

Exploring factors influencing Contrimetric adoption and word-of- mouth advocacy in academic libraries

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ABSTRACT

Contrimetric is an AI-powered bibliometric plugin designed to provide real-time citation tracking, personalised content recommendations, reference validation, and dynamic research impact dashboards. This study investigates the factors influencing the adoption of Contrimetric, an emerging AI-powered bibliometric tool, in academic libraries across China. Drawing on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), the research examines how perceived ease of use, perceived usefulness, social influence, and facilitating conditions affect behavioural intention, which in turn drives word-of-mouth (WOM) advocacy among academic peers. Data were collected through a structured survey administered to librarians and researchers in Chinese universities, yielding 400 valid responses representing diverse academic disciplines and institutional settings. The results confirm that perceived ease of use, perceived usefulness, social influence, and facilitating conditions all have significant positive effects on behavioural intention, and behavioural intention positively influences WOM. Mediation analysis further indicates that behavioural intention mediates the relationships between perceived usefulness, social influence, facilitating conditions, and WOM, while the indirect path for perceived ease of use is marginally significant at the 10% level. These findings highlight the critical role of institutional support and peer influence in fostering advocacy, such as recommending Contrimetric to colleagues and encouraging its adoption in academic environments. The study contributes to the technology adoption literature by extending TAM and UTAUT beyond initial adoption, incorporating post-adoption WOM behaviours as a critical outcome, and offers practical implications for policymakers and library administrators seeking to enhance research visibility through AI-enabled services.

Keywords: *Perceived usefulness; Perceived ease of use; Social influence; Facilitating conditions; Behavioral intention to use; Word of mouth.*

INTRODUCTION

Academic libraries are undergoing rapid digital transformation, driven by advances in artificial intelligence (AI) and bibliometric technologies that enhance discovery and research impact assessment (Orubebe, Oloniruha, & Oladokun, 2025). In China, the expansion of open science and the pursuit of international visibility have accelerated the adoption of intelligent systems that provide real-time analytics on scholarly influence, streamline access

to literature, and support dynamic evaluation of research performance (Huang, 2024). Among emerging tools, Contrimetric is a notable advancement: an AI-powered plugin offering live citation tracking, personalised recommendations, and dynamic visualisation of research impact (Contrimetric, 2025). Its AI functionality is based on machine learning algorithms that analyse user behaviour, citation patterns, and content metadata to generate tailored research insights, detect retractions, and adaptively update dashboards in real time. These capabilities could improve user experiences and enable more informed, data-driven decisions by institutions (Contrimetric, 2025).

Adoption of such innovations can be explained using TAM and UTAUT. TAM identifies perceived usefulness and perceived ease of use as key determinants of adoption, shaping attitudes and behavioural intention (Schorr, 2023; Silva, 2015). UTAUT adds to this perspective by highlighting social influence and facilitating conditions, acknowledging that peer norms, institutional policies, and technical support significantly affect adoption decisions (Venkatesh et al., 2003; Venkatesh, 2022). Evidence from AI-enabled library services, mobile learning, and digital reading systems supports the importance of these determinants (Yoon, Andrews, & Ward, 2022; Lakulu et al., 2025; Hussain & Khan, 2025). In China, collectivist norms and hierarchical structures increase the influence of peer endorsement and institutional support (Chou et al., 2025; Wang, Liu, & Tu, 2021).

However, important gaps remain. Much of the technology acceptance literature stops at behavioural intention, providing limited insight into post-intention behaviours that drive diffusion, particularly WOM advocacy (Mailizar, Almanthari, & Maulina, 2021; Liao et al., 2022). This omission is significant in collectivist academic settings, where peer recommendations and institutional reputation strongly influence uptake. Real-time citation plugins (e.g., Contrimetric) have also received little attention in adoption research, despite their increasing role in shaping visibility and evaluation practices (Dattolo & Corbatta, 2022). Understanding not only what drives adoption, but also what motivates users to recommend such tools, is essential for effective integration.

To address these issues, this study develops and empirically tests a model that integrates TAM and UTAUT to explain Contrimetric adoption in Chinese academic libraries. The model proposes that perceived usefulness, perceived ease of use, social influence, and facilitating conditions shape the behavioural intention to adopt Contrimetric, which in turn drives WOM advocacy. Positioning WOM as a post-adoption outcome and behavioural intention as a mediator provides an account of the cognitive and social processes underlying diffusion. By linking adoption drivers to peer advocacy, the study responds to calls for broader models that extend beyond initial acceptance to capture mechanisms of spread within scholarly communities (Jannah & Susila, 2023). The findings aim to guide administrators, policymakers, and developers in improving usability, strengthening institutional support, and leveraging peer networks to accelerate adoption and maximise research visibility.

Academic libraries in China are adopting innovative technologies to enhance research visibility and support open science. While traditional databases such as Scopus and Web of Science remain widely used for sourcing citation data, their utility in bibliometric workflows is often limited by indexing delays, restricted coverage, and lack of seamless integration with institutional systems (Caputo & Kargina, 2022). Although platforms like Google Scholar provide broader coverage, they frequently raise concerns about data reliability and contextual relevance. These limitations reduce researchers' and librarians' ability to access

timely insights into scholarly impact and to integrate such insights into daily academic and editorial operations. Emerging tools have attempted to address these gaps. For example, CiteClick offers real-time Google Scholar citation data for multiple authors, and Scite uses artificial intelligence to analyse the qualitative context of citations (i.e., whether they support or dispute a claim) (Raihan, 2024). However, these tools remain largely standalone applications and are not designed for seamless integration into library or institutional infrastructure (Yu & Liu, 2022). They also tend to focus narrowly on one aspect of citation analysis, such as immediacy or interpretive context, without providing a comprehensive suite of services for scholarly communication and library management.

Contrimetric offers a new solution aimed at addressing these shortcomings. According to its official description, Contrimetric is an AI-powered academic enhancement plugin designed to transform how researchers, publishers, and institutions interact with citations, discover relevant content, and showcase research impact in real time (Contrimetric, 2025). An illustrative figure of Contrimetric is presented as Figure 1. These features set it apart from conventional bibliometric databases and emerging browser-based or AI-driven tools by combining real-time analytics, intelligent recommendations, and institutional-level integration within a single platform. This study aims to empirically examine the factors influencing the adoption of Contrimetric in Chinese academic libraries and to explore how such adoption intentions translate into positive WOM advocacy among academic stakeholders.

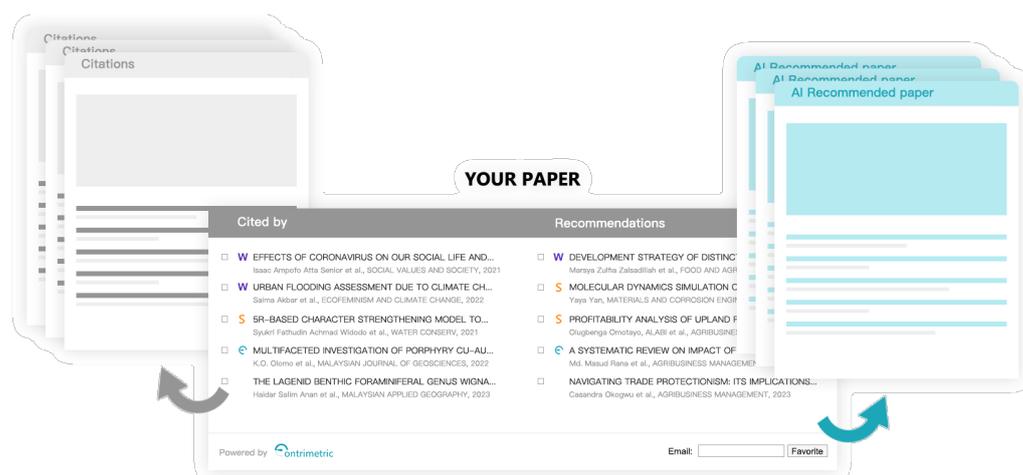


Figure 1: The screenshot of Contrimetric tool

LITERATURE REVIEW

Citation tracking has traditionally relied on established indexing databases such as Scopus and Web of Science. While these platforms provide curated bibliometric data, they are often constrained by delayed indexing, limited journal coverage, and weak integration with institutional systems (Caputo & Kargina, 2022). These limitations hinder timely evaluation of research impact, especially in fast-evolving fields where real-time citation insights are crucial. Moreover, traditional tools typically lack personalisation and interoperability with academic library workflows, prompting the need for AI-powered solutions that can dynamically support research assessment and scholarly discovery.

Within bibliometric tools, emerging platforms such as Scite and CiteClick offer real-time citation insights yet remain limited in integration and functionality. Contrimetric reconceptualises citation tracking by leveraging artificial intelligence to deliver real-time citation tracking, personalised content recommendations, retraction alerts, and impact dashboards. Tools like Contrimetric provide layered features such as personalised recommendations, retraction alerts, and dynamic dashboards, making them increasingly relevant for library services and academic evaluation systems (Contrimetric, 2025). Their compatibility with institutional databases and ability to visualise citation trends in real time enhance both user experience and research performance tracking across disciplines. Unlike conventional citation tools, Contrimetric uses AI-based algorithms to automatically detect new citations from open-access repositories, preprint servers, and third-party databases (Contrimetric, 2025). It then classifies and visualises these citations using machine learning-powered dashboards tailored to institutional preferences. These AI capabilities significantly reduce citation latency and improve the contextual relevance of recommendations, enabling libraries to support researchers with more actionable insights (Orubebe, Oloniruha, & Oladokun, 2025; Huang, 2024).

The TAM and UTAUT remain central to understanding technology integration in academic environments. TAM emphasizes two core constructs, perceived usefulness and perceived ease of use as key predictors of technology adoption behavior (Silva, 2015). UTAUT expands this framework by incorporating social influence and facilitating conditions, recognizing the importance of peer endorsement and institutional support in shaping user intentions (Venkatesh et al., 2003). These models have been widely validated in diverse academic contexts, including digital libraries, e-learning platforms, and AI-driven systems. Empirical research across library and educational settings consistently supports the applicability of these frameworks. Studies demonstrate that librarians and educators adopt AI-based tools more readily when they perceive them to be beneficial and easy to operate (Chen et al., 2022; Hussain & Khan, 2025). Social influence, particularly in collectivist cultures, has been shown to play a powerful role in reinforcing adoption decisions through peer norms and professional networks (Yoon, Andrews, & Ward, 2022; Lakulu et al., 2025). Facilitating conditions such as training, system compatibility, and organizational support further enhance the likelihood of adoption by lowering implementation barriers.

Beyond initial usage, recent studies have explored WOM as a key behavioral outcome. WOM, often shaped by positive adoption experiences, amplifies peer-to-peer diffusion within academic communities. Research indicates that behavioral intention frequently precedes advocacy behaviors, with users recommending tools that align with institutional workflows and deliver reliable outcomes (Al Halbusi et al., 2022; Xu, Khan, & Shahzad, 2024). These peer recommendations often hold greater credibility than formal marketing efforts, especially in research-driven settings where trust and professional validation are critical (Liao et al., 2022). As such, WOM serves not only as an indicator of satisfaction but also as a powerful mechanism for organic technology diffusion.

The adoption of Contrimetrics via TAM and UTAUT

Perceived ease of use

Perceived ease of use is a central construct of the central constructs of TAM and has consistently been identified as a critical determinant of technology adoption. Davis (1989) defined perceived ease of use as “the degree to which a person believes that using a particular system would be free of effort,” and his study demonstrated that both perceived

ease of use and perceived usefulness are strongly linked to individuals' attitudes and intentions to adopt innovative technologies. Subsequent research confirms that when users perceive a system as easy to learn and operate, they are more willing to integrate it into their professional routines (Chen et al., 2022; Shal et al., 2024). In library contexts, the transition from traditional to technology-enhanced services, such as AI tools or real-time bibliometric plugins, depends heavily on users' and librarians' perceptions of the ease and effort required (Hussain & Khan, 2025). Studies have further suggested that adopting digital innovations such as automated cataloguing systems and AI-driven dashboards enhances user confidence and promotes positive attitudes towards technology (Miller & Khera, 2010). Despite extensive literature on digital transformation, limited research examines perceived ease of use specifically in relation to emerging bibliometric tools like Contrimetric. Drawing on TAM, this study posits that if librarians and researchers perceive Contrimetric as an easy-to-use platform, they are more likely to develop favourable intentions towards its adoption and to engage in subsequent advocacy behaviours. Therefore, the following hypothesis is proposed: Perceived ease of use has a positive effect on behavioural intention to adopt Contrimetric.

Perceived usefulness

AI integration across various domains, including academic libraries (Huang, 2024; Yoon, Andrews, & Ward, 2022), has attracted significant scholarly attention, with perceived usefulness identified as one of the most influential drivers of technology acceptance. Perceived usefulness is defined as the extent to which individuals believe that adopting a particular system will enhance their job performance or improve outcomes (Silva, 2015). Previous research indicates that when users consider an AI-based system useful and performance-enhancing, their attitudes and intentions to adopt the technology are strengthened (Rafique et al., 2020). For example, Masrek and Hussein (2021) found that robot advisory tools substantially improved users' perceptions of usefulness, leading to favourable attitudes towards the technology. Similarly, Kim et al. (2022) reported that librarians familiar with AI technologies are more likely to adopt them because they believe such tools increase work efficiency and service quality. Other studies in different contexts, including medical education and academic libraries, have shown that a positive perception of AI usefulness is closely associated with stronger adoption intentions (Chen, Fan, & Azam, 2024). These findings suggest that when librarians and researchers perceive emerging bibliometric tools such as Contrimetric as reliable and capable of enhancing research visibility and library services, they are more likely to develop favourable behavioural intentions towards their adoption. Despite the expanding literature, there is still a need for empirical evidence on perceived usefulness in relation to new real-time citation tracking tools like Contrimetric. Building on TAM and previous findings, the present study proposes the following hypothesis: Perceived usefulness has a positive effect on behavioural intention to adopt Contrimetric.

Social influence

Social influence has consistently emerged as a key determinant of technology adoption within the UTAUT framework. It reflects the extent to which individuals perceive that important peers or reference groups believe they should use a new system (Venkatesh et al., 2003). Previous studies in educational and technological contexts have emphasised the role of social norms and peer recommendations in shaping users' behavioural decisions (Tian et al., 2024). For example, Sakib et al. (2025) demonstrate that social factors significantly predict students' intention to adopt technology-mediated learning systems. Similarly, Wu et al. (2022) report a positive correlation between social influence and the adoption of AI-assisted learning. In a related stream, Nikolopoulou, Gialamas and Lavidas (2020) and

Samsudeen and Mohamed (2019) highlight the relevance of peer and institutional support in encouraging e-learning platform usage. In academic libraries, where professional networks and collaborative practices are prevalent, the influence of colleagues, supervisors, and institutional culture plays a vital role in shaping attitudes towards innovative tools (Venkatesh, 2022). Given that Contrimetric is a novel AI-powered bibliometric plugin, the perceptions and endorsements of peers and supervisors are likely to have a strong impact on librarians' and researchers' behavioural intention to adopt it. Building on these insights, this study proposes the following hypothesis: Social influence has a positive effect on behavioural intention to adopt Contrimetric.

Facilitating conditions

Facilitating conditions refer to the extent to which individuals believe that organisational and technical resources are available to support the use of a new system (Venkatesh et al., 2003). Previous research highlights that access to appropriate infrastructure, training, and institutional support is pivotal in shaping favourable adoption intentions (Nikolopoulou, Gialamas, & Lavidas, 2020; Samsudeen & Mohamed, 2019). In higher education and library contexts, facilitating conditions such as technical assistance, management encouragement, and adequate digital infrastructure have been identified as significant enablers of technology acceptance (Ain, Kaur, & Waheed, 2016; Kang et al., 2015). Wu et al. (2022) also found a positive relationship between facilitating conditions and the adoption of AI-assisted learning. Moreover, Li (2025) observed that facilitating conditions indirectly influence sustained usage intentions through behavioural intention. In academic libraries, where integrating innovative tools often requires technical training, resource availability, and institutional support, facilitating conditions are likely to play a crucial role in motivating librarians and researchers to adopt novel bibliometric systems (Venkatesh, 2022). Building on these insights, the following hypothesis is proposed: Facilitating conditions have a positive effect on behavioural intention to adopt Contrimetric.

Behavioural intention has long been established in TAM and UTAUT literature as the most immediate predictor of both actual technology use and post-adoption behaviours (Harnadi, Prasetya, & Widiatoro, 2022; Venkatesh et al., 2003). It reflects a user's conscious plan or willingness to adopt and consistently use an innovation. Existing research suggests that individuals who form strong behavioural intentions are not only more likely to engage with a technology themselves but also to participate in advocacy behaviours that facilitate its diffusion (Farzin et al., 2021). Word of mouth (WOM) is one of the most influential post-adoption behaviours, particularly in collectivist and network-oriented professional cultures such as China, where peer endorsement and institutional reputation strongly influence technology uptake (Xu, Khan, & Shahzad, 2024). Empirical studies in e-learning, mobile applications, and AI-assisted platforms have confirmed that positive behavioural intention encourages users to share favourable opinions, recommend the system to colleagues, and influence others' perceptions (Al Halbusi et al., 2022; Zhang, 2018). These advocacy actions strengthen overall adoption and sustain the innovation's impact within academic communities.

In the context of emerging bibliometric tools, behavioural intention is especially important because actual usage data for new systems may not yet be available. Thus, examining how intention translates into subsequent WOM behaviours provides valuable insights into how tools like Contrimetric can achieve broader institutional acceptance. Users who perceive Contrimetric as useful, easy to use, socially endorsed, and supported by adequate resources

are likely to form strong behavioural intentions, which in turn can lead them to recommend the tool to peers, write positive reviews, and encourage integration at departmental or institutional levels. Previous research on technology-mediated learning and AI platforms supports this causal pathway, noting that intention serves as the critical link between adoption determinants and sustained peer advocacy (Mogaji et al., 2024; Szymkowiak & Jeganathan, 2022). Building on these theoretical insights and empirical findings, the present study posits that behavioural intention plays a vital role in predicting positive WOM advocacy for Contrimetric and hypothesises: Behavioural intention has a positive effect on WOM for Contrimetric.

Mediating role of behavioural intention

Behavioural intention not only serves as a direct predictor of post-adoption outcomes such as word of mouth (WOM) but also plays a crucial mediating role between the key determinants of technology adoption and advocacy behaviours. Previous research rooted in TAM and UTAUT has demonstrated that the impact of factors such as perceived ease of use, perceived usefulness, social influence, and facilitating conditions on downstream behaviours typically operates through the formation of favourable behavioural intentions (Venkatesh et al., 2003; Harnadi, Prasetya, & Widiatoro, 2022). Users are unlikely to engage in positive advocacy unless they have first developed a clear and favourable intention to adopt and use a system. Empirical studies on AI-based tools and e-learning platforms confirm that when users perceive a technology as useful, easy to use, socially endorsed, and adequately supported by institutional resources, these perceptions shape their behavioural intention, which subsequently leads to higher levels of recommendation and advocacy (Farzin et al., 2021; Mogaji et al., 2024). This mediation mechanism is particularly salient in academic libraries, where WOM is a primary channel of diffusion and advocacy often depends on users' own acceptance and planned usage of the innovation. Therefore, this study also examines the mediating effects of behavioural intention in the relationships between perceived ease of use, perceived usefulness, social influence, facilitating conditions, and WOM for Contrimetric.

METHOD

This study was conducted to investigate the factors influencing the adoption of Contrimetric, an AI-powered bibliometric plugin, within academic libraries in China, and to examine the role of behavioural intention in shaping post-adoption WOM advocacy. Drawing on the TAM and UTAUT, the study aims to understand how perceived ease of use, perceived usefulness, social influence, and facilitating conditions influence users' behavioural intention to adopt Contrimetric, and how this intention mediates the promotion of the tool through WOM.

The research is guided by the following central question: What are the key determinants of Contrimetric adoption among academic library stakeholders, and how does behavioural intention mediate the relationship between these determinants and WOM advocacy?

To address this question, the following hypotheses were formulated for empirical testing:

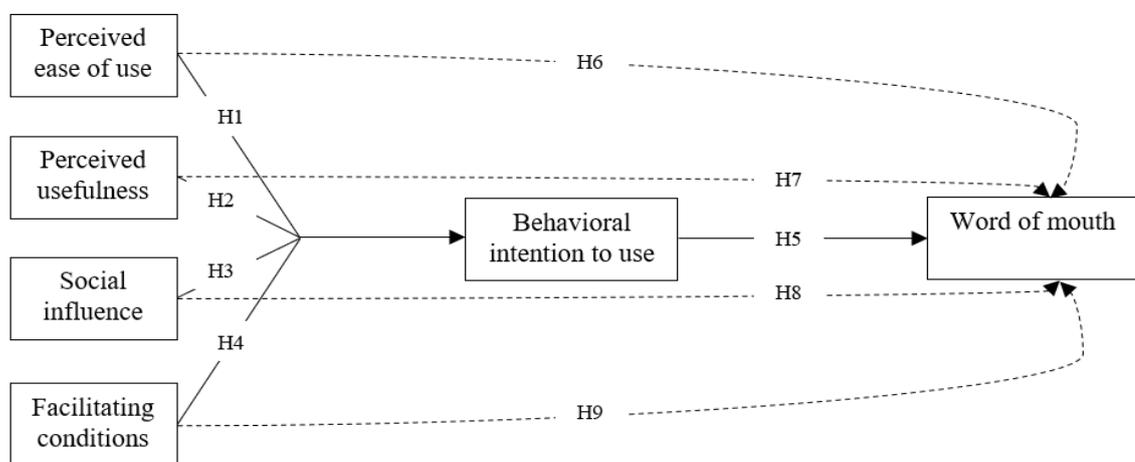
H1: Perceived ease of use has a positive effect on behavioural intention to adopt Contrimetric.

H2: Perceived usefulness has a positive effect on behavioural intention to adopt Contrimetric.

H3: Social influence has a positive effect on behavioural intention to adopt Contrimetric.

- H4: Facilitating conditions have a positive effect on behavioural intention to adopt Contrimetric.
- H5: Behavioural intention has a positive effect on WOM for Contrimetric.
- H6: Behavioural intention mediates the relationship between perceived ease of use and WOM for Contrimetric.
- H7: Behavioural intention mediates the relationship between perceived usefulness and WOM for Contrimetric.
- H8: Behavioural intention mediates the relationship between social influence and WOM for Contrimetric.
- H9: Behavioural intention mediates the relationship between facilitating conditions and WOM for Contrimetric.

The proposed model and hypotheses are presented in Figure 2.



Note. Straight lines indicate direct paths, while dotted lines indicated indirect paths

Figure 2: Conceptual model of Contrimetric adoption through a technology acceptance lens

The data were collected from academic librarians and researchers working in Chinese universities and research institutions, as they represent the primary potential users of Contrimetric. Currently, Contrimetric is being piloted in a small number of institutions, mainly within library services and research support offices. It is used to generate real-time citation reports, provide retraction alerts, and track author-level citation visibility for faculty evaluations. Early adopters include librarians managing bibliometric services and faculty members involved in publication strategy or research assessment. The target population comprised faculty members and library professionals actively involved in research support services or publication-related tasks (Yoon, Andrews, & Ward, 2022). Data were collected using a structured, self-administered questionnaire distributed both physically and via institutional mailing lists to ensure wider reach.

Data collection spanned approximately three months, providing adequate time for respondents to complete and return the surveys and ensuring an adequate sample size for statistical analysis. A non-probability convenience sampling technique was used due to its

suitability for accessing participants within academic networks and library communities. In total, 500 questionnaires were distributed, of which 420 were returned; after careful screening for missing data and outliers, 400 valid responses were included in the analysis. The high response rate (84%) was achieved by using academic mailing lists, distributing physical copies through trusted institutional contacts, and allowing a generous three-month response window. Follow-up reminders and targeting professionally relevant participants further increased engagement.

The measurement instrument was adapted from established and validated scales in previous literature, with wording modified to suit the context of Contrimetric. All constructs were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), consistent with previous TAM and UTAUT studies. See Appendix A for the survey instrument. The study was conducted in accordance with the Declaration of Helsinki. Ethical compliance was ensured by obtaining approval from the institutional review board of Zhongyuan University of Technology (#IRB-2024-0156), securing written informed consent, and using AES-256 encryption for anonymisation. Participants retained the right to withdraw without academic consequences.

Demographic information collected included gender, age, education level, and professional experience. Approximately 54% of respondents were male and 46% were female. For age distribution, 38% were between 20 and 30 years, 42% between 31 and 40 years, and 20% above 40 years. Regarding education, 28% held a bachelor's degree, 57% a master's degree, and 15% a doctoral degree. For professional experience, 33% reported less than five years, 40% had between five and ten years, and 27% had more than ten years of work experience. To ensure balanced representation, the sample included 238 faculty members and 162 library professionals. Among faculty respondents, most were from social sciences (37%), followed by education (24%), management (21%), and library and information science (18%).

RESULTS

The measurement model assessment involved examining outer loadings, internal consistency reliability, and convergent validity for all six latent variables: perceived ease of use, perceived usefulness, social influence, facilitating conditions, behavioral intention, and WOM. The results indicate that the measurement items used in this study exhibit satisfactory indicator reliability. Most items exceeded the 0.70 benchmark, and the slightly lower loadings for some perceived usefulness items are within the permissible range, especially given the adequate loadings of the other items in the construct as shown in Table 1. This confirms that the items are valid indicators of their respective latent variables and can be retained for further analysis of convergent and discriminant validity as part of the measurement model assessment.

Table 2 presents the results for Cronbach's alpha, composite reliability, and average variance extracted (AVE) for all constructs. The findings indicate that the reliability coefficients for all variables are above the recommended thresholds suggested by Hair et al. (2019). Specifically, Cronbach's alpha values for all constructs range between 0.716 and 0.824, exceeding the minimum acceptable level of 0.70, which demonstrates adequate internal consistency. Similarly, the composite reliability (ρ_c) values for all constructs are above the threshold of 0.70, ranging from 0.824 for perceived usefulness to 0.895 for behavioral intention, indicating strong internal consistency reliability. The AVE values for all constructs

also meet the recommended cutoff value of 0.50, confirming convergent validity. Behavioral intention has an AVE of 0.739, facilitating conditions 0.639, perceived ease of use 0.623, perceived usefulness 0.541, social influence 0.650, and WOM 0.642. These results suggest that each construct explains more than 50% of the variance of its indicators, demonstrating that the items are well-correlated with their underlying constructs. Overall, the measurement model exhibits satisfactory levels of reliability and convergent validity, providing a strong foundation for the subsequent assessment of discriminant validity and the structural model.

Table 1: Outer loadings

Construct	Behavioral intention to use	Facilitating conditions	Perceived ease of use	Perceived usefulness	Social influence	Word of mouth
BI1	0.894					
BI2	0.866					
BI3	0.817					
FC1		0.788				
FC2		0.873				
FC3		0.766				
FC4		0.764				
PEOU1			0.759			
PEOU2			0.764			
PEOU3			0.776			
PEOU4			0.855			
PU1				0.686		
PU2				0.740		
PU3				0.699		
PU4				0.810		
SI1					0.834	
SI2					0.824	
SI3					0.758	
WOM1						0.810
WOM2						0.846
WOM3						0.744

Table 2. Constructs reliability and validity

Construct	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
BI	0.824	0.839	0.895	0.739
FC	0.811	0.816	0.876	0.639
PEOU	0.798	0.803	0.868	0.623
PU	0.716	0.723	0.824	0.541
SI	0.731	0.740	0.847	0.650
WOM	0.719	0.722	0.843	0.642

Table 3 presents the HTMT values for all constructs. The results indicate that all HTMT values are below the conservative threshold of 0.85, confirming that each construct is empirically distinct from the others (Henseler, Ringle, & Sarstedt, 2015). Perceived usefulness, social influence, and WOM all showed discriminant validity as their inter-construct HTMT values did not exceed the threshold.–These findings confirm that the latent variables measure distinct concepts within the model and support the adequacy of the measurement model for further structural analysis.

Table 3: The discriminant validity using Heterotrait-Monotrait Ratio (HTMT)

Construct	BI	FC	PEOU	PU	SI	WOM
BI						
FC	0.745					
PEOU	0.637	0.813				
PU	0.455	0.412	0.281			
SI	0.448	0.233	0.353	0.237		
WOM	0.801	0.823	0.773	0.492	0.585	

Path coefficient analysis of the research hypothesis

Table 4 presents the path coefficients for the direct effects, including the original sample estimates, standard deviations, t-statistics, and p-values.

Table 4: Path Coefficients for direct effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
PEOU -> BI	0.152	0.152	0.073	2.082	0.037
PU -> BI	0.151	0.150	0.047	3.188	0.001
SI -> BI	0.206	0.210	0.051	4.064	0.000
FC -> BI	0.437	0.433	0.065	6.763	0.000
BI -> WOM	0.216	0.209	0.066	3.275	0.001

The results demonstrate that all hypothesized paths are positive and statistically significant at the 0.05 level, confirming support for all direct effect hypotheses in the model:

- *H1: Perceived ease of use has a positive effect on behavioral intention to adopt Contrimetric*, indicating that ease of using Contrimetric enhances users’ intention to adopt it ($\beta = 0.152$, $t = 2.082$, $p = 0.037$).
- *H2: Perceived usefulness has a positive effect on behavioral intention to adopt Contrimetric*. The result shows a significant positive influence on behavioral intention ($\beta = 0.151$, $t = 3.188$, $p = 0.001$), suggesting that users’ perception of the tool’s utility strengthens their adoption intentions.
- *H3: Social influence has a positive effect on behavioral intention to adopt Contrimetric*, the result highlighting the importance of peer and institutional endorsements in technology adoption ($\beta = 0.206$, $t = 4.064$, $p < 0.001$),
- *H4: Facilitating conditions have a positive effect on behavioral intention to adopt Contrimetric*. Facilitating conditions exhibit the strongest effect on behavioral intention ($\beta = 0.437$, $t = 6.763$, $p < 0.001$), indicating that organizational support and resources are crucial for encouraging Contrimetric adoption.

- *H5: Behavioral intention has a positive effect on WOM for Contrimetric.* Behavioral intention significantly influences WOM ($\beta = 0.216$, $t = 3.275$, $p = 0.001$), confirming that users with stronger adoption intentions are more likely to recommend and advocate for Contrimetric among peers.

These results collectively validate the theoretical model by showing that TAM and UTAUT constructs meaningfully predict behavioral intention and subsequent advocacy behaviors, providing empirical support for the role of institutional support and peer influence in promoting AI-enabled bibliometric tools.

Table 5 presents the indirect path coefficients, along with their associated t-statistics and p-values. In this study, both the 5% ($p < 0.05$) and 10% ($p < 0.10$) significance levels are considered acceptable, following guidance in social sciences research that exploratory studies may apply a more lenient threshold to capture meaningful relationships (Hair et al., 2019; Cohen, 1988). This is particularly relevant when investigating emerging technologies like Contrimetric, where empirical evidence is still limited and slightly higher p-values can provide valuable preliminary insights for theory development.

Table 5. Path Coefficients for indirect effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
PEOU -> BI -> WOM	0.033	0.032	0.020	1.652	0.099
PU -> BI -> WOM	0.033	0.031	0.014	2.357	0.018
SI -> BI -> WOM	0.044	0.043	0.016	2.739	0.006
FC -> BI -> WOM	0.094	0.090	0.031	2.999	0.003

The results indicate that behavioural intention significantly mediates most relationships between independent variables and WOM.

- *H6: Behavioural intention mediates the relationship between perceived ease of use and WOM for Contrimetric.* The indirect effect of perceived ease of use on WOM through behavioural intention is positive ($\beta = 0.033$) and marginally significant at the 10% level ($t = 1.652$, $p = 0.099$).
This suggests that ease of use indirectly contributes to WOM advocacy primarily through its influence on behavioural intention, and this effect is meaningful when using the 10% criterion, which is acceptable for exploratory research.
- *H7: Behavioural intention mediates the relationship between perceived usefulness and WOM for Contrimetric.*
The indirect path from perceived usefulness to WOM is significant at the 5% level ($\beta = 0.033$, $t = 2.357$, $p = 0.018$), indicating that perceptions of usefulness enhance advocacy via adoption intentions.
- *H8: Behavioural intention mediates the relationship between social influence and WOM for Contrimetric.*
Social influence also shows a significant indirect effect on WOM ($\beta = 0.044$, $t = 2.739$, $p = 0.006$), underlining the role of peer and institutional support in driving positive recommendations through behavioural intention.
- *H9: Behavioural intention mediates the relationship between facilitating conditions and WOM for Contrimetric.*

Facilitating conditions demonstrate the strongest indirect effect on WOM ($\beta = 0.094$, $t = 2.999$, $p = 0.003$), confirming that organisational support and resources influence advocacy behaviours mainly through strengthening users' adoption intentions.

Overall, these findings provide strong support for the mediating role of behavioural intention in most relationships. Even the marginally significant mediation path for perceived ease of use aligns with expectations in exploratory technology adoption studies, where varying significance levels can be justified to capture emerging behavioural trends. These results reinforce the theoretical argument that advocacy behaviours such as WOM is largely driven by users' internalised intentions to adopt and integrate innovative tools such as Contrimetric (see also Figure 2).

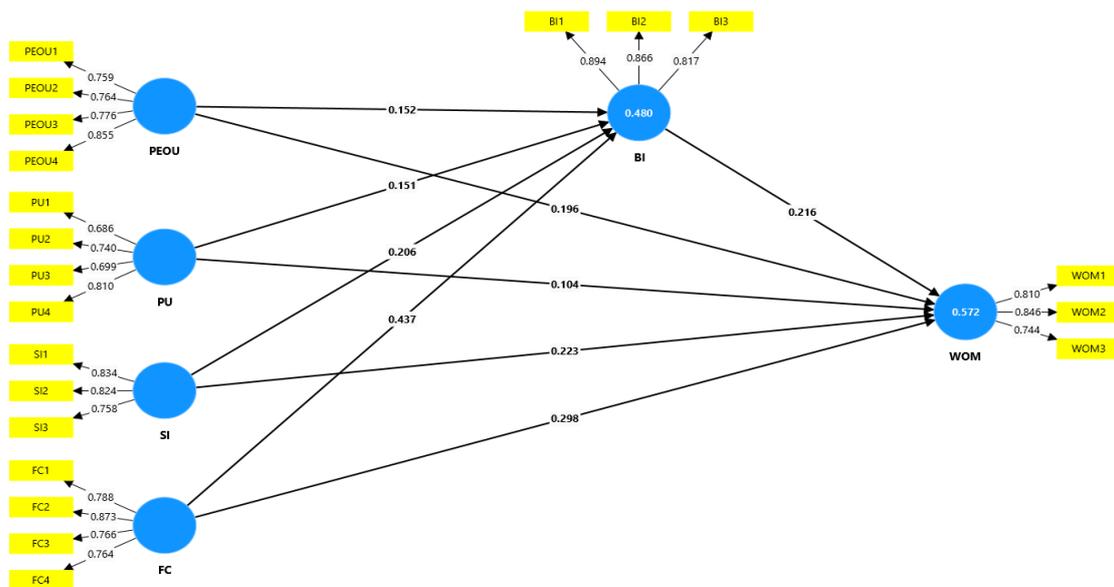


Figure 3: Structural equation model

DISCUSSION

The findings of this study reaffirm the applicability of TAM (Silva, 2015) and UTAUT (Venkatesh et al., 2003) as robust frameworks for understanding technology adoption and advocacy behaviours in academic library contexts. The results indicate that perceived ease of use, perceived usefulness, social influence, and facilitating conditions significantly predict the behavioural intention to adopt Contrimetric, which in turn drives positive WOM advocacy. These results are consistent with previous studies emphasising the central role of user perceptions and social contexts in shaping attitudes towards AI and digital library technologies (Yoon, Andrews, & Ward, 2022; Shahzad, Khan, & Iqbal, 2024). As with earlier evidence on AI-driven services, these findings show that librarians and researchers are more likely to adopt and advocate for Contrimetric when they perceive it as easy to use and beneficial for their research and professional tasks. This supports previous findings that ease of use and usefulness are fundamental to building favourable technology perceptions (Harnadi, Prasetya, & Widiantoro, 2022; Jannah & Susila, 2023; Mailizar, Almanthari, & Maulina, 2021; Shahzad & Khan, 2023; Rafique et al., 2020).

The significant roles of social influence and facilitating conditions also offer important insights for institutions. The results indicate that peer recommendations, institutional

endorsements, and technical infrastructure contribute to librarians' and researchers' intentions to adopt Contrimetric. This finding is consistent with previous evidence that institutional culture and support systems are critical enablers of AI and digital library adoption (Asante et al., 2024; Nikolopoulou, Gialamas, & Lavidas, 2020). In collectivist contexts such as China, peer norms and recommendations exert a particularly strong influence, which explains why behavioural intention translated effectively into WOM advocacy in our study. As our results show, individuals who develop strong intentions to adopt Contrimetric are also more likely to share positive experiences with colleagues and encourage broader institutional adoption. This aligns with previous work showing that behavioural intention not only predicts continued use but also catalyses advocacy behaviours (Mogaji et al., 2024; Al Halbusi et al., 2022).

Beyond validating TAM and UTAUT in a new context, this study also contributes to the growing body of literature on real-time bibliometric tools, which remain underexplored compared to broader AI applications. Our results support the argument that emerging AI-enabled plugins such as Contrimetric have the potential to enhance research visibility, streamline citation tracking, and facilitate better decision-making by academic libraries, provided that users receive sufficient training and institutional support (Contrimetric, 2025). However, as highlighted in previous studies on AI adoption in libraries (Wheatley & Hervieux, 2019; Tait & Pierson, 2022), our findings point to certain barriers that need to be addressed. Some respondents expressed concerns about technical expertise, lack of formal institutional policies, and apprehension towards new technologies, which may inhibit adoption and advocacy. While these concerns were not dominant, they indicate the importance of capacity building and policy interventions.

These findings have significant practical implications. For academic institutions aiming to implement Contrimetric, targeted training programs, continuous technical support, and clear communication of its benefits are essential to fostering positive user perceptions. As prior research suggests, addressing concerns such as skill gaps, ethical implications, and resistance to change is critical for ensuring sustainable adoption (Abid, 2021; Subaveerapandiyan, 2023). Positioning Contrimetric as an augmentation tool that enhances librarians' roles rather than replacing them is also essential for reducing anxieties related to job security, a concern frequently reported in AI adoption research (Kuo, 2023). Furthermore, investment in infrastructure and supportive institutional frameworks can amplify the effects of facilitating conditions, ensuring that users have the resources and confidence to integrate such tools effectively.

From a theoretical perspective, this study expands the scope of TAM and UTAUT by demonstrating that behavioral intention not only predicts usage but also extends to WOM behaviors. This provides a richer understanding of technology diffusion mechanisms in academic settings (Pinho, Franco, & Mendes, 2021) and highlights the importance of studying post-adoption advocacy. While our findings contribute to the literature on digital library innovations, they also suggest avenues for future research. Longitudinal studies could assess how perceptions and advocacy evolve with increased exposure to Contrimetric, and qualitative approaches could provide deeper insights into specific barriers and motivational factors. Additionally, future research could explore moderating effects of demographic factors such as age, academic rank, and prior exposure to digital tools to understand variation in adoption and WOM behaviors. The findings of this study provide empirical evidence that perceptions of ease of use, usefulness, social influence, and institutional

support strongly shape behavioral intentions and advocacy behaviors for innovative bibliometric tools like Contrimetric. While positive attitudes and WOM are encouraging for the diffusion of such tools in Chinese academic libraries, addressing barriers related to training, infrastructure, and organizational readiness (Kaushik & Agrawal 2021) remains crucial for maximizing impact. Strategic efforts that combine technical support, policy development, and peer-driven advocacy can ensure the successful and sustainable integration of Contrimetric, ultimately enhancing research visibility and the quality of academic library services.

CONCLUSION

In conclusion, this study provides empirical evidence supporting TAM and UTAUT as effective frameworks for understanding the adoption and WOM advocacy of Contrimetric among Chinese academic librarians and researchers. The findings highlight the critical roles of perceived ease of use, perceived usefulness, social influence, and facilitating conditions in shaping behavioural intention, which in turn drives positive WOM behaviours. By addressing barriers such as lack of technical expertise and institutional readiness, and by implementing targeted training programmes and supportive policies, academic libraries can accelerate the successful integration of Contrimetric. In addition to contributing to theory by linking behavioural intention with WOM, this study offers practical guidance for policymakers and library administrators seeking to leverage innovative bibliometric tools to enhance research visibility and library service quality. These insights pave the way for further research and strategic implementation, ensuring that AI-powered solutions like Contrimetric contribute meaningfully to the digital transformation of academic libraries.

Despite its contributions, this study has limitations. First, the data were collected using a cross-sectional design, which limits the ability to draw causal inferences and assess changes in perceptions and WOM behaviours over time. Longitudinal studies would provide deeper insights into how attitudes and advocacy evolve as users gain more experience with Contrimetric. Second, the study relied on self-reported measures, which may introduce common method bias or social desirability bias; future research could combine surveys with behavioural data or usage analytics to validate findings. Third, the study was conducted within Chinese academic libraries, and although this context offers valuable insights, cultural and institutional differences may limit the generalisability of results to other regions.

Future research should also consider examining the role of psychological and contextual variables such as trust in AI, perceived credibility of citation data, and organisational digital readiness. Comparative studies across countries or library systems could reveal how cultural dimensions and infrastructure maturity influence technology acceptance. Additionally, experimental or mixed-method designs could provide richer insights into user interactions with Contrimetric's features, including real-time dashboards, retraction alerts, and recommendation engines. Exploring these avenues will help build a more comprehensive understanding of how AI-powered bibliometric tools can be effectively adopted and scaled within the global scholarly ecosystem.

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CONFLICT OF INTEREST

The authors have no relevant competing interests to declare.

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Appendix A: Survey instrument

Construct	Item	References
Perceived ease of use	Learning to operate Contrimetric is easy for me. I find it easy to get Contrimetric to do what I want it to do. My interaction with Contrimetric is clear and understandable. I find Contrimetric to be flexible to interact with.	Adapted from Davis (1989), Venkatesh et al. (2003), Teo (2011)
Perceived usefulness	Using Contrimetric improves my research productivity. Contrimetric enhances my effectiveness in conducting research. Contrimetric is useful in evaluating research performance. Using Contrimetric supports my academic decision-making.	Adapted from Davis (1989), Venkatesh et al. (2003), Teo (2011)
Social influence	People who influence my academic work think I should use Contrimetric. My peers think I should use Contrimetric. People important to me support my use of Contrimetric. In my institution, people who use Contrimetric have more recognition.	Adapted from Davis (1989), Venkatesh et al. (2003), Teo (2011)
Facilitating conditions	I have the resources necessary to use Contrimetric. I have the knowledge necessary to use Contrimetric. Contrimetric is compatible with the other systems I use. A specific person (or group) is available for assistance with Contrimetric use.	Adapted from Davis (1989), Venkatesh et al. (2003), Teo (2011)
Behavioral intention	I intend to use Contrimetric regularly in my work. I will always try to use Contrimetric in research-related tasks. I plan to continue using Contrimetric in the future.	Adapted from Davis (1989), Venkatesh et al. (2003), Teo (2011)
Word-of-mouth	I will recommend Contrimetric to my colleagues. I will say positive things about Contrimetric to others. I will encourage others to adopt Contrimetric.	Adapted from Davis (1989), Venkatesh et al. (2003), Teo (2011)