problems, CLAPAM can engage a targeted audience, comprising afflicted individuals, healthcare experts, and prospective donors. This focused outreach is essential for distributing knowledge and cultivating a supportive network. Kwon et al. (2023) assert that hashtags serve to categorize information and contribute to identity building in online communities, which is essential for advocacy groups aiming to create a cohesive presence.

Technological aspects as mediators

Technological aspects, including platform algorithms, user interface design, and personalization features, mediate the efficacy of social metadata qualities such as hashtags. These technological aspects dictate the distribution and perception of material by consumers. Social media algorithms prioritize material according to user interactions, relevancy, and the use of popular hashtags. Omena et al. (2020) demonstrate that posts employing trending hashtags are more likely to be prominently displayed in users' feeds, thus enhancing visibility and interaction. Furthermore, user interface design that emphasizes hashtag utilization might stimulate user interaction with tagged material. Platforms that recommend hashtags during content production or prominently show hot hashtags might affect user behaviour, facilitating participation in pertinent discussions. The incorporation of these technological features can improve the user experience by facilitating seamless navigation and content discovery, which are crucial for sustaining user engagement. Huang et al. (2023) suggest that user-friendly technological aspects, such as interface design and personalization features, increase user satisfaction and motivate continuous platform use.

Mediating role of technological aspects

The interplay between social metadata qualities and technological aspects substantially affects user engagement and ongoing utilization of social media platforms. Technological aspects can augment the influence of hashtags by improving content visibility via algorithmic prioritization and user interface indicators. Platforms that proficiently incorporate hashtag functionalities into their design can enhance content discovery and involvement in discussions, resulting in prolonged user engagement. Wang et al. (2023) discovered that the interplay between hashtag utilization and platform algorithms led to a 50% enhancement in content reach and user engagement. The lack of supportive technology elements can reduce the efficacy of hashtags. If a platform's algorithm fails to identify or prioritize hash tagged material, or if the user interface does not promote hashtag use, the advantages of hashtags in boosting interaction may

remain unfulfilled. The design and functioning of technology elements are essential in facilitating the connection between social metadata attributes and user engagement. Lun et al. (2023) assert that technical factors frequently influence the connection between user behaviours and engagement patterns, underscoring the significance of platform design in user interaction.

Implications for CLAPAM and NGOs in Malaysia

For organizations like CLAPAM and other NGOs in Malaysia, understanding the interplay between social metadata attributes and technological aspects is essential for effective digital engagement strategies. By leveraging hashtags strategically and ensuring that technological aspects of their online platforms are optimized, these organizations can enhance user engagement, disseminate information more effectively, and build stronger online communities. Implementing user-friendly interfaces that promote hashtag usage, collaborating with platform developers to ensure algorithmic support for advocacy-related content, and educating their audience on the importance of engaging with hashtags are practical steps that can be taken. Additionally, analyzing data on hashtag performance and user interaction can provide insights into the most effective strategies for content dissemination and community building. Research by Phadke et al. (2022) suggests that cultural norms and regional digital habits significantly impact how users interact with social metadata and technological tools, indicating the need for localized strategies in digital engagement. The effective use of social metadata attributes, mediated by supportive technological aspects, can significantly enhance user engagement and continuance use of social media platforms for advocacy organizations. By understanding and implementing strategies that consider both elements, NGOs like CLAPAM can strengthen their online presence, foster community engagement, and achieve their advocacy goals more effectively.

METHODOLOGY

Design

This study utilizes a quantitative research approach to investigate the mediating impact of technological aspects in the link between social metadata attributes and the continued use of the CLAPAM Facebook page. Bhattacharjee's Expectation-Confirmation Theory (ECM) provides the theoretical foundation for the research model's development. The research incorporates elements from ECM alongside social metadata aspects for a thorough questionnaire design process. Figure 1 depicts the elements that have been included in the study.

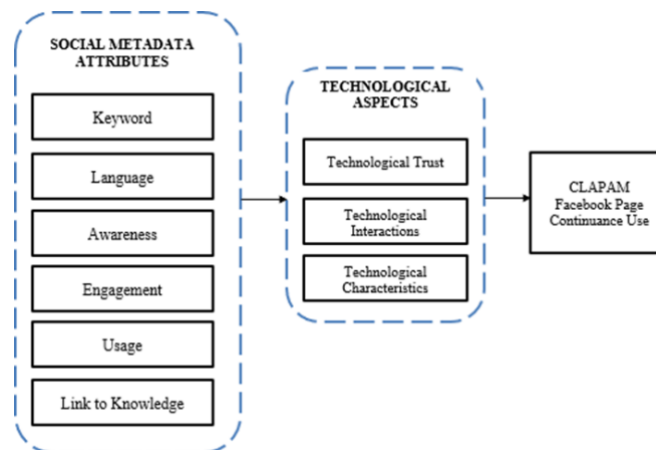


Figure 1 Technological aspects mediate between social metadata attributes and continuance use (Mazwani et al., 2024)

In the context of social media platforms such as Facebook, technological factors are essential in determining user engagement and experience. The manner in which users interact with content and with one another is directly influenced by technological trust, interactions, and platform characteristics. Nevertheless, their function can also be interpreted as a mediator between the continued use of a platform and other critical factors, including social influence, community involvement, and social metadata attributes. The generation and utilization of social metadata, which is the data generated from user interactions, including keywords, engagement levels, and usage patterns, are also influenced by technological factors (Dawson, 2020). The platform's ability to capture, process, and deliver personalized content that is based on users' metadata is crucial for user satisfaction and continued use in this capacity. The technological characteristics of Facebook are the foundation of its search algorithms and recommendation systems (Jain et al., 2020). For instance, Facebook can recommend pertinent topics, posts, and groups by employing metadata regarding keywords and search terms. Users are more likely to locate the content they are seeking when these technological systems operate efficiently, which in turn increases their engagement and satisfaction. Social metadata regarding engagement levels is generated by technological interactions, including the likes, shares, and comments that users leave on posts. This process is facilitated by Facebook's technological systems, which ensure that users receive notifications regarding new engagements (e.g., when someone remarks on their post), thereby enhancing the platform's interactivity and promoting continued use. The tracking and utilization of usage patterns are influenced by technological trust and characteristics. For example, Facebook can improve the user experience by recommending content or events that are more relevant to users based on their frequency of logins or the duration of their sessions on the platform. It is imperative that users have confidence in the platform's capacity to manage this data securely in order to maintain their satisfaction with its continuous use. CLAPAM official Facebook page have more than 5,000 members and it is restricted by the page admin upon becoming the page member. The analysis is being done in SmartPLS3.0 as tabulated in the table 1.

Table 1 Analysis for this study

Research Method			
Research Objectives	Variables Involved	Data Collection	Data Analysis
Technological Aspects mediate the relationship between Social Metadata Attributes and the Continuance Use of the CLAPAM Facebook Page.	<i>Technological Aspects</i>	<i>Questionnaire</i> Technology 7 items (likert scale)	SmartPLS 3.0 Response Rate Measurement Model
	<i>Social Metadata attributes</i>	Social Metadata 6 items (likert scale)	Convergent Validity (Cronbach Alpha)
	<i>Continuance USE</i>	Continuance use 3 items (likert scale)	Composite Reality (Cr)
			HTMT Effect Size Structural Model P value Null analysis

DATA COLLECTION

This study is focused on primary sources of data by surveying 800 CLAPAM Facebook Page users. The virtual population of the Facebook Page is about 3000 users including admins. To ensure the weight of the results, G* Power have been used where reality is that few researchers or reviewers are willing to trust in results where the probability of rejecting a true null hypothesis is greater than .05 (Van Voorhis, 2007).

Therefore, it is determined that represent 25% of the total population. This study employed purposive sampling, selecting individuals according to predetermined characteristics or criteria pertinent to the research aims. Individuals possessing distinctive insights or experience are invited to engage in this initiative. The administrators of the official CLAPAM Facebook Page will exclusively issue invitations and authorize requests contingent upon the provision of specified information prior to permitting individuals to join the page. This is executed to uphold confidentiality, prevent disinformation, and concentrate on matters pertaining to cleft and palate.

Source of questionnaire

The technological features are based on Fischer et al. (2020), emphasizing the significance of technology capabilities in user engagement. Technological aspects refer to the essential features and attributes of a system or platform that influence user experience, satisfaction, and sustained engagement. Trust in technology, interactions, and attributes assessed via 7-point Likert scales; encompassing user-system ease and efficiency, platform security and reliability, as well as system performance and functionality. The production of social metadata attributes adheres to the recommendations of Mazurek et al. (2021), which elucidate the rationale for employing a 5-point Likert scale. Continued use involves gathering self-reported data regarding user attitudes, satisfaction levels, and perceived value, alongside the observation of behavioral metrics such as login frequency, session duration, and feature utilization (Mhlongo, et al. 2023). By employing a variety of assessment techniques, researchers and practitioners can gain a comprehensive understanding of the characteristics that drive sustained engagement and pinpoint opportunities to enhance platform functionality and user experience.

STUDY FINDINGS

Response rate

The study focused on active users of the CLAPAM Facebook page with an online poll disseminated on the network. A total of 800 surveys were disseminated, yielding 607 complete and valid responses. This yields a response rate of 75.88%, computed as in Figure 2.

$$\text{Response Rate} = \left(\frac{\text{Number of Valid Responses}}{\text{Number of Surveys Distributed}} \right) \times 100$$

$$\text{Response Rate} = \left(\frac{607}{800} \right) \times 100 = 75.88\%$$

Figure 2 Response Rate for this study

This high response rate demonstrates strong engagement from the CLAPAM Facebook user community and ensures the representativeness of the data for analyzing the continuance usage of the platform. This demographic analysis offers significant insights into the characteristics and usage patterns of the CLAPAM Facebook user base, illustrating the platform's attractiveness across diverse age groups, professions, and social roles. The majority of responders were female, totaling 474 persons (78.1%), while males accounted for 133 individuals (21.9%). The majority of participants were aged 31–40 years (277 respondents, 45.6%), followed by those aged 21–30 (194 respondents, 32%). Additional age categories were 84 persons (13.8%) aged 41–50, 40 individuals (6.6%) aged 51, and 12 individuals (2%) over the age of 51. A substantial majority of responses (602 individuals, 99.2%) were located in Malaysia, while the remaining 3 respondents (0.5%) were from Sweden and Texas. Facebook emerged as the predominant social media network among respondents, with 275 individuals (45.3%) identifying it as their preferred option. A limited number of individuals integrated Facebook with Instagram (64 persons, 10.5%) or TikTok (4 individuals, 0.6%).

The results underscore the reliability, validity, and effect sizes of these variables, highlighting their significance in comprehending user engagement and retention on CLAPAM social media platforms. Each construct exhibits satisfactory reliability, as indicated by their Cronbach's Alpha scores. Technological Aspects received a score of 0.764, Social Metadata Attributes attained 0.772, while Continuance Use exhibited the highest reliability at 0.840. The results demonstrate a significant level of internal consistency among the items for all three constructs, confirming that the survey instrument accurately reflects the dimensions of each idea.

All constructs exhibited Composite Reliability (CR) values exceeding the well-recognized criterion of 0.7, hence reinforcing the measuring model's robustness. The Technological Aspects recorded a CR of 0.841, Social Metadata Attributes attained 0.853, and Continuance Use reached 0.903, the highest of the three. The findings indicate that the items within each construct are highly connected and efficiently measure their respective ideas collectively. The Heterotrait-Monotrait Ratio (HTMT) values for all constructs were significantly below the suggested threshold of 0.85, hence affirming their discriminant validity. The HTMT score for Technological Aspects was 0.391, Social Metadata Attributes registered 0.311, and Continuance Use had a low HTMT of 0.313. The results demonstrate that the constructs are conceptually different and exhibit minimal overlap, hence validating the theoretical integrity of the research paradigm. The effect sizes (f^2) elucidate the relative significance of the constructs inside the model. The Technological Aspects demonstrated a modest although significant impact size of 0.033, whereas the Social Metadata Attributes displayed an even lesser effect size of 0.022.

These findings underscore their complimentary functions in affecting Continuance Use, which constitutes the principal outcome variable of the study. Despite being low, these impact sizes highlight the subtle and indirect roles of Technological Aspects and Social Metadata Attributes on user retention.

DISCUSSION

The correlation between social metadata traits and continued usage is further substantiated by the mediating influence of technological factors, as indicated by a significant p-value (0.004). This result highlights the significance of the interplay between technological and social elements in enhancing user retention. The outcome is validated using bootstrapping, demonstrating that the indirect effect is significant, as the confidence intervals do not include zero (CI = [0.01, 0.055]). The findings highlight the multiple factors influencing the continued use of the CLAPAM Facebook page. Technological factors, social implications, community engagement, and social metadata qualities significantly contribute, with technological factors also serving as a mediator. The robust reliability and validity of the constructs reinforce the findings, affirming the research conclusions that these features are crucial for the sustained usage of social media platforms in particular groups like CLAPAM. The study's findings confirm the predictions and demonstrate that both social and technological factors are crucial in influencing the ongoing utilization of the Facebook page inside the CLAPAM group. The strong significance levels and reliable measures ensure the findings are genuine and meaningful.

The findings of this study align with previous research regarding the impact of technology on online communities. Basuki et al. (2022) identified that platform functionality and user-friendliness were substantial determinants of continued engagement in online communities. This study demonstrates that technology factors exert greater influence on the CLAPAM Facebook page than social influence, contrary to the findings of Aldahdouh et al. (2020), who identified social influence as the predominant driver of engagement. This differentiation can be ascribed to the specialized characteristics of health-related communities, which emphasize the accessibility of information and resources over social considerations (Jacob et al., 2020). The platform's functionality is crucial for members of a group like CLAPAM, which offers assistance to individuals and families dealing with a particular medical condition. It allows individuals to access and maneuver through critical health information.

This research expands the application of the Expectation-Confirmation Model (ECM Theory) to health-oriented online forums, thus providing a significant theoretical contribution. In digital contexts, the idea has historically prioritized perceived utility and ease of use as the main determinants of continuance intentions (Herzallah, et al., 2021). This research validates these features while emphasizing the need to cater to the specific demands of health-related online platforms, which require reliable and accessible technology to offer users essential support services (Yasa, et al., 2021). In health-related contexts, the findings suggest that the ease of technology usage is not only an adjunct to involvement; it is a fundamental element in fostering prolonged participation. This study's focus on platform functioning and usability enhances the theory, especially for online health communities (Bauer et al., 2020) where users may possess differing degrees of digital literacy (Cheng et al., 2020). The practical ramifications of these findings are clear to creators of health-oriented online platforms and community administrators. Organizations like CLAPAM may significantly enhance user engagement by optimizing their Facebook page, ensuring a clean user interface, effortless navigation, and mobile friendliness. Bazrafshani et al. (2022) assert that retention rates can be improved by offering technical help and resources to users with limited digital literacy, thereby enabling all members to proficiently engage with the platform. While the research provides significant insights, it is crucial to acknowledge its various limitations. The study initially focused exclusively on the CLAPAM Facebook page, limiting the generalizability of the findings to other platforms or communities. The technological attributes of Facebook may not be relevant to other online platforms or social media utilized by health support groups (Gawer, et al., 2021).

LIMITATIONS AND RECOMMENDATIONS

Future research could examine how technical factors influence the utilization of continuation in other platforms, like website-based communities and dedicated mobile applications. Moreover, the study unable to account for other social media capabilities among participants which may conclude a different assumption Chaka et al., 2020). To provide a more thorough understanding of how technology affects continued use in different online health communities, future study should include a broader range of platforms and user demographics. This study improves our understanding of continued usage in online communities by highlighting the essential role of technology elements in sustaining involvement from a wider scholarly viewpoint. This study addresses a significant vacuum in the research about health-related online platforms, technological user-friendliness, as suggested by Chaka et al. (2020), may be more crucial than in other online communities. These findings prompt additional exploration into how different platforms and technology influence user behaviour, especially in specific health contexts. This study offers targeted advice for online community administrators, health organizations, and non-profits from a pragmatic viewpoint. The functionality and usefulness of technology are essential elements for the success of platforms like the CLAPAM Facebook page. Consequently, the design and management of these areas should prioritize these considerations.

CONCLUSION

The findings support earlier research on platform functioning and user-friendliness in online engagement. This study shows that technology considerations exceed social influences in health-related situations, emphasizing the special needs of such platforms for providing accessible and credible health information and support. It shows that technology ease-of-use and usefulness are crucial to long-term engagement, especially in populations with variable digital literacy. The report advises community administrators and platform designers to improve user retention via improved navigation, mobile optimization, and targeted technical help. The findings are important, but the study only examined the CLAPAM Facebook page, which may not represent other health platforms or user demographics. To further comprehend technology's impact on user behaviour, future study should consider many platforms and digital literacy. This study shows that prioritizing technology user experience is essential for maintaining

health-related online community involvement. Addressing these characteristics helps platforms like CLAPAM be relevant and effective in assisting consumers.

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