Knowledge sharing via social media in higher education: a bibliometric analysis
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Abstract
Purpose – The purpose of this study is to review the application of social media for knowledge sharing (KS) in higher education. KS is the most crucial component in knowledge management. Higher education institutions (HEIs) are the epitome of knowledge creation and acquisition. With the advancement in technology and the embracement of social media, knowledge should be shared more freely and easily.
Design/methodology/approach – Using a bibliometric analysis, this study applies bibliographic coupling and co-word analysis to analyze the present and future trends on KS using social media in HEIs. 455 journal publications and 21,181 cited references were retrieved from Web of Science (WoS) database.
Findings – Findings show that most themes are categorized towards academics and students. Themes related to academics are the use of social media for expertise sharing and KS ‘s impact on university-industry networking. In contrast, themes related to students revolved around the impacts of social media and academic performance.
Practical implications – Implications towards major social media practices on KS are discussed.
Originality/value – This study provides a novel, state-of-the-art bibliometric review of knowledge sharing via social media in the higher education context.
Keywords Knowledge sharing, Social media, Higher education institution, Bibliometric analysis, Web of science
Paper type Literature review

1. Introduction
Knowledge is empowered when it is shared, requiring organizations to figure out ways to materialized it (Nonaka and Takeuchi, 1995). Knowledge sharing (KS) is the most important component of knowledge management (Al-Kurdi et al., 2020). In higher education institutions (HEIs), knowledge should be attained easily, as knowledge dissemination is one of the pillars of knowledge management. KS and information sharing are crucial processes to translate individual knowledge into organizational capacity through exchanging knowledge, experience and ideas (Gamji et al., 2022). HEIs are filled with many scholars and experts who should be sharing their knowledge. There is a pertinent dilemma of KS in higher education where academics are reluctant to share knowledge, idiosyncratic and attentive to respective individual goals rather than collective university attainment (Al-Kurdi et al., 2020). However, new evidence has shown that academics are more willing to share via social media, which enables interactivity between academics, students and the community (Chugh et al., 2021). The technology also helps in career development, teaching, research and communication with various stakeholders.

It is crucial that both knowledge, explicit and tacit, is shared in HEIs. Institutions should enhance an innovative climate by developing a safe and supportive climate for academics to share their knowledge (Ng et al., 2022). Academics can be engaged to share through formal,
i.e. conferences and seminars or informal through social media activities. Among the benefits of KS via social media is removing space and time barriers that are indispensable in traditional KS methods (Alshahrani and Pennington, 2018). These online tools allow an easy-to-use approach to sharing multimedia content, allowing users from all walks of life. Students in HEIs could also benefit from social media to support remote education, facilitate teaching and learning and improve academic performance (Salimi et al., 2022). Furthermore, students’ engagement with academics and instructors can be enhanced without physical and time barriers. Students can engage with instructors, peers and classmates to discuss academic matters, contributing to their academic performance (Alshuaibi et al., 2018). Among the different types of social media, engagement can be differentiated based on different social media platforms. These platforms can provide a different engagement mechanism, such as social networking (Facebook, Twitter and Instagram) that are more open, where one student asks a question and replies by the instructor; others can attain the benefit as the platform is open for others to see. Instant messaging social media (WhatsApp, WeChat and Telegram) are more personalized, suitable for students to have private conversations and exchange information with instructors or supervisors, particularly graduate students.

This study’s motivation is threefold. First is the importance of social media in disseminating knowledge from academics with unique and beneficial knowledge to the general public. Academics are expected to share knowledge as HEIs is the place where knowledge is expected to be shared (Fullwood and Rowley, 2017; Fauzi et al., 2019). Academics should not work in silos, cocooning their knowledge without use or benefit to others. There are many academic challenges in meeting the digital age requirements, including the willingness to share their hard-earned knowledge with others (Gamji et al., 2022). Furthermore, when academics share, the organization will be more innovative, thus increasing organizational performance (Al-Kurdi et al., 2020). Understanding how social media facilitate such a notion is required to ensure that knowledge is shared freely and voluntarily. In addition, the COVID-19 pandemic has changed today’s learning approach to using online tools at the forefront of teaching and learning activities (Zamani et al., 2022). Academics will be left behind by the fast-technological advancement, failing to seize opportunities presented by social media as tools for online and distance teaching (Vandeyar, 2020). They are urged to adapt to social media to engage with the public and enhance scholarly impact, particularly connection with non-academic public audiences (Jordan, 2022).

Secondly, from students’ perspective, social media brings two extreme spectra of positive and negative ends. The impact of social media on students’ KS are mixed. It can become a means for exchanging knowledge, information and ideas within the academic sphere. It also provides students a platform for making new friends, businesses and proposals supporting their academic endeavors in HEIs (Aljuboori et al., 2020). However, there are several negative sides of using social media among students that derail their intended KS. Failing to regulate social media use will lead to addiction and maladaptive use, leading to deteriorating academic performance and results (Alnjadat et al., 2019).

Third, this study is driven by the need for more exploration of knowledge structure in this subject. Based on the authors’ knowledge, there has been no review on KS and social media use in HEIs. Despite that, only a few reviews examine how social media impacts KS. Sarka and Ipsen (2017) reviewed KS via social media in software development teams. Findings suggest that new types of social media would facilitate software developers to share substantial new development in the field. Ahmed et al. (2019) performed a systematic literature review on social media for KS. The review discovered several themes, including user behavior, social media tools and platform and the benefits of social media. The gap in understanding this knowledge structure has led to this study providing a comprehensive bibliometric review to dig into the vast literature on social media and KS in HEIs. As such, this study’s objectives are presented:
To evaluate the current knowledge structure on knowledge sharing and social media in higher education institutions through bibliographic coupling analysis.

To assess the directions and trends of knowledge sharing and social media in higher education institutions through co-word analysis.

This paper is structured into 6 sections. This section presents the introduction and objectives of the study on academics’ social media and KS in HEIs. Section 2 presents the literature review on the current topic. Section 3 discusses methodology based on a bibliometric approach, encompassing two analyses to uncover the present and future trends. Section 4 presents the result analysis and discusses the clusters produced. Section 5 presents the discussion based on the theoretical and managerial implications of the findings. The limitations and suggestions for future works are presented in section 6. Finally, section 7 concludes the study.

2. Literature review

KS in today’s digitalized era seems impossible without utilizing new technologies, including social media (Asghar et al., 2023). The increased development of smartphones and mobile Internet has embedded in every aspect of human life. Subsequently, through the widespread of social media, people’s lifestyle has changed tremendously (Wang et al., 2019). It has penetrated every segment of society, including within the landscape of HEIs. Its usage rapidly increases in HEIs as it increases users towards facilitated KS environment (Rasheed et al., 2020). Knowledge sharing is crucial for transforming individuals into organizational knowledge in organizations, as in HEIs (Fauzi et al., 2023). In increasing knowledge exchange between academics and the community, social media has become indispensable in HEIs (Chatterjee et al., 2020).

Social media applications can be conceptualized based on their different application parameters (Seitz and Misra, 2020). It can be categorized as social networking sites such as Facebook, Twitter and Instagram, where the platforms provide academics opportunities to share and disseminate knowledge (Manickam et al., 2020; Bukhari et al., 2020; Hosen et al., 2021). Instant messaging applications such as WhatsApp, WeChat and Telegram, where academics can share real-time knowledge through text, documents, pictures and videos (Kasim et al., 2022). Apart from academics, social media enable students to interact and share ideas among themselves (Hosen et al., 2021). Social media sites not only enable KS but also reinforce learning, improve interpersonal skills and enhance leadership and communication skills, among others leading to an increment in students’ academic performance (Mahdi, 2019). Based on Nonaka’s SECI model of socialization, externalization, combination and internationalization, social media in HEIs can be adopted in pedagogical content to recreate, transfer and generate explicit and tacit knowledge (Songkram and Chootongchai, 2020; Sobaih et al., 2022). Out-of-classroom activities enable knowledge in either form can be transformed from tacit and explicit to tacit and explicit form interchangeably. The social interaction will ensure the facilitation of formal and informal knowledge transfer.

Furthermore, KS today has evolved due to the emergence of relevant development of immersive technologies that enable different ways of displaying, interacting and creating content and experiences. It has transformed user digital experience by engaging with sound, sight and touch. There have been significant studies that suggest the integration of artificial intelligence with KS has led to improvement in organizational outcomes. Nguyen and Malik (2022) discovered that artificial intelligence improves customer satisfaction. Meanwhile, Malik et al. (2021) found that artificial intelligence talent-focused applications created talent-specific sharing on knowledge-based data systems. Even though there are high hopes and potentials for artificial intelligence with KS, it must be mediated by the human will to apply
artificial intelligence to achieve organizational success. AI technologies alone are not sufficient to improve organizational performance (Olan et al., 2022). It requires human intervention to ensure that knowledge can be disseminated and exchanged throughout the organization. Social media today are embedded with artificial intelligence, which provides human involvement when users interact and communicate, thus facilitating knowledge sharing.

3. Methodology
3.1 Bibliometric approach
The bibliometric approach is a quantitative method, a popular way of exploring and analyzing bibliographic data (Donthu et al., 2021). Its fundamental function is to unpack the evolutionary themes of a field. Studies apply bibliometrics for several reasons, including extracting emerging journal trends and collaboration patterns and exploring intellectual structure within the bibliographic dataset (Verma and Gustafsson, 2020). The bibliometric analysis applies an objective approach by quantitatively extracting relevant publications from the database and integrating them with a qualitative interpretation of clusters based on inductive analysis. It aggregates previously adopted quantitative meta-analysis and qualitative systematic literature review (Alshater et al., 2021). In order to explore the current knowledge structure and predict future trends, the following two analyses are conducted:

(1) Bibliographic coupling: Bibliographic coupling assess the links between two publications that refer to a third publication (Martyn, 1964). It categorized publications into clusters according to shared reference, helping scholars determine a specific theme based on current themes within a timeframe (Zupic and Cater, 2015). The bibliographic coupling between the publications indicates a stronger similar concept between the documents (Budler et al., 2021).

(2) Co-word analysis: Co-word analysis applies text mining to extract words from the titles, abstracts and keywords (Verma and Gustafsson, 2020). The word relationship is analyzed according to the number of occurrences in the articles. The analysis is a form of content analysis by applying quantitative description to predict and forecast the most recent trends in a particular field (Van Eck and Waltman, 2014; Donthu et al., 2021).

3.2 Research design and data collection procedure
This study employed the following search string (Table 1) to identify keywords related to knowledge sharing, social media and HEIs. The search was performed on the Web of Science (WoS) core collection using the “TS” search option that covers the search within the title, abstract and keywords. WoS is considered the most robust, quality database compared to Scopus and PubMed (Pranckutė, 2021). This study limited only journal publications (excluding conference proceedings, books, book chapters, editorials and white papers) to ensure that publications in this bibliometric review are those that have been peer-reviewed, ensuring their robustness in terms of quality (Khaldi and Prado-Gascó, 2021; Budler et al., 2021; Fauzi, 2023).

4. Result and findings
The search was performed on October 22, 2022. The initial search returned 677 documents. After filtering only journal publications, the search returned 455 journal publications. The total citations were 7,016 and 6,817 (without self-citations). The H-index for these publications
was 42. Figure 1 presents the number of publications produced and citations received based on the keywords applied in the database. The earliest publication was traced back to 1998 with one publication. Then, 2002; 2004 also produced a single publication. The number of publications gradually increased and reached 10 in 2010 but then dipped to 8 in 2011. Since then, the number of publications has steadily increased and reached its peak in 2020. The total citations also increased at a constant pace. The trend indicated that the number of publications and citations is expected to increase in the coming years.

4.1 Bibliographic coupling
From the 455 primary documents in the bibliographic coupling analysis, 54 documents met the 34-citation threshold, creating 4 clusters. Of these 66 documents, only 49 were interconnected and further analyzed. As bibliographic coupling depends on two documents that share a third publication in the reference, a much more relevant metric to measure their impact is based on the total link strength (TLS). Table 2 presents the top 10 documents in the

<table>
<thead>
<tr>
<th>No</th>
<th>Keywords</th>
<th>Justification</th>
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<tbody>
<tr>
<td>1</td>
<td>“knowledge sharing” OR “knowledge exchange” OR “knowledge transfer” OR “knowledge distribution” OR “knowledge acquisition” OR “information sharing” OR “information exchange” OR “information transfer” OR “information distribution” OR “information acquisition”</td>
<td>To identify literature related to knowledge sharing and information sharing</td>
</tr>
<tr>
<td>2</td>
<td>“social media” OR “social network” OR “social platform” OR “social networking site” OR “SNS” OR “blog” OR “Facebook” OR “Twitter” OR “YouTube,” OR “Instagram” OR “MySpace” OR “LinkedIn” OR “Weibo” OR “Pinterest”</td>
<td>To identify literature related to academics, faculty members and related terminologies</td>
</tr>
<tr>
<td>3</td>
<td>“university” OR “higher education” OR “higher education institution” OR “higher learning” OR “institution of higher learning” OR “college” OR “HEI” OR “IHL”</td>
<td>To identify literature related to the university, higher education and related terminologies</td>
</tr>
</tbody>
</table>

Source(s): Author’s own creation/own work

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Table 1. Search string in WoS database

![Figure 1. Number of publications and citations on social media for KS in HEIs](image)
bibliographic coupling analysis based on their TLS. The top-3 publications are Kim et al. (2015) (74 TLS), Moghavvemi et al. (2017) (74 TLS) and Lee et al. (2014) (69 TLS).

The network map of the bibliographic coupling produces four significant clusters (Figure 2). The clusters suggest that cluster 1 (red) forms a separate cluster, far from clusters 2 (green), 3 (blue) and 4 (yellow). Meanwhile, cluster 5 (purple) is negligible, with only three documents. The following discusses current trends and future development of social media in higher education. The clusters are labeled based on the author’s inductive interpretation.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Publication</th>
<th>Citation</th>
<th>Total link strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Moghavvemi, S., Sharabati, M., Paramanathan, T., &amp; Rahin, N. M. (2017). The impact of perceived enjoyment, perceived reciprocal benefits and knowledge power on students’ knowledge sharing through Facebook. The International Journal of Management Education, 15(1), 1–12</td>
<td>61</td>
<td>74</td>
</tr>
</tbody>
</table>

Table 2.
Top 10 documents in bibliographic coupling analysis

Source(s): Author’s own creation/own work

Figure 2.
Bibliographic coupling analysis of knowledge sharing on social media in higher education

Source(s): Author’s own creation/own work
(1) Cluster 1 (red): Cluster 1 is the biggest cluster, with 17 documents labeled as “Knowledge sharing and entrepreneurial university”. HEIs are where novel knowledge is discovered through research and discovery. In extending the knowledge, academics and expert are pushing the knowledge for commercialization in the industry with a substantial connection through their networks. It has been made easy today that social media act as facilitating mechanisms that bridge university and industry, termed entrepreneurial university. Sullivan and Marvel (2011) draw on knowledge acquisition based on early-stage technology entrepreneurs in university-affiliated incubators. It was found that acquiring technology knowledge significantly influences product and service innovation developed by academic entrepreneurs. Seibert et al. (2017) examined research strategies, co-authoring and working in multiple fields among full professors based on the theory of creativity and social networks. Result suggests that heterogeneity of research fields within researcher works is related to higher productivity. This cluster concerns the university experts possessed by academics and their relation to industry. HEIs play a strategic role in driving regional economic and social growth. Fuster et al. (2019) elaborated on university spin-off companies as the main actors in entrepreneurial universities through knowledge transfer as the spinal activities in the ecosystem. The ecosystem promotes an expansive wave effect creating knowledge spillover from university to industry.

(2) Cluster 2 (green): Cluster 2 with 12 documents is labeled as “Social capital and knowledge sharing”. Social capital is the relationship network among the people in the community. To ensure KS is realized, developing social capital among them is crucial. Lee et al. (2014) studied students’ resource sharing and pooling on Facebook. They discovered that social capital dimensions (trust, social interaction ties and shared vision) are crucial predictors towards perceived value in social media use. Experiential value is considered the most significant, owing to users’ interactions that meet one psychological needs. Chen et al. (2016) analyze students’ self-disclosure on social media, suggesting that social capital influence brought positive outcomes within HEIs settings. In a study in Hong Kong, Su and Chan (2017) discovered that students who perceived high desirability of Facebook were prone to be more active on Facebook than those who were not. Kim et al. (2015) identified personal and environmental antecedents towards students’ KS on social media. Findings suggest that the influential factors include self-efficacy, positive social outcome expectations and sharing enjoyment on intention to share on social media.

(3) Cluster 3 (blue): Cluster 3 with 10 documents is labeled as “Positive outcome of students’ knowledge sharing behavior”. Students’ academic performance is considered a crucial issue in social media usage, as it may facilitate or distract students in their academic endeavors. Alwagait et al. (2015) studied the impact of social media usage on academic performance. There was no relationship between social media use and students’ academic performance in the form of GPA scores. Instead, time management was identified as an influential factor. In a recent study, Ansari and Khan (2020) revealed that students’ social media usage increases their interactivity with lecturers and peers, which increases KS. It impacts students’ collaborative learning and engagement, subsequently improving their academic performance. In other aspects of the positive impact of social media, Cheng et al. (2015) discovered that social media use among students’ mobile devices was an influential predictor of civic engagement. Besides that, technological convenience, information exchange and social interaction were also significant predictors of civic engagement. Wodzicki et al. (2012) asserted that students used social media for social interaction and integration. The interaction among students leads to their formal and informal learning for educational purposes.
Cluster 4 (yellow): With 7 documents, cluster 4 is labeled as **“Determinants of KS among academics and students”**. This cluster is associated with academics and students’ KS behavior in HEIs. Tseng and Kuo (2014) suggest that close connections among online members would lead to higher altruism and recognition towards others. In addition, self-efficacy and performance expectations influence members’ KS participation. Jolaee et al. (2014) discovered that academics’ KS intention in social media is influenced by attitude, social network and self-efficacy. Meanwhile, based on high school students applying for university placement, Ma and Chan (2014) found that perceived online attachment motivation and online relationship commitment significantly influence KS on social media. Altruism also had a significant impact when introduced in the model. Students’ KS via Facebook was studied by Moghavvemi et al. (2017). Finding suggests that outcome expectation is the main predictor of KS behavior, with perceived reciprocal benefit and perceived enjoyment coming in second and third, respectively. This cluster explained why academics and students choose social media as the mechanism for them to engage in KS behavior.

Table 3 presents the summary of bibliographic coupling analysis with cluster number and color, labels, number of publications and representative publications.

### 4.2 Co-word analysis

Applying the same database, the co-word analysis presents 54 out of 2,166 keywords that met the 11 thresholds, resulting in four clusters. Table 4 presents the top 15 highest keywords in the co-word analysis. The highest co-occurrence keywords are “social media” (95 occurrences), “knowledge sharing” (59 occurrences) and “social networks” (51 occurrences). The highest co-occurred keywords indicate that all the keywords are closely related, corresponding to the topic and search string administered.

The network structure of the co-word analysis (Figure 3) shows three compact and closely connected clusters. These three clusters are labeled based on the authors’ inductive interpretation as “Student participation and engagement on social media”, “Management of academics knowledge sharing in social media” and “Impact of academics using social media”.

(1) Cluster 1 (red): Cluster 1, with 24 keywords, is labeled as **“Student participation and engagement on social media”**. Student disengagement from academic-related activities is a concern in HEIs. Disengagement from lectures and class leads to problematic knowledge delivery. The widespread of social media sites has urged instructors to utilize this mechanism to enhance student engagement (Ngoc Hoi, 2021).

<table>
<thead>
<tr>
<th>Cluster No and color</th>
<th>Cluster label</th>
<th>Number of publications</th>
<th>Representative publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (red)</td>
<td>Knowledge sharing and entrepreneurial university</td>
<td>17</td>
<td>Allen et al. (2016), Sullivan and Marvel (2011), Seibert et al. (2017), Fuster et al. (2019)</td>
</tr>
<tr>
<td>2 (green)</td>
<td>Social capital and knowledge sharing</td>
<td>12</td>
<td>Kim et al. (2015), Chen et al. (2016), Lee et al. (2014), Su and Chan (2017)</td>
</tr>
</tbody>
</table>

Table 3. Bibliographic coupling analysis on JARHE

Source(s): Author’s own creation/own work
Rasheed et al. (2020) found that through KS on social media, students were more creative and engaged in graduate research training. In contrast, Koranteng et al. (2019) observed no relationship between KS, social media and engagement. However, student inclination towards academically oriented social media such as ResearchGate and Academia.edu might produce different results toward academic engagement. This is necessarily true for postgraduate students rather than undergraduates because these type of social media meet their academic nature.

(2) Cluster 2 (green): Cluster 2 discusses the theme of “Management of academics’ knowledge sharing in social media”. HEIs need to manage academics KS, including their unofficial sharing using social media. Al-Kurdi et al. (2020) evaluate the organizational climate influencing KS behavior in HEIs among academics.
The two strongest predictors were leadership and trust. Akosile and Olatokun (2020) studied academics' knowledge sharing (KS) in Nigeria and discovered that university policy is the only organizational factor influencing KS behavior, while social media usage had no influence. McCarthy and Bogers (2022) suggest that social media as boundary-spanning technology for academics to learn and work with other academics and external stakeholders in a multidisciplinary field. Social media can make collaboration activity more open through networking, investigating, framing, assessing and disseminating knowledge. Using a valence-instrumentality-expectancy (VIE) theory, Chatterjee et al. (2020) interpret the predictors of academic use of social media for KS. Through the theory, academic perceives that KS on social media increase the impact of knowledge exchange by concerned stakeholders.

(3) Cluster 3 (blue): With 12 keywords, cluster 3 is labeled “Impact of academics using social media”. Academics’ ability to use social media will enable effective knowledge to be disseminated to students, the community and the public. Jordan (2022) studied academics’ perceptions of their high-impact interactions through social media and how different platforms mediate the impact. Findings show that even though the use of social media facilitates engagement with the public, there is a need for an exclusive institutional definition of research impact based on the diverse social media platforms. Mazurek et al. (2022) discovered that academics’ social media use is highly correlated with their academic citation rate. Extensive social media use exposes academics towards professional and scholarly success. During emergencies, as shown during the COVID-19 pandemic, academic use of social media has facilitated better online learning (Sobaih et al., 2020; Affouneh et al., 2021). Even though some academic finds it hard to adapt in the beginning, especially senior members, the use enable them to interact with students and foster effective learning experience.

A summary of the co-word analysis is presented in Table 5, comprising cluster number and color, labels, number of keywords and representative keywords.

5. Discussion and implications
One of the most significant theoretical implications is the different functions, impacts and intentions of social media use among students and academic members. Clusters 2 and 3 in bibliographic coupling analysis and cluster 1 in co-word analysis provide specific perspectives on student social media applications. In comparison, perspective on academics is presented in cluster 1 of bibliographic coupling analysis and clusters 2 and 3 in co-word analysis. On the other hand, cluster 4 in bibliographic coupling presents a perspective from both academics and students. Social media studies’ implication in HEIs comes from either two or a combination of both.

<table>
<thead>
<tr>
<th>Cluster No and color</th>
<th>Cluster label</th>
<th>Number of keywords</th>
<th>Representative keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (red)</td>
<td>Student participation and engagement on social media</td>
<td>24</td>
<td>Social Media, Facebook, participation, communication, engagement</td>
</tr>
<tr>
<td>2 (green)</td>
<td>Management of academics’ knowledge sharing in social media</td>
<td>16</td>
<td>Knowledge sharing, management, determinants, self-efficacy</td>
</tr>
<tr>
<td>3 (blue)</td>
<td>Impact of academics using social media</td>
<td>14</td>
<td>Social networks, performance, innovation, collaboration</td>
</tr>
</tbody>
</table>

Table 5. Summary of co-word analysis on social media and knowledge sharing in HEIs

Source(s): Author’s own creation/own work
5.1 Academics and social media

Academics can use social media to provide effective teaching and learning, share their research output and increase academic and industrial collaboration. Despite these opportunities, academics lamented several challenges and barriers to adopting social media. Academics are restricted from integrating social media into practices due to pedagogical problems, cultural resistance and institutional constraints (Manca and Ranieri, 2016). Others identified the lack of university support and time (Al-Daihani et al., 2018).

In developing countries perspectives, Sobaih et al. (2016) stated specific barriers to academics’ social media use, including (1) privacy and security, (2) time commitment, (3) monitoring and loss of control, (4) digital divide, (5) variation in mobile services (6) grading and assessment, (7) Integration with the learning platform and (8) institution support. From a pedagogical perspective, factors prohibiting academics’ use of social media include high workloads, time constraints, privacy and lack of assessment strategies and cybersecurity (Vandeyar, 2020). These barriers are not impossible to be resolved. HEIs top management and stakeholders need to strategize a specific plan to ensure academics are given the opportunity and space to adopt and adapt to social media.

Despite all the barriers to social media, academics must be ready to embrace and adapt to changes, especially new media form that is contextually relevant to the younger generation. Academics should develop their self-efficacy to be more effective and confident. Progressive steps were proposed to enhance one self-efficacy, (1) continuous practice, (2) awareness of the emotional response in using social media and response from others, (3) emulate from successful colleagues and (4) recognition of good social media sharing practice (Alshahrani and Pennington, 2018). Self-efficacy must be enhanced together with the realization of the benefits of KS in HEIs. This is because academics that believe they can share may not necessarily engage in KS (Akosile and Olatokun, 2020). Such cases may be related to other distinguishable phenomena of knowledge hiding or hoarding, where academics keep knowledge despite knowing their capability to do so (Fauzi, 2023; Bernatović et al., 2022).

Besides teaching and learning, academics are burdened with other myriads of responsibilities. These include research, consultation, community engagement, industrial linkage and others that require different social media use. Alternatively, academics should be versatile in using social media based on the different types according to their interest and suitability. These include the generic social network (Facebook, Twitter), academic and professional networking services (ResearchGate, LinkedIn and Academia.edu), content material for archive and content retrieval (Youtube, SlideShare and Podcasts) and tools for academic writing (Wikis and blogs). In general, academics should actively engage in KS within holistic institutional networking. The future presents a more challenging environment for academics to ensure their knowledge can be disseminated faster and to a wider audience. Wiafe et al. (2020) suggested an approach such as using persuasive technologies on social media to increase users’ encouragement to share. This persuasive technology is more relevant in academic and professional social networking sites. These sites comprise features such as email services and discussion boards that facilitate KS and collaboration among users.

As technology and digital information advance, the risk of knowledge and data leakage has become prominent, particularly when academics are involved in high stake and confidential research. For instance, blockchain technology, where the transaction of digitally stored knowledge in online repositories can be modified and removed by private entities through a consensus algorithm (Singh et al., 2022). As such, academics in HEIs are bound by general data protection regulation (GDPR) or regulations that bind them to free-flowing KS behavior. Strengthening data security is crucial in HEIs as some documents are shared in the classroom, opening the risk for data leakage. Personnel GDPR trust depends on perceived security, third-party assurance and openness (Zhang et al., 2020). Understanding the determinants of academics’ trust associated with GDPR would enable KS in social media.
5.2 Students and social media

Times have drastically changed the landscape of education, where social media plays an important role in students’ education, providing various benefits. Students today require even more than what is presented in class, expecting academics to engage them on social media. Recent studies indicated that social media has become a source of e-learning among students, especially Facebook, Twitter, LinkedIn and Instagram (Manickam et al., 2020; Bukhari et al., 2020; Hosen et al., 2021). KS via social media facilitates students learning through pedagogical means for better engagement (Ngoc Hoi, 2021). Students who believe social media facilitate learning and provide academic benefit are more likely to engage in KS learning, leading to academic activities. Apart from improving academic performance, KS through social media could enhance interpersonal skills, improve leadership skills and quality, increase self-confidence and build a tolerance to constructive criticism (Mahdi, 2019). These skills are needed to build students with resiliency in facing tough times ahead.

It is well established that when used correctly, social media use in educational context help academics promote learning, improvise pedagogy, increase engagement and facilitate the dissemination of knowledge to students (Sobaih et al., 2022). Many barriers affect students’ KS, such as lack of integration of social media and KS tools, insufficient technical support, prevention communication flows and reluctance to use KS tools due to little experience (Ozdamli and Cavus, 2021). Salimi et al. (2022) suggest that to increase KS and, subsequently, academic performance among students, online social capital should be strengthened to inculcate cognitive and social integration. Social capital comprising three dimensions (structural, cognitive and relational) can predict KS behavior among students through the social capitalization of social media in HEIs settings (Han et al., 2020). Integrating the three social capital domains, creation and sharing, would be facilitated to transform knowledge into intellectual capital within student networks.

Despite the opportunities and benefits of social media for KS and the learning process, there are pertinent issues concerning the problematic use of social media, leading to addiction. Addiction can be categorized as substance addiction (drugs and related substances) and non-substance addiction, such as gambling, Internet, mobile, food and gaming (Zou et al., 2017). However, in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), only gambling is included (Zou et al., 2017). Social media addiction has not been classified as non-substance use in the DSM-5 (Pekpazar et al., 2021). Despite that, it has been widely accepted as a technology addiction, possessing similar symptoms to substance-related addiction, such as withdrawal, relapse, mood modification, conflict and salience (Turel et al., 2018).

This problematic and maladaptive use has led to poor academic performance among HEIs students (Aljadat et al., 2019; Pekpazar et al., 2021; Nurudeen et al., 2023). Social media addiction might not directly influence student academic performance, but it induces stress and anxiety. As such, it will impact their academic performance (Malak et al., 2022). One could develop the physical and psychological effects of compulsive social media usage (Pekpazar et al., 2021). Well-known symptom includes anxiety, nausea, tremors and irritability upon social media abstinence or withdrawal (Merriam-Webster, 2022). As such, the frontline personnel dealing with student matters, including academic, co-curriculum and student development personnel, should proactively ensure that maladaptive and uncontrollable use of social media is mitigated. Their use of electronic gadgets, i.e. smartphones and tablets, for entertainment should be controlled and reduced. Instead, they should be engaged in physical activities and interactions to curb the negative impact of social media on their academics and personal life.

6. Limitations and suggestions for future works

Several limitations in this study are recognized. First, the nature of the bibliometric analysis is dependent on the bibliographic database such as WoS and Scopus, which are produced not
exclusively for bibliometric analysis (Donthu et al., 2021). Hence, it might contain errors that can detect any analysis that utilizes data retrieved from these databases. To overcome this issue, remove erroneous entries when applying any science mapping techniques, such as in this study (bibliographic coupling). Second, this study only includes English publications, which might have limited the rich literature of studies in other languages. As this study looks at the generic social media and KS, more specific based studies (either based on region and countries) should comprehensively involve all local languages to acquire the exact knowledge structure in the context.

Future studies could extend the knowledge structure of the current topic by performing citation analysis and co-citation analysis to evaluate past and retrospective themes. Both analyses provide information on the most influential documents and the foundational themes as a basis for KS and social media in HEIs (Donthu et al., 2021). Future studies could also explore how recent technologies impact KS. Technology literacy is the main barrier for academics KS (Al-Kurdi et al., 2018). Past studies have extensively analyzed the enabler of individual, organization and technology on KS behavior (Al-Kurdi et al., 2018; Ghasemaghaei, 2023). It has been less studied compared to the individual and organizational domains. Contributing to intense technological development such as artificial intelligence, data analytics and the recent Internet of Things (IoT), users might need help adapting to new KS technologies. Academics are subject matter experts, but their hesitancy and illiterate use of technology might dampen the initiatives and efforts to inculcate KS in HEIs. However, for students, technology-related issues are not a concern contributing to their technological savvy and have been raised as digital natives (Huang et al., 2021). Future classroom interaction between academics and students might involve immersive technologies such as AI and extended reality (XR). AI has proven to be an indispensable tool for organizational learning and performance through knowledge sharing (Olan et al., 2022). The anticipated extended reality is an inclusive term for virtual, augmented and mixed reality. The technology combines or mirrors the physical world, allowing users to interact within the “digital twin world”.

7. Conclusion
This bibliometric review on social media as a tool for KS in HEIs is a state-of-the-art presentation to seek present and future trends. Employing social media in the digitalized era is KS’s most recent approach. It enables the incorporation of the latest technology through the latest features and ideas in social media. The themes produced through the clusters suggest that the use of social media in HEIs impacts academics and students differently. Studies on academics specifically focus on using social media from a pedagogical perspective related to teaching and learning. Academics also uses social media to share their research and expertise with the industry in creating an entrepreneurial university. Social media studies on students primarily look into how students use social media to share academic resources. Issues on the impact of social media use among students are highlighted through positive and negative lenses, such as academic performance and mental health. This study has strengthened the literature on the crucial role of social media as an effective tool for KS within HEIs, the rightful place for knowledge to be freely and constantly available.

References


Further reading


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