Online Consumer Stickiness: A Systematic Review

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Despite the growing interest of researchers and practitioners in figuring out why users stick to some websites and not others, the resulting scholarly work is still divergent, partial, and fragmented. Online stickiness plays a vertical role in consumer decision-making, so this research domain is still developing, and a comprehensive and critical overview of existing research on this topic is sorely needed. This paper seeks to establish a scientific foundation for future research on the subject matter by conducting a thorough evaluation of the literature on online consumer stickiness via publications in peer-reviewed academic journals in various domains. A systematic analysis of 53 articles from 32 journals listed in the Association of Business Schools (ABS) or Australian Business Deans Council (ABDC) reveals a lack of consistent conceptual consistency and a conflict between stickiness's antecedents and consequences in the online context.

Keywords: online consumer stickiness, online marketing, systematic literature review

INTRODUCTION

The Internet became part of every human's daily activity. Shopping, banking, gaming, learning, communication, entertainment—everything became online. Every single moment, a new website gets published for internet users, which forces every website owner to seek different features and systems to increase users' addition to their website. The literature shows that online consumer stickiness is one of the most important features of any website type in influencing its success. When the user visits the website frequently and spends more time browsing it, this is evidence of a strong stickiness between him and this website (Chien-Lung Hsu & Liao, 2014), and when users stay on the website longer than usual, they are more likely to purchase products or services from it and are more exposed to advertisements; thus, stickiness to the website is considered one of the keys to profitability (J.-C. Lin, 2007; L. Lin, Hu, Sheng, & Lee, 2010).

Stickiness not only increases customer commitment and trust towards websites (Kumar Roy, M. Lassar, & T. Butaney, 2014) but also has a positive impact on users' purchase intentions from websites (Liu et al., 2021). Stickiness is a key antecedent to several attitudinal and behavioural outcomes such as purchase

intention (Elliot, Li, & Choi, 2013; Gao, Liu, Liu, & Li, 2018; Chin-Lung Hsu & Lin, 2016; J.-C. Lin, 2007; J. Lin, Luo, Cheng, & Li, 2019; L. Lin et al., 2010; Liu, Li, Dai, & Guo, 2021), loyalty (Kumar Roy et al., 2014); and word of mouth (S. Kim, Baek, Kim, & Yoo, 2016; Kumar Roy et al., 2014; Yu, Roy, Quazi, Nguyen, & Han, 2017; M. Zhang, Guo, Hu, & Liu, 2017; S. N. Zhang, Li, Liu, & Ruan, 2019). All of this makes academics and practitioners want to know "how to make users stay longer on any website?"

The extant literature on stickiness mainly defines stickiness from two different perspectives. First, from a website perspective, stickiness is defined as the ability of the website to attract and retain customers, which makes users stay longer on this website (Chien-Lung Hsu & Liao, 2014). Second, from the users' perspective, stickiness is defined as the repeated visit and continuous use of the website because of a deeply held commitment, despite situational influences and marketing efforts that have the potential to cause switching behaviour (D. Li, Browne, & Wetherbe, 2006). Also, some studies have linked customers' stickiness to their repeat purchase behaviour (Nemzow, 1999), whereas other studies considered stickiness as a dimension of website engagement (Y.-R. R. J. P. R. R. Chen, 2017); in another way, Fu, Chen, Shi, Bose, and Cai (2017) considered engagement as a dimension of stickiness in an online gaming context.

In this paper, stickiness was considered different from loyalty or engagement. Stickiness refers to frequent visits and time spent online, whereas loyalty is the customer's repeat purchase behaviour (J. Xu & Liu, 2010). and customer engagement is the repeated consumer-brand interactions that increase the consumer's emotional, psychological, or physical investment in the brand (M. Zhang et al., 2017).

Online consumer stickiness has been discussed in different disciplines like information management, management, marketing, etc. Also, it has been discussed widely in different online contexts, for example, e-commerce, mobile apps, social network sites, virtual communities, social commerce sites, online gaming, online learning, video websites, internet use, influencers, mainstream media websites, and live streaming shopping platforms, so every author defined stickiness according to his applied context (see table 1).

Also, the antecedents of online stickiness differed from one context to another. This led to the diversity and multiplicity of variables affecting stickiness, so comprehensive research of all previous studies has become necessary to serve as a basis for valuable future research.

TABLE 1
STICKINESS DEFINITION

	DEFINITION	REFERENCE
WEBSITE STICKINESS	The ability of websites to draw and retain customers	(Zott, Amit, & Donlevy, 2000)
	The visitor's intention to continue browsing a website	(J.-C. Lin, 2007)
E-RETAIL STICKINESS	The duration of a particular customer's visit, and insist that stickiness crucially contributes to a retailer's bottom line.	(L. Lin et al., 2010)
	The time a customer spends at an e-retail website, whether during a single visit or over multiple visits	(Kumar Roy et al., 2014)
FACEBOOK STICKINESS	Willingness to return to and prolong the duration of the stay on the Facebook website	(Yang & Lin, 2014)
YOUTUBE STICKINESS	The user's willingness to return to and prolong his or her visits to YouTube	(Chiang & Hsiao, 2015)
MOBILE APP STICKINESS	The degree to which consumers are willing to continue using a particular mobile app	(S. Kim et al., 2016)
INFLUENCERS STICKINESS	The followers' willingness to revisit a digital influencer's homepage and prolong their length of stay on it	(Hu, Min, Han, & Liu, 2020)

The systematic review of published papers on online stickiness was conducted for some reasons. First, although several previous studies focused on the causes and effects of online stickiness, these studies have not been systematically reviewed or analysed. Second, published papers came from different research disciplines, and this has provided disjointed perceived knowledge that requires structure to further its development in future research, so a systematic review of published papers will help the researcher deeply understand this phenomenon. Third, published papers were applied to different online contexts, which confirms the importance of our systematic review as a guideline for future research. Thus, it is crucial and timely to do a thorough analysis of the best available research evidence from articles that have been peer-reviewed in prestigious academic journals.

This systematic review aims to achieve three objectives: first, it reflects the current state of online stickiness research. Second, discover the nature of the published research on it. Third, determine the current research gap and the opportunity for future research on the online stickiness phenomenon. To achieve these objectives of deepening the understanding of online consumer stickiness, the following research questions are proposed:

(1) How is online consumer stickiness defined in the literature?
(2) What are the antecedents of online consumer stickiness in a different context?
(3) What are the consequences of online consumer stickiness in a different context?

This paper is structured as follows: the next section presents a systematic review methodology. Then, the results of the descriptive and thematic analyses answer the research questions. The next section discusses the research gap and future research, and finally, the limitations of the study are explained.

RESEARCH METHODOLOGY

A systematic literature review uses organised, transparent, and replicable techniques at each stage of the process to comprehensively discover and synthesise research that is relevant to a certain subject (Littell, Corcoran, & Pillai, 2008, p. 1). Snyder (2019) defined it as "a research method and process for identifying and critically appraising relevant research as well as for collecting and analysing data from said research". Based on the purposes of this study, a systematic literature review is the best strategy to respond to the research questions.

Data Selection

The Emerald, EBSCO Business Source Ultimate, Science Direct, and SCOPUS databases were used to conduct the necessary literature search for this paper. These databases offer the broadest coverage, and systematic review studies frequently use them (Vrontis, Makrides, Christofi, & Thrassou, 2021).

This paper only looked at peer-reviewed English-language journal papers, which are considered validated and have influenced knowledge (Vrontis et al., 2021). The paper excluded books, book chapters, conference proceedings, editorials, and other non-refereed publications. Also, the paper ignored any journals that haven't been listed in the Association of Business Schools (ABS) or Australian Business Deans Council (ABDC) Journal Guide.

Also, the paper used these keywords: "stickiness" and "stickiness + marketing". Based on Makrides, Kvasova, Thrassou, Hadjielias, and Ferraris (2021); Vrontis et al. (2021), the title, abstract, and keywords fields were searched to identify papers relevant to our research objectives. The paper was not restricted by date, so all papers until May 2022 were included.

Search results included 545 hits in EBSCOhost, 117 hits in Emerald, 4465 hits in Science Direct, and 111 hits in Scopus. 5238 hits were initially counted from all the data that was gathered. The paper discovered 658 possibly pertinent papers after eliminating non-academic peer-reviewed articles (786), articles not written in the English language (21), and non-ABS or ABDC journals (3773).
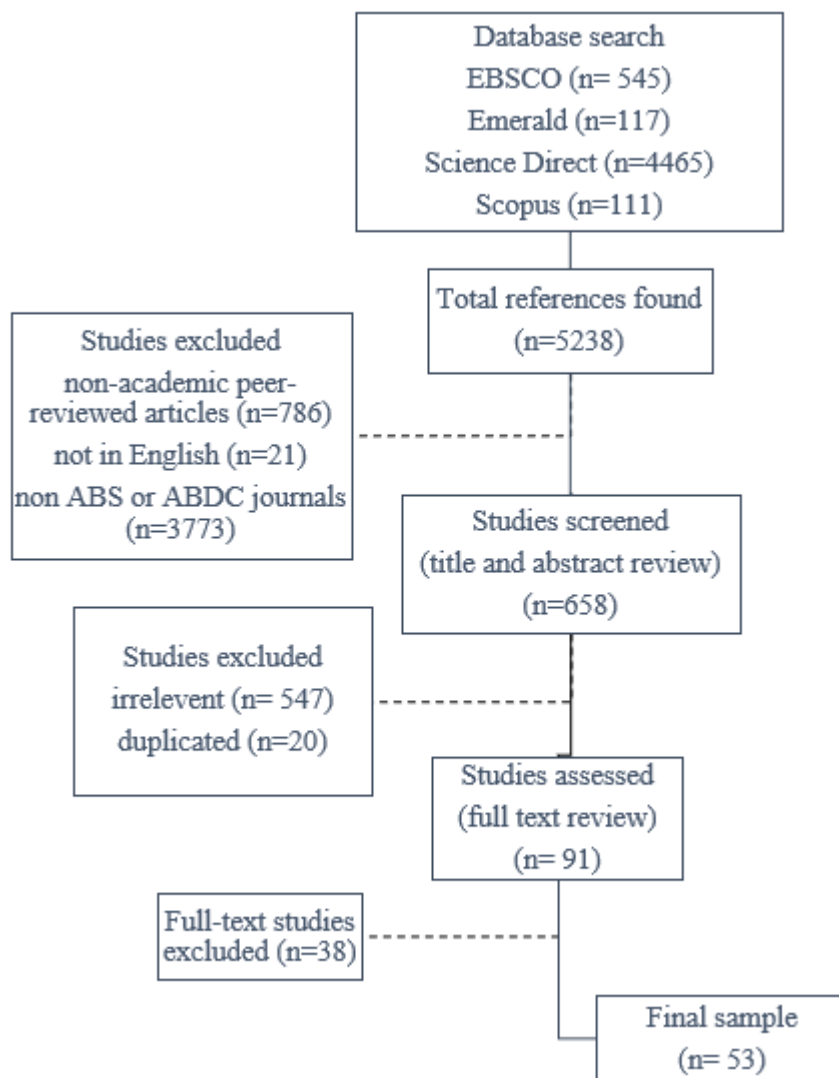
Titles and abstracts of all articles identified were manually read, then unrelated and duplicate articles were removed, leaving us with a total of 91 journal articles. This paper conducted full-text screening for the remaining articles because their relevance and eligibility were not made obvious in all titles or abstracts. Articles that measure stickiness based on repeat purchases have been excluded, and any study that was

implemented in an offline context was eliminated from the study sample because it did not address online stickiness (e.g., Hsiao et al., 2016). After this screening procedure, 53 articles about online consumer stickiness were chosen.

Data Coding

After data selection, the full text of the selected papers was read to extract relevant information for our research objectives. Using the spreadsheet, the content analysis was done manually to minimise human errors and create a transparent and repeatable record of the process (Vrontis et al., 2021). Each article was coded to (1) author(s), (2) journal title, (3) citations, (4) year of publication, (5) article name, (6) research field, (7) ABS and ABDC ranking, (8) context, (9) type of paper, (10) research objectives, (11) research variables, (12) research method, (13) type of data, (14) data collection methods, (15) statistical methods, (16) sample type, (17) sample size, (18) country, (19) findings, and (20) future research. This coding enables us to analyse the reviewed papers descriptively and thematically. Studies have already employed this strategy (Makrides et al., 2021; Vrontis et al., 2021). The review process flow chart is shown in Figure 1.
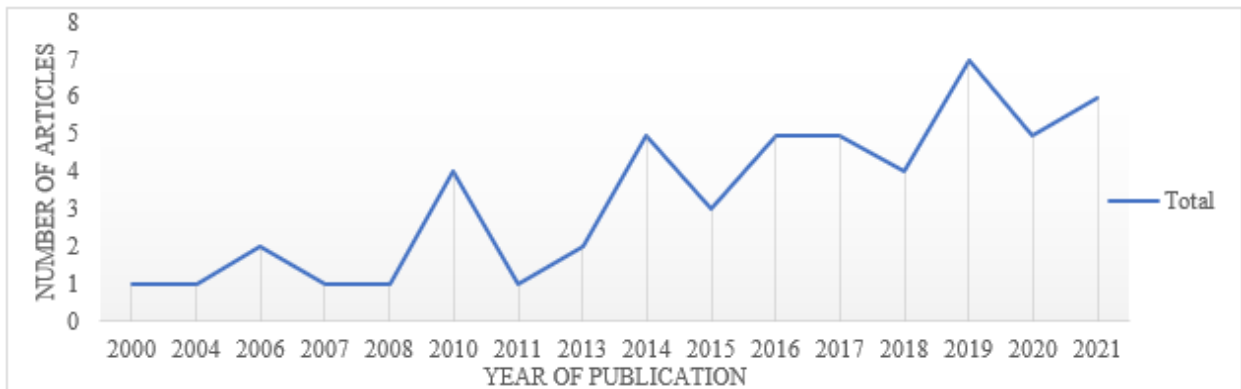
FIGURE 1
SCREENING PROCESS

DESCRIPTIVE ANALYSIS

In this section, our findings about the technical characteristics, methodological characteristics, and contextual characteristics of the 53 evaluated articles are presented. Technical characteristics include the year of publication, research field, number of citations, and publication outlets. Methodological characteristics include the type of paper, research method, and countries studied. This paper was able to pinpoint research gaps that need greater attention with the use of our descriptive analysis.

Year of Publication

Online consumer stickiness is still in its early stages of investigation; the first papers were published in 2000 (Zott et al., 2000). Figure (2) presents the frequency of published studies on online consumer stickiness, which shows that over time researchers have given this concept more attention, and the largest number of publications was in 2019 (7 papers). The chart showed the researchers' interest in understanding the nature of the customer's stickiness, so the number of studies focusing on this concept increases from year to year.

FIGURE 2
THE FREQUENCY OF PUBLISHED STUDIES

Paper Type and Methods Used

Table 2 illustrates all articles that used empirical approaches (n = 53); there are not any theoretical articles in our sample. In terms of methods in the empirical articles, 47 were empirically quantitative (surveys were the primary data collection method), four were qualitative, and two papers were a mixed-methods approach. These findings show us that first, we need theoretical studies to understand these phenomena in depth. Second, qualitative methods are critical to knowledge development. Third, we should give attention to longitudinal studies. Fourth, using big data analytics will allow us to understand customer behaviour clearly.

TABLE 2
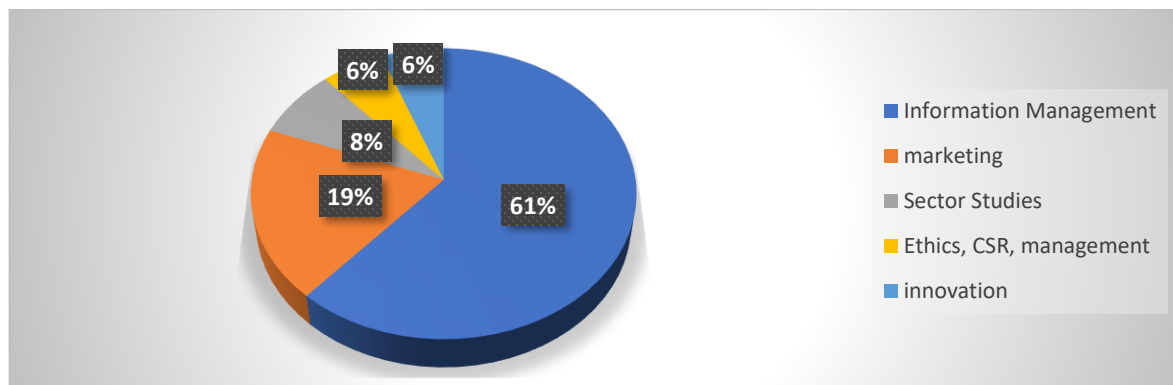**ARTICLES PER TYPE AND RESEARCH METHODS APPLIED**

Paper type	Research methods	Tool	No. of articles
Empirical	Quantitative	Survey	41
		Experiments	2
		Log data	1
		Big data	2
		Panel data	1
		Sub-total	47
	Qualitative	Interviews	2
		Secondary data	2
		Sub-total	4
	Mixed methods	the pilot study and survey	1
		Survey and in-depth interviews	1
		Sub-total	2

Research Fields and Publication Outlets

Table 3 shows that the studies on online consumer stickiness are distributed over a total of 32 journals. Six of these papers are published in Computers in Human Behaviour (2 stars/A), and five of these papers are published in Behaviour and Information Technology (2 stars/A). Three other journals published three articles: Electronic Commerce Research (2 stars/C), Applications, Information, and Management (3 stars/A*), and Online Information Review (1 star/B).

According to the ABS, the majority of papers fall into the categories of information management (n = 32; 61%), marketing (n = 10; 19%), sector studies (n = 4; 8%), ethics, CSR, and management (n = 3; 6%), and innovation (n = 3; 6%) (see figure 3). These findings prove that online consumer stickiness is an interdisciplinary concept. The number of papers published in each journal included in our study is shown in Table 3, along with the ranking of these journals in both the ABS and ABDC journal guides.

FIGURE 3
JOURNALS RESEARCH FIELDS

According to the ABCD ranking, nine articles (16.98%) are published in journals ranked A*, and 31 articles (58.49%) are published in journals ranked A. Likewise, according to the ABS ranking, 20 articles (37.7%) of the selected articles are published in journals ranked 3.

TABLE 3
LIST OF JOURNALS INCLUDED IN OUR STUDY

Research field	Journal	Author/s	No. of articles	ABS/ ABDC
Information Management	Computers in Human Behavior	(C.-S. Chen, Lu, & Luor, 2018; Y.-C. Chen, 2014; Lien, Cao, & Zhou, 2017; Molinillo, Anaya-Sánchez, & Liébana-Cabanillas, 2020; W.F. Lau & H.K. Yuen, 2013; J.-H. Wu, Wang, & Tsai, 2010)	6	2/A
	Behavior & information technology	(Gao et al., 2018; J.-C. Lin, 2007; Wei, Lin, Lu, & Chuang, 2015; J.-J. Wu & Tsang, 2008; Yen, 2016)	5	2/A
	Electronic Commerce Research and Applications	(Friedrich, Schlauderer, & Overhage, 2019; Liu et al., 2021; F. Xu, Qi, & Li, 2018)	3	2/C
	Information & Management	(Chien-Lung Hsu & Liao, 2014; J. Lin et al., 2019; Wang, Wang, & Liu, 2016)	3	3/A*
	Online Information Review	(Guo, Zhang, Kang, & Hu, 2017; Lu & Lee, 2010; N. Zhang, 2011)	3	1/B
	Industrial Management & Data Systems	(Chan, Ma, Law, Buhalis, & Hatter, 2021; Shao, Zhang, Chen, & Zhang, 2020)	2	2/A
	International Journal of Information Management	(Hu et al., 2020; M. Zhang et al., 2017)	2	2/A*
	Internet research	(Chiang & Hsiao, 2015; Yu et al., 2017)	2	3/A
Ethics, CSR, management	Journal of Business Research	(Elliot et al., 2013; J.-J. Wu, Chen, & Chung, 2010)	2	3/A
Marketing	Journal of Retailing and Consumer Services	(Y. Li, Li, & Cai, 2021; Tsao, 2014)	2	2/A
Innovation	Technological Forecasting and Social Change	(Chin-Lung Hsu & Lin, 2016; Rong, Xiao, Zhang, & Wang, 2019)	2	3/A
Sector Studies	Asia Pacific Journal of Tourism Research	(S. N. Zhang et al., 2019)	1	1/A
information management	Aslib Journal of Information Management	(Ma, Zhang, Li, & Wu, 2019)	1	1/B
	Communications of the ACM	(L. Lin et al., 2010)	1	2/A
	Decision Support Systems	(Fu et al., 2017)	1	3/A*
Marketing	European Journal of Marketing	(Kumar Roy et al., 2014)	1	3/A*
Ethics, CSR, management	European Management Journal	(Zott et al., 2000)	1	2/B
Marketing	industrial Marketing Management	(Laczko, Hullova, Needham, Rossiter, & Battisti, 2019)	1	3/A*
Information Management	Information Technology & People	(Yang & Lin, 2014)	1	3/A

Research field	Journal	Author/s	No. of articles	ABS/ ABDC
Sector Studies	International Journal of Contemporary Hospitality Management	(K.-H. Lee & Hyun, 2016)	1	3/A
information management	International Journal of electronic commerce	(D. Li et al., 2006)	1	3/A
Sector Studies	International Journal of Hospitality Management	(El-Manstrly, Ali, & Steedman, 2020)	1	3/A*
Marketing	International Journal of Retail & Distribution Management	(Martinez & McAndrews, 2021)	1	2/A
	Journal of Consumer Marketing	(Nandi, Nandi, & Khandker, 2021)	1	1/A
Sector Studies	Journal of Convention & Event Tourism	(Beldona & Cai, 2006)	1	1/B
information management	journal of Electronic Commerce Research	(C. H. Lee, Chen, Chen, & Lin, 2021)	1	1/B
Innovation	Journal of Innovation & Knowledge	(T.-H. Hsu & Tang, 2020)	1	1
Marketing	Journal of Interactive Marketing	(S. J. Kim, Wang, & Malthouse, 2015)	1	3/A
	Journal of Product & Brand Management	(C. T. Lee & Hsieh, 2019)	1	1/A
	journal of Research in Interactive Marketing	(S. Kim et al., 2016)	1	1/B
	Journal of services marketing	(Bansal, McDougall, Dikolli, & Sedatole, 2004)	1	2/A
	Telematics and Informatics	(C.-H. Lee, Chiang, & Hsiao, 2018)	1	C

Citation Analysis

This paper collected article citation data using Google Scholar to determine the influence of selected articles. Table 4 lists the top 28 articles in terms of the total number. The ten most cited articles accounted for 59.7% of the total citations of all 53 articles. D. Li et al. (2006) is the most cited paper with 554 citations, followed by Wu et al. (2010) with 472 citations.

TABLE 4
CITATIONS ON MAY 24, 2022

journal	Citation count	Authors
International Journal of electronic commerce	554	**(D. Li et al., 2006)**
Journal of Business Research	472	**(J.-J. Wu et al., 2010)**
Computers in Human Behavior	461	**(J.-H. Wu et al., 2010)**
International Journal of Information Management	438	**(M. Zhang et al., 2017)**
European Management Journal	394	**(Zott et al., 2000)**
Information & Management	354	**(Wang et al., 2016)**

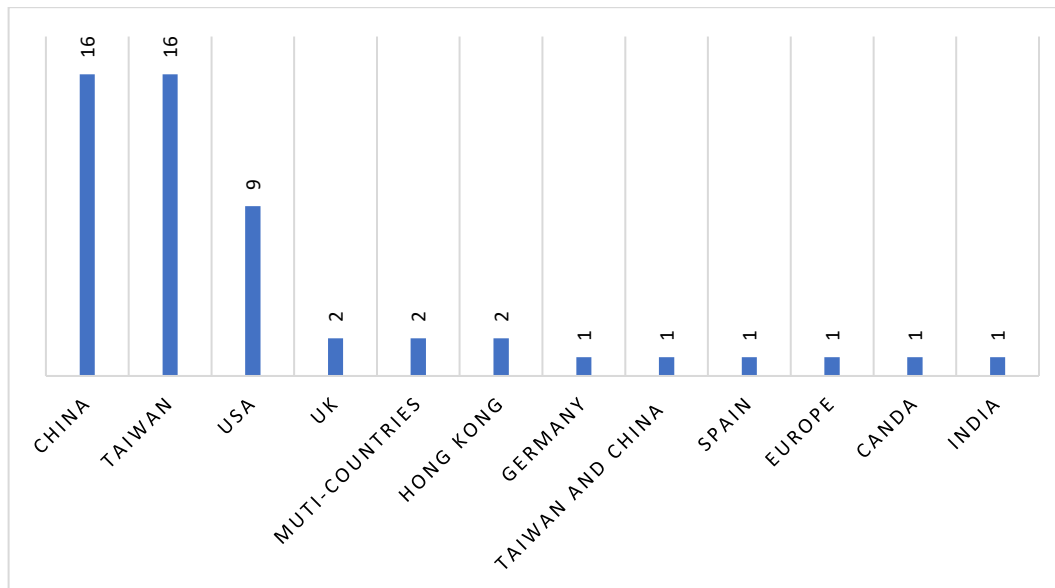| journal	Citation count	Authors
Behavior & information technology	325	**(J.-C. Lin, 2007)**
Journal of services marketing	322	**(Bansal et al., 2004)**
Journal of Interactive Marketing	278	**(S. J. Kim et al., 2015)**
Technological Forecasting and Social Change	276	**(Chin-Lung Hsu & Lin, 2016)**
Behavior & information technology	214	**(J.-J. Wu & Tsang, 2008)**
Computers in human behavior	203	**(Lien et al., 2017)**
Computers in human behavior	141	**(Molinillo et al., 2020)**
Journal of Business Research	140	**(Elliot et al., 2013)**
European Journal of Marketing	131	**(Kumar Roy et al., 2014)**
Internet research	128	**(Chiang & Hsiao, 2015)**
Information & Management	124	**(Chien-Lung Hsu & Liao, 2014)**
Information Technology & People	122	**(Yang & Lin, 2014)**
Online Information Review	112	**(Lu & Lee, 2010)**
journal of Research in Interactive Marketing	103	**(S. Kim et al., 2016)**
Journal of Convention & Event Tourism	92	**(Beldona & Cai, 2006)**
Computers in Human Behavior	92	**(W.F. Lau & H.K. Yuen, 2013)**
Information & Management	86	**(J. Lin et al., 2019)**
Internet Research	86	**(Yu et al., 2017)**
Communications of the ACM	70	**(L. Lin et al., 2010)**
Behavior & Information Technology	69	**(Wei et al., 2015)**
International Journal of Information Management	64	**(Gao et al., 2018) (Hu et al., 2020)**
Computers in Human Behavior	61	**(Y.-C. Chen, 2014)**
NOTE: NOT INCLUDED ARTICLES WITH LESS THAN 60 CITATIONS.		

Countries Studied

In this part, we will discuss the geographic coverage of empirical studies. China and Taiwan were the most examined countries (n = 16), and there was one study applied to China and Taiwan together. The USA is examined in nine studies. The UK and Hong Kong were examined twice. Two paper samples were from multiple countries.

Bansal et al. (2004) studied the impact of e-satisfaction on stickiness applied to multiple countries' e-retail websites using data provided by Nielsen. Fu et al. (2017) applied Dragon Nest (a worldwide online game).

Only one study sample was from Europe. Germany, Spain, Canada, and India were examined only once, as shown in Figure 4. As the results show, future research should do cross-cultural studies that provide intriguing information and outcomes that can be generalised in addition to providing a thorough grasp of cultural differentiation. Africa and the Middle East need more attention to understand more about customer behaviour in online contexts and capture potential factors that impact online consumer stickiness in these countries.

FIGURE 4
COUNTRIES STUDIED BY EMPIRICAL ARTICLES

THEMATIC ANALYSIS

In this section, we will go deeper to understand the theoretical basis of the reviewed articles. Following Makrides et al. (2021); and Vrontis et al. (2021) thematic analysis approach, our 53 selected articles were content-analysed, taking into account purpose, research questions, hypotheses, main constructs, and concepts to determine the phenomena with which each article was concerned. This step enabled us to determine common features between our selected articles and group them into four major research themes: (1) online consumer stickiness context; (2) a definition of online consumer stickiness; (3) antecedents of online consumer stickiness; and (4) outcomes of online consumer stickiness.

Online Consumer Stickiness Context

In this part, the number of studies that have been conducted in each online context will be reviewed to determine contexts that have been sufficiently studied and contexts that need further research and study. E-commerce is the most studied context in our selected articles (11 articles), and that is because it was a new phenomenon while the internet was growing and getting more popular, yet researchers still want to understand customer attitude in the e-commerce context.

Since 2014 and the wide spread of mobile applications like LINE, which has been used for chats, other social mobile applications have been launched like WhatsApp, WeChat, TikTok, etc. Also, every site, whether commercial, social, travel, or news provider, worked to have its mobile application closed to its users. All of them are competing to develop, improve, and update their apps to increase customer stickiness. In our selected papers, ten articles studied user stickiness to the mobile application, and we still need more research and studies in the future. With the advent of social networking sites, starting with blogs and forums, researchers want to determine the factors influencing users' stickiness to these sites. Social media platforms like Facebook, Twitter, Instagram, etc. have attracted the attention of researchers as well (8 articles), and it is expected that the number of studies that are interested in users' stickiness with them will increase in the coming period.

Virtual communities appeared with the emergence of social media, so researchers studied activities and practises associated with this context and their impact on the user's stickiness to these communities (6 articles). Recently, social commerce sites have appeared, which refer to a "new wave of e-commerce

wherein traditional e-commerce companies use social media or social networking services to promote online transactions and shopping-related information exchanges" (J. Lin et al., 2019).

Social commerce sites are a subcategory of e-commerce that use social media platforms to facilitate e-commerce transactions and any related activities (Hajli & Change, 2014). According to Lim et al. (2019), social commerce is a business concept that mixes social media platforms like Facebook, Twitter, and YouTube with commercial activities (e.g., marketing, advertising, and word of mouth), and only four articles were published from 2019 to 2022; thus, this sector needs further study and research.

Despite the presence and spread of online games, revenue in the online games segment is projected to reach $23.56 billion in 2022 (statista.com). Stickiness in online games is different; players can play the same game for years because of the feeling of achievement that they get from it (e.g., Silkroad and Conquer). Studies that focused on studying the player's stickiness to online games were only four articles long, so this sector needs more attention in future research. The paper sample included only two articles concerned with the e-learning context, and the researcher expected a greater number of articles in this context, especially after the coronavirus pandemic that led every learning institute to e-learning.

Although the existence of websites specialised in providing tourism and travel services was presented, our selected sample included only two articles that were interested in stickiness in this context: one of them was an exploratory study (Beldona & Cai, 2006), and the other was big data analytics (Chan et al., 2021).

Only two articles dealt with the video industry context. Chiang and Hsiao (2015) studied stickiness on YouTube. Rong et al. (2019) explored the user stickiness of two competing business models in the online video industry: the 'merchant' model and the 'two-sided platform' model. Stickiness to internet use, influencers, mainstream websites, or live-streaming shopping platforms was not the researchers' intention, but it's important, which makes us expect more research in these contexts (see Table 5).

TABLE 5
NUMBERS OF PAPERS IN EACH CONTEXT

CONTEXT	NO	REFERENCES
E-COMMERCE	11	(Bansal et al., 2004; Friedrich et al., 2019; Gao et al., 2018; Kumar Roy et al., 2014; Laczko et al., 2019; D. Li et al., 2006; J.-C. Lin, 2007; L. Lin et al., 2010; Wang et al., 2016; Yu et al., 2017; Zott et al., 2000)
MOBILE APP	10	(Chin-Lung Hsu & Lin, 2016; T.-H. Hsu & Tang, 2020; S. Kim et al., 2016; S. J. Kim et al., 2015; C. T. Lee & Hsieh, 2019; Lien et al., 2017; Martinez & McAndrews, 2021; Nandi et al., 2021; Tsao, 2014; S. N. Zhang et al., 2019)
SOCIAL NETWORK SITES	8	(Guo et al., 2017; Chien-Lung Hsu & Liao, 2014; Lu & Lee, 2010; Shao et al., 2020; Wei et al., 2015; Yang & Lin, 2014; M. Zhang et al., 2017; N. Zhang, 2011)
VIRTUAL COMMUNITIES	6	(El-Manstrly et al., 2020; Elliot et al., 2013; K.-H. Lee & Hyun, 2016; J.-J. Wu et al., 2010; J.-J. Wu & Tsang, 2008; Yen, 2016)
SOCIAL COMMERCE WEBSITE	4	(C. H. Lee et al., 2021; J. Lin et al., 2019; Liu et al., 2021; Molinillo et al., 2020)
ONLINE GAMES	4	(C.-S. Chen et al., 2018; Fu et al., 2017; C.-H. Lee et al., 2018; J.-H. Wu et al., 2010)
ONLINE LEARNING	2	(Y.-C. Chen, 2014; Ma et al., 2019)

CONTEXT	no	References
TOURISM WEBSITES	2	(Beldona & Cai, 2006; Chan et al., 2021)
ONLINE VIDEO INDUSTRY	2	(Chiang & Hsiao, 2015; Rong et al., 2019)
INTERNET USING	1	(W.F. Lau & H.K. Yuen, 2013)
INFLUENCERS	1	(Hu et al., 2020)
MAINSTREAM WEBSITES	1	(F. Xu et al., 2018)
LIVE STREAMING SHOPPING PLATFORMS	1	(Y. Li et al., 2021)

Online Consumer Stickiness Definitions and Dimensions

Online stickiness concept has been used in more different contexts, and in every context, it was taken from different perspectives. However, online consumer stickiness definitions were so closed between different contexts. For example, in e-commerce, context stickiness has been defined as "the ability of websites to draw and retain customers" (Zott et al., 2000) or "the time a customer spends at an e-commerce website, whether during a single visit or over multiple visits" (Kumar Roy et al., 2014).

In the context of mobile applications, the researcher defined stickiness as "the degree to which consumers are willing to continue using a particular mobile app" (S. Kim et al., 2016). In the context of online games, stickiness was defined as the level to which the player is willing to return to the game and lengthen the playing time during each session (J.-H. Wu et al., 2010) (see table 1).

Stickiness measures users spending time on every visit, the frequency of their visits, and whether they're willing to repeat visiting or spend more time in this context, and that proved that stickiness and loyalty are different concepts. If loyalty refers to repeat purchases, stickiness influences purchase intention.

Questionnaires were the measurement tool used in our selected quantitative articles, so users reported their spending time, their repeating visits, and their willingness to spend more time or repeat visiting this website themselves. And most of these articles measure stickiness as a unidimensional concept. Only F. Xu et al. (2018) and Y. Li et al. (2021) measure stickiness through two dimensions (visit duration and user retention) and explain that when users spend more time on a website, it can drive them to repeat visiting this site.

In an online gaming context, Fu et al. (2017) showed that three perspectives should be used to measure stickiness: first, the engagement feature, which refers to the time spent by a player in the game. Second, the performance feature refers to the achievements, abilities, and honours of a player. Third, social interaction features refer to the strength of a player's social ties in the game.

Big data analytics were used in only four articles to measure user stickiness to websites (Chan et al., 2021; Fu et al., 2017; S. J. Kim et al., 2015; L. Lin et al., 2010), which provided more accurate data than the questionnaire provided. This type of data allows them to avoid biases or errors that happen when they use questionnaires.

Finally, online consumer stickiness includes stickiness to an online store, blog, forum, social media platform, online game, tourism website, or any other website type. Online stickiness refers to the duration of browsing and the repeating visits of users to any online context.

Antecedents of Online Consumer Stickiness

Every context has its antecedents, which may be similar or different from any other context. In this part, this paper will discuss the antecedents of online consumer stickiness in each context in our selected papers.

E-commerce Users' Stickiness

E-commerce platforms have a lot of types. Business-to-business (B2B), business-to-consumer (B2C), and consumer-to-consumer (C2C) are the most common types that have been studied in our selected papers. Although this variety exists, most papers prove that stickiness's antecedents in this context are: satisfaction (Bansal et al., 2004; Gao et al., 2018; Wang et al., 2016; Yu et al., 2017); trust (Friedrich et al., 2019; D. Li

et al., 2006; J.-C. Lin, 2007; Wang et al., 2016); commitment (D. Li et al., 2006; Wang et al., 2016); and attitude (J.-C. Lin, 2007; Yu et al., 2017).

In addition to these variables, J.-C. Lin (2007) reported that website perceived value (content, context, and infrastructure) positively affects users' stickiness to retail websites, but Wang et al. (2016) rejected this result and confirmed that there is no significant relationship between perceived value and stickiness. Further, e-servicescape (aesthetics, interactivity, and navigability) has a positive impact on stickiness (Kumar Roy et al., 2014).

Gao et al. (2018) indicated that presence (telepresence and social presence) and psychological need satisfaction (autonomy and relatedness) are positively related to stickiness to C2C websites. Finally, Friedrich et al. (2019) proved that perceived usefulness and enjoyment have a positive effect on stickiness to e-commerce websites.

Mobile Application Users' Stickiness

In the context of mobile applications, studies were categorised into four categories:

(1) studies applied to any mobile application user.

S. Kim et al. (2016) considered mobile app usefulness and playful engagement as user stickiness antecedents, and their results confirmed that mobile app usefulness and playful engagement have a positive relation to stickiness. Also, perceived values from using mobile apps (hedonic value and utilitarian value) have a significant effect on user stickiness (Chin-Lung Hsu & Lin, 2016; Nandi et al., 2021).

Chin-Lung Hsu and Lin (2016) affirmed that attitude and satisfaction have a positive effect on stickiness, and they also mediated the relationship between perceived value and stickiness. Social identification has a positive effect on user stickiness (Chin-Lung Hsu & Lin, 2016).

Nandi et al. (2021) argue that hedonic value harms stickiness, but utilitarian value has a positive effect on it. Moreover, flow and self-efficacy are positively related to app user stickiness, but perceived interactivity showed an insignificant direct influence on stickiness (Nandi et al., 2021).

(2) Studies applied to mobile messaging apps

Their results showed that user satisfaction influences their stickiness towards this app (Lien et al., 2017; Tsao, 2014), and it also mediates the effect of user innovation differentiation and user online habits on stickiness (Tsao, 2014). Brand engagement is positively associated with stickiness to messaging apps (C. T. Lee & Hsieh, 2019).

(3) Studies applied to retailing apps

Martinez and McAndrews (2021) suggested different antecedents to retailing app users' stickiness, which are product promotion features, multimedia product viewing, and consumer-led interaction features. They hypothesized that the relationship between these antecedents and stickiness to retailing apps would be mediated by pleasure, arousal, and dominance.

(4) Studies applied to travel apps

S. N. Zhang et al. (2019) confirmed that satisfaction had a positive influence on stickiness, regardless of the type of mobile app, and mediated the relationship between perceived travel app advantages (ease of use and usefulness) and user stickiness with these apps.

Social Networking Sites Users' Stickiness

In social networking sites, there are a lot of social networking site types (blog, forum, microblog, photo sharing, video sharing, bookmarking, and social media), and every site has its characteristics, so there are a lot of antecedents of stickiness to these sites. Some studies gave attention to determining the effect of user factors on stickiness, like the need for cognition (Lu & Lee, 2010), attitude (Wei et al., 2015), engagement (Guo et al., 2017; M. Zhang et al., 2017), and satisfaction (Shao et al., 2020).

Other studies determined the effect of site factors on user stickiness like site quality (content quality, content quality, and system quality) (Lu & Lee, 2010), perceived information and accessibility (Chien-Lung Hsu & Liao, 2014), perceived value (epistemic value, social value, and hedonic value) (Yang & Lin,

2014), value creation (functional value, hedonic value, and social value) (M. Zhang et al., 2017), and technology affordance (interactivity, information, and navigation affordance) (Shao et al., 2020).

Virtual Communities' Members' Stickiness

In virtual communities, trusting belief was the main variable that impacted online user stickiness towards any virtual community, whether it was travel, games, computer information, or product information (El-Manstrly et al., 2020; Elliot et al., 2013; K.-H. Lee & Hyun, 2016; J.-J. Wu et al., 2010; J.-J. Wu & Tsang, 2008). In the educational community, knowledge-sharing intention would be an important variable that impacts member stickiness in this type of community (Yen, 2016).

Trust not only has a direct impact on stickiness, but it is also a mediator in other relationships. K.-H. Lee and Hyun (2016) confirmed that value-creation practises (social networking, community engagement, and brand use) have an indirect effect on user stickiness towards virtual communities through trust. Results show that there was a positive effect between solution acceptance and community member stickiness.

Also, members' satisfaction has a positive impact on their stickiness towards communities (Elliot et al., 2013; J.-J. Wu et al., 2010). Also, two papers explore the impact of commitment on community members' stickiness. J.-J. Wu et al. (2010) declined any relationship between commitment and stickiness, but El-Manstrly et al. (2020) indicated that there was a direct effect of commitment on stickiness in addition to an indirect effect of communication quality on stickiness through commitment and trust.

Social Commerce Sites Users' Stickiness

The antecedents of social commerce sites users' stickiness have not been sufficiently studied, as some studies consider social commerce sites a subcategory of e-commerce sites, but users' stickiness to social commerce sites such as Facebook Marketplace is affected by their stickiness to the social network site itself. In addition, social commerce sites provide other ways to display products different from e-commerce sites, such as videos showing the product's use, influencer reviews, or real customer reviews.

Molinillo et al. (2020) and C. H. Lee et al. (2021) indicated that customer engagement has a positive impact on online consumer stickiness towards social commerce sites. This means that when consumers are highly engaged with social websites, they visit them frequently and spend more time on them.

Online Gamers' Stickiness

According to the online gaming context, previous studies have determined some variables that influence online player stickiness. J.-H. Wu et al(2010) . indicate that continuance motivation has a strong impact on a player's stickiness, whereas continuance motivation is significantly influenced by the perception of gratification.

C.-H. Lee et al. (2018) suggest that stickiness is a consequence of flow and satisfaction. Results confirmed this relationship and clarified that service quality is an important tool for player satisfaction, but C.-S. Chen et al. (2018) disagreed with C.-H. Lee et al. (2018), who indicated that there is no significant influence between flow and stickiness and provided that gratification has a positive influence on stickiness and flow.

Online Learner's Stickiness

Satisfaction is a common variable between contexts, and its impact on stickiness is felt not only in online gaming and virtual communities but also on online learning websites (Ma et al., 2019). Also, gratification has a positive impact on student stickiness towards online learning (Y.-C. Chen, 2014). In addition to that, learning outcome expectations and learning climate positively affect student stickiness (Y.-C. Chen, 2014).

Video Websites User's Stickiness

Video website studies discussed that continuance motivation, "which refers to the continuous inner drive for sharing videos, and sharing behaviour, "which refers to the willingness of individuals to share

their videos with others, have a positive impact on stickiness towards video websites (Chiang & Hsiao, 2015).

Also, Rong et al. (2019) examined user stickiness on two types of video websites. First, merchant online video websites buy videos from creators and resell them to end-user customers (e.g., Netflix). Second, two-sided video websites encourage users to share their content with others (e.g., YouTube). The results indicate that two-sided websites have more user stickiness than other websites.

Influencers' Followers' Stickiness

Only one study has discussed stickiness towards digital influencers; Hu et al. (2020) explained that audience involvement has four closely related forms: transportation, parasocial relationships, identification, and worship. But only parasocial relationships and wishful identification have a positive impact on followers' stickiness.

Internet Users' Stickiness

The stickiness of teenagers towards internet use has been affected by their parents' styles. W.F. Lau and H.K. Yuen (2013) discuss the impact of parent style on teenagers' internet stickiness. There are four parent styles: encouragement, worry, monitoring, and permission.

Worry style, monitoring style, and permission style were positively associated with the internet using stickiness. Youth's internet stickiness would be affected by other different variables that need to be determined in future research.

Mainstream Media Users' Stickiness

Mainstream media websites have a strong social influence and can guide public opinions, so it is very important to determine the antecedent of stickiness towards these websites. F. Xu et al. (2018) indicated that web quality (content quality and system quality) has a positive influence on user stickiness towards mainstream media websites, in addition to the positive influence of customer engagement (social interaction, enthusiasm, and conscious participation) on user stickiness.

Live Streaming Shopping Users' Stickiness

Some e-commerce websites provide live streaming services to improve consumers' purchase experiences. This type of website is called a live-streaming shopping platform. Y. Li et al. (2021) examined the effect of emotional attachment to streamers and platform attachment on user stickiness towards the live-streaming shopping platform. The result showed that emotional attachment and platform attachment have a positive impact on user stickiness.

Outcome of Online Consumer Stickiness

Although the antecedents of stickiness change according to context, several attitudinal and behavioural outcomes have been acknowledged as key consequences of stickiness in any context (see table 6).

First, purchase intention is the most variable that has been studied (Elliot et al., 2013; Gao et al., 2018; Chin-Lung Hsu & Lin, 2016; J.-C. Lin, 2007; J. Lin et al., 2019; L. Lin et al., 2010; Liu et al., 2021). All results confirmed that when customers spent more time on their favourite website, they would be willing to purchase more products or services from it (whether it is a social commerce site, virtual community, mobile app, or e-commerce website). Consequently, stickiness has been identified as a critical factor in profitability (J.-C. Lin, 2007; L. Lin et al., 2010).

Second, stickiness can increase online word of mouth (S. Kim et al., 2016; Kumar Roy et al., 2014; Yu et al., 2017; M. Zhang et al., 2017; S. N. Zhang et al., 2019). Stickier users are more likely to spread positive word of mouth about the website (whether an e-commerce website, social media platform, or mobile app). Word of mouth can also affect other users' decisions. When the user speaks positively about any website, he encourages others to use it.

Third, loyalty has often been considered a consequence of stickiness (Kumar Roy et al., 2014). When users spent more time on the sticky website, it would impact their loyalty to it.

Fourth, Lien et al. (2017) proposed a relationship between stickiness and mobile app usage intention. Their result indicates that users' stickiness has a positive influence on their intentions of using the mobile app.

Fifth, In the social commerce context, J. Lin et al. (2019) studied the impacts of stickiness on swift guanxi dimensions (mutual understanding, reciprocal favour, and relationship harmony). They found a positive association between stickiness and swift guanxi dimensions on social commerce sites.

Sixth, Liu et al. (2021) propose that stickiness has a positive influence on customer-product interaction and interpersonal interaction. Their results approved this relationship on social commerce sites. Finally, stickiness is an important feature of any website that impacts its revenue or profit in highly competitive online environments.

TABLE 6
KEY ANTECEDENTS AND CONSEQUENCES OS STICKINESS

CONTEXT	ANTECEDENTS	CONSEQUENCES	REFERENCES
E-COMMERCE	web site characteristics satisfaction		(Bansal et al., 2004)
	Commitment Trust		(D. Li et al., 2006)
	Attitude Trust Website's perceived value	Intention to transact	(J.-C. Lin, 2007)
		purchase intention	(L. Lin et al., 2010)
	e-service scape web quality	Loyalty Word of mouth	(Kumar Roy et al., 2014)
	Satisfaction Commitment Trust		(Wang et al., 2016)
	E-satisfaction Attitude	Word of mouth	(Yu et al., 2017)
	Presence psychological need satisfaction (autonomy and relatedness)	Purchase intention	(Gao et al., 2018)
	perceived usefulness Trust perceived enjoyment		(Friedrich et al., 2019)
MOBILE APP	Satisfaction		(Tsao, 2014)
	Perceived benefits (Mobile app usefulness Playful engagement)	Mobile app word of mouth	(S. Kim et al., 2016)
	Perceived value (hedonic value and utilitarian value) Attitude Satisfaction	Attention to in-app purchases	(Chin-Lung Hsu & Lin, 2016)
	Satisfaction	Usage intentions.	(Lien et al., 2017)
	Perceived advantage (ease of use and usefulness) Satisfaction	Word of mouth	(S. N. Zhang et al., 2019)
	brand engagement		(C. T. Lee & Hsieh, 2019)

CONTEXT	ANTECEDENTS	CONSEQUENCES	REFERENCES
	product promotion features multimedia product viewing consumer-led interaction features		(Martinez & McAndrews, 2021)
	Perceived interactivity Perceived value (hedonic value, utilitarian value) Flow Self-efficacy		(Nandi et al., 2021)
SOCIAL NETWORK SITES	Web quality Need for cognition Perceived social influence		(Lu & Lee, 2010)
	Perceived information accessibility		(Chien-Lung Hsu & Liao, 2014)
	Perceived value (epistemic value, social value, and hedonic value)		(Yang & Lin, 2014)
	Attitude		(Wei et al., 2015)
	Customer engagement customer value creation		(M. Zhang et al., 2017)
	fan engagement behavior		(Guo et al., 2017)
	Technology affordance dimensions (Interactivity, Information, and Navigation) Satisfaction		(Shao et al., 2020)
VIRTUAL COMMUNITIES	trusting belief		(J.-J. Wu & Tsang, 2008)
	Trusting belief Satisfaction Commitment		(J.-J. Wu et al., 2010)
	Satisfaction Trust	Intention to transaction	(Elliot et al., 2013)
	Value creation practices Trusting belief Solution acceptance		(K.-H. Lee & Hyun, 2016)
	Knowledge share intention		(Yen, 2016)
	Trust Commitment Communication Quality		(El-Manstrly et al., 2020)
SOCIAL COMMERCE SITES		Mutual understanding Reciprocal favor Relationship harmony Purchase intention	(J. Lin et al., 2019)
	Customer engagement		(Molinillo et al., 2020)
		Customer-to-customer interaction (product interaction and	(Liu et al., 2021)

CONTEXT	ANTECEDENTS	CONSEQUENCES	REFERENCES
		interpersonal interaction) Purchase intention	
	Customer engagement		(C. H. Lee et al., 2021)
ONLINE GAMING	continuance motivation		(J.-H. Wu et al., 2010)
	Flow Satisfaction		(C.-H. Lee et al., 2018)
	Flow Gratification		(C.-S. Chen et al., 2018)
ONLINE LEARNING	Gratification Outcome expectation Learning climate		(Y.-C. Chen, 2014)
	User satisfaction		(Ma et al., 2019)
VIDEO WEBSITES	Continuance motivation Sharing behavior		(Chiang & Hsiao, 2015)
	exclusive play, membership fees, advertising duration, video clarity, the number of VIPs, type of platform		(Rong et al., 2019)
INTERNET USING	parent style (encouragement, worry, monitoring, or permission)		(W.F. Lau & H.K. Yuen, 2013)
INFLUENCERS	wishful identification parasocial relationship		(Hu et al., 2020)
MAINSTREAM MEDIA WEBSITES	Website quality Customer engagement		(F. Xu et al., 2018)
LIVE STREAMING SHOPPING PLATFORMS	Emotional attachment Platform attachment		(Y. Li et al., 2021)

RESEARCH GAPS AND FUTURE RESEARCH

Although online consumer stickiness has been studied by a lot of researchers in different fields, these papers have a limited understanding of the nature of online stickiness and its antecedents according to the applied context. Therefore, in this section, this paper will present all the research gaps found in the reviewed papers and provide a set of recommendations for future researchers. Future studies will be organised around three areas (theory, context, and methodology).

Theory

The systematic review found that multiple theories were used by several authors (e.g., commitment-trust theory, use and gratification theory, social capital theory, social identity theory, social cognitive theory, motivation theory, flow theory, platform theory, technology affordance theory, and attachment theory). However, a lack of a coherent and clear theoretical base dominates. This gap happened because online

stickiness has been discussed in different disciplines and contexts. Future research should use a broader variety of theoretical perspectives and interdisciplinary research for a deeper and more comprehensive understanding of online user behaviour.

Stickiness has two types of consequences (Nandi et al., 2021): positive consequences (such as customer loyalty benefits) and negative consequences (such as identity theft, stress, and health issues). Previous research has studied the positive impact of online customer stickiness (such as loyalty, word of mouth, purchase intention, etc.). Future studies should focus on the negative impact of stickiness and discover the dark side of a lack of stickiness (such as switching costs, negative word of mouth, loss of loyalty, etc.). Stickiness impacts website profitability, so it is very important to understand the negative consequences if the website fails to achieve stickiness between it and its users.

Context

E-commerce Context

Consumer stickiness to e-commerce websites has been discussed in a lot of papers, whether on B2B, B2C, or C2C websites. All studies confirmed the importance of website design and its infrastructure because of their impact on consumer stickiness to e-commerce websites. Although this context is the most studied in our selected sample, several research gaps must be examined in future studies, such as the impact of the marketing mix (such as preferred customer programmes and strategies) (Yu et al., 2017), the impact of the user's perceptions of web usability, web flow, and perceived values from e-commerce websites (hedonic value and utilitarian value) (Yu et al., 2017), and the effect of psychological needs (Gao et al., 2018) on the e-commerce user's stickiness. Also, researchers need to determine the characteristics of the website and the characteristics of the user, which have an effect on consumer stickiness to this website (Bansal et al., 2004).

Previous studies have proven the impact of user stickiness on users' purchasing decisions. Therefore, the impact of privacy and security on consumer stickiness to the commercial site needs more attention in future research. And so that researchers can accurately know the extent of the stickiness's impact on the profits of the websites, future studies must take advantage of genuine online buyer data from numerous online retailers (Gao et al., 2018). Also, previous studies have highlighted the relationship between trust and users' willingness to continue using e-commerce platforms, but future studies must explore the effects of trust aspects such as trust intention, institution-based trust, and trust disposition (Wang et al., 2016).

Finally, most of the previous studies were concerned with identifying the factors that positively affect user stickiness to the website so that practitioners would be interested in them to increase the profits of their commercial sites, but the factors that may negatively affect stickiness should also be identified in future research, such as information overload (Friedrich et al., 2019).

Mobile Apps Context

The mobile applications context is a very thorny and complex context due to the great diversity in the application types such as social networking applications (Facebook, Instagram, etc.), shopping apps (Amazon, SHEIN, etc.), messaging applications (WhatsApp and Telegram, etc.), video publishing applications (such as TikTok), photography and photo editing applications (such as PICSART, and Face app), banking services applications, and other applications that provide different services and benefits to the customer, which makes the result of any application study difficult to generalise, so future studies need to identify distinctive characteristics of each application and its features and impact of them on app user stickiness.

Also, future studies should be applied to different types of applications to try to find common factors between different applications (such as application quality, aesthetic appearances, etc.), and these factors will be the infrastructure for any application developer who releases a new application. Also, future studies could investigate whether the backfire effect might occur when perceived mobile applications are too universal and personalised (S. Kim et al., 2016).

Recently, some brands have created mobile applications for brand users to purchase brand products through them instead of using general shopping apps that offer many brands through them. This

phenomenon requires further understanding of the effect of brand love, brand engagement, and brand loyalty on the user's stickiness to a specific brand application.

Social Network Sites Context

With technological and software developments, social networking sites, which may recently be called social media platforms, have developed. There are various categories of social networking sites; the five most common types are social connection, professional connection, sharing of multimedia, informational, and educational. Future studies need to study user stickiness on different types and styles of social networking sites and the impact of system characteristics, individual personalities, and cultural factors on user stickiness to this website (Wei et al., 2015).

Facebook is one of the most used websites in the world; the number of Facebook users has reached 2.96 billion monthly active users as of the third quarter of 2022 (statista.com), and Facebook differs from other websites by providing a myriad of services such as chats, posts, games, commerce, info streams, sponsored links, picture and video sharing, stories, reels, and virtual communities and groups (Yang & Lin, 2014). In addition to its ease of use through browsers or mobile applications and access to all the features available on it.

Also, the developers of this site are interested in having a suitable interface for each user according to the way they browse the site, whether from their browser or their application, so this social networking site needs more research and study to know the factors affecting its users' attachment to it. Not only does Facebook have its features, but every social networking site is trying to have a unique feature to make its users very sticky. So future studies must determine the common factors between different social networking sites that affect user stickiness. In addition to determining the specific factors for each website.

Virtual Communities' Context

The number of virtual communities is increasing daily, and the interests of each community differ from the others. Virtual communities could be categorised as travel communities, technology communities, gaming communities, educational communities, informational communities, entertainment communities, etc. Future research needs to study stickiness across a wide variety of virtual communities (El-Manstrly et al., 2020; Yen, 2016).

Usually, virtual communities use it to access information and previous experiences from other members of the community to make purchasing decisions. Therefore, the number and length of reviews and other social factors may affect the member's stickiness to the community (El-Manstrly et al., 2020). Also, future studies must examine how social capital and social identity affect a member's stickiness to one virtual community rather than another (Yen, 2016). Also, it needs to determine the effect of shared values and privacy policies on stickiness (J.-J. Wu et al., 2010). In previous studies, there was a difference in the results of studies on the effect of commitment on user stickiness to virtual communities, which requires more research in future studies (J.-J. Wu et al., 2010).

Social Commerce Sites Context

Previous studies on social commerce sites have focused on engagement as a key factor in influencing stickiness to this new type of site. Despite the importance of this context, which is due to many companies, sellers, or individuals using social networking sites in commerce due to the easy access to potential customers through them, this context has not been sufficiently studied in previous studies, and many research gaps need to be filled in future research, such as social networking site types and the difference in commerce between these sites.

C. H. Lee et al. (2021) explored the difference between Instagram and Facebook, but these results are insufficient and need further study. We also need to study the effect of self-efficacy, common identity, and common bonds on stickiness to these sites. According to previous studies, stickiness has an impact on achieving profits. Therefore, in future studies, we need to determine the impact of stickiness to social commerce sites on the profits of the companies that intend to use them and thus help both marketers and decision-makers learn how to use social commerce sites in the best possible way to achieve more profits.

Online Gaming Context

Despite the huge investments in online games, in addition to the huge number of players that is increasing daily, there are limited studies that study player stickiness to online games, which may remain for years. Our selected sample included only four studies in this context, including two studies applied to Pokémon GO (C.-S. Chen et al., 2018; C.-H. Lee et al., 2018), which may indicate the need for more future research to understand stickiness behaviours in this context. Future research can examine the effect of both playfulness and enjoyment on player stickiness to online games, as well as the effect of games' plots and the types of online games on stickiness (J.-H. Wu et al., 2010).

We also need more attention to study the stickiness of games available on social networking sites such as Facebook games, as well as games that are available through phones such as PUBG and other location-based AR mobile games like Ingress and Parallel Mafia, which deserve investigation. Future studies need to identify all common factors between games that affect player stickiness to them, in addition to determining the characteristics of each game individually that affect player stickiness to this game.

Online Learning Context

Despite having used e-learning for a long time, COVID-19 has increased its use. In addition to establishing many educational platforms, whether providing learning services for free or for fees. website quality, website characteristics, and e-servicescape became important variables that may have an impact on the user's stickiness to a learning website. Also, the availability of the same educational service through more than one service provider may have an impact on the user's stickiness to a specific educational site. Future research needs to discuss the difference between the site that provides educational services such as recorded videos without any direct interaction between the student and the teacher, the site where access to the educational service is through direct interaction between the student and the teacher, and the educational site that provides both features, studying the differences in user behaviour in all of them.

Language education sites are some of the most popular educational sites, such as Verbing, iTalk, Preppy, Crumble, Amazing Talker, etc., and all of them need more research to understand the factors affecting the user's stickiness to one of these sites and not others. In addition to specifying the characteristics of each site individually. future research should be concerned with studying education through social networking sites and identifying the factors affecting learners' stickiness to one of the e-educational service providers and not others.

Video Industry Context

Rong et al. (2019) show that there are two competing business sites in the online video industry. The first are merchant sites that buy or produce visual content and display it to the viewer. The number of these sites has increased in recent years, such as Netflix, Disney Plus, and others, so we need more understanding of user behaviour in choosing and sticking to one of these sites, and we have previously explained the impact of stickiness on achieving profits. Second, the two-sided sites allow any visual content creator, whether commercial or non-commercial, to present their content to the users of this site (e.g., YouTube and TikTok). In future research, we need to gain a better understanding of the nature of the behaviour of users of these different types and determine the reasons for the users' stickiness with them.

YouTube is considered one of the most popular sites specialising in publishing videos, and despite that, there is only one study in our selected sample that was concerned with determining the reasons for user stickiness towards YouTube specifically. So, it is expected that several future studies will be interested in studying this site and determining the reasons for users' stickiness with it. Because there are a very large number of channels or content creators on YouTube, we need to determine the reasons why YouTube users are sticky with one of the channels or video creators on this site and not with others, and that will help content makers develop and improve their content, thereby increasing subscriptions to their channels and users' stickiness to them.

The users of video sites are not limited to adults; children and teenagers are considered target segments by the content makers on both types of sites. For example, CVS 3D Rhymes & Kids Songs YouTube channel (31.3 million subscribers and more than 19 billion views), Peppa Pig Official Channel (29.4 million

subscribers and more than 21 billion views), and Toy Pudding TV channel (26.8 million subscribers and more than 15 billion views) are YouTube channels that target kids. So, future research needs to understand the reasons why children, teenagers, or adults are stuck with one of the content creators and not others. We also need to study the role of parents and their impact on their children's YouTube use and stickiness to it, or their stickiness to one of its content makers.

Many mobile applications provide video publishing services (such as TikTok, Facebook Watch/Reels, Instagram Videos/Reels, etc.). Future research should determine the reasons for the user's stickiness with one of these applications when he or she wants to watch videos, as well as the outcomes of this stickiness. The effect of continuance motivation and sharing behaviour on users' stickiness towards YouTube has been studied (Chiang & Hsiao, 2015), but in future research, we need to study the impact of other factors such as entertainment value, type of content published, website quality, web design, and website features on users' stickiness.

Internet Using

W.F. Lau and H.K. Yuen (2013) studied the effect of the role of parents on adolescents' use of the Internet and their stickiness with it, but we still need to understand the impact of other variables such as cultural and social factors, country infrastructure, ease of access to Internet services, cost of access to the Internet, etc. on user stickiness to the internet.

Adolescents and children are considered a large marketing segment for the various types of existing websites. Statista.com showed that Internet users between the ages of 18 and 24 represent 22.8% of Internet users. UNICEF confirmed that, at the global level, it is estimated that one child in three is an internet user, and that one in three internet users is a child under 18 years of age. So, targeting this segment achieves very large profits for various websites such as online games, video sites, e-commerce, etc. because a teenager's or a child's stickiness to a website not only affects their purchasing intentions but also affects the purchasing intentions of the family (Kaur & Medury, 2011). We also need future research to pay attention to this interesting segment and understand the reasons for their stickiness with different websites, applications, and games.

Influencing Context

There are a lot of platforms where the influencer can communicate with his followers. So, the influencer needs to select the platforms that he or she prefers to use in communicating with his or her followers. Does the presence of the influencer on more than one platform impact his or her followers' stickiness towards him or her? It is expected that the greater the number of platforms on which the influencer appears, the more followers will relate to him or her, and this proposition needs to be tested in future research.

Hu et al. (2020) have shown the effect of involvement on followers' stickiness to the influencer, but there are several factors that we need to examine in future research, such as attachment, content types, platform feature use, and social currency.

Mainstream Media Context

Mainstream media is defined as media that has great power, reaches a large audience, directs public opinion, and has a strong social influence (F. Xu et al., 2018). There are a lot of mainstream media firms all over the world (such as Google News, USANetwork.com, CNBC, CNN.com, etc.). Therefore, future research needs to understand the reasons why the user is stuck on one of these sites and not others. (F. Xu et al., 2018). examined the impact of website quality and engagement on the user's stickiness to mainstream sites, but in future research, we need to identify all the reasons or factors that affect user stickiness to this type of site, such as social environment, web design, entertainment, web feature characteristics, perceived value, and cultural factors.

Live Streaming Shopping Context

Y. Li et al. (2021) confirmed the effect of attachment, whether by platform or streamer, on the user's stickiness to the Taobao live website. Therefore, we need to research other platforms such as TikTok and

Amazon Live, which help researchers and practitioners understand the nature of the behaviour of the user of these sites and the factors affecting his stickiness with them. Future research should be interested in studying other variables besides the ones that have been studied, such as type of platforms, type of streamers, and culture and their impact on the user's stickiness to the live streaming shopping platform.

Methodology

We have previously explained that all our selected papers were empirical. Most of these papers were quantitative studies, and there were only four qualitative studies, although it's important to understand the research phenomenon deeply and clearly in addition to their ability to develop knowledge by extending or building a theory. Therefore, conducting qualitative analysis in the future (such as observation, interviews, etc.) will explain more of the reasons for the multiplicity of factors influencing online consumer stickiness and help in a deeper understanding of this phenomenon and its impact on user behaviour. Also, there were only two mixed-methods articles among the papers we chose, and additional mixed-methods research in the future will help us understand our phenomena better and enable us to generalise the findings.

As for quantitative papers, several gaps have been identified to be discussed in future research:

First, most of the papers used convenience samples, which cannot always be appropriate and lead to biases in respondents' selection, and thus it is difficult to generalise the results.

Second, only one paper used longitudinal data, and the other studies were cross-sectional. It is essential to conduct longitudinal studies to monitor user behaviour over time and the various stages that the user's interaction with the website goes through.

Third, our selected papers included only two experimental studies, despite their importance in analysing causal relationships and identifying the actual factors that may affect the user's behaviour, thus providing more accurate results for the antecedents of stickiness.

Fourth, primary data were collected using a questionnaire survey in most papers, which provided limited data and led to common-method bias. In addition, respondents were current users, thus introducing potential self-selection bias or non-response bias. Using actual data available on websites can be considered in future research. Also, researchers can use machine learning and natural language processing to analyse interactive content such as comments and audio to reach more accurate results that can be generalised.

Finally, future research could also give respondents browsing control and capture screen time to avoid any bias that could arise from using surveys. And using big data analytics can also provide different types of data that help discover the secrets of user behaviour and the factors influencing and predicting it.

As we explained in the descriptive analysis part, most of our selected papers have been done in China, Taiwan, and the USA, so future studies can be done in other countries like the Middle East and African countries to understand more about customer behaviour in online contexts and capture potential factors that impact online consumer stickiness in these countries. In addition, cross-cultural studies will provide interesting information, and the results could be generalised in addition to providing a deep understanding of cultural differentiation.

The behaviour of the online user is one of the most difficult variables that can be studied because it is affected by multiple and different factors. Stickiness is a key factor in the success of any website, and this is what all previous studies have proven. Also, previous studies tried to determine the antecedents of stickiness, which differed from one context to another. Future research is an attempt to identify some of the factors that may have an impact on the online consumer's stickiness to any website type so that practitioners, managers, and marketers can use these factors to add new success factors to their websites and to understand the reasons for the online consumer's stickiness with one of the websites. We need to understand the nature and characteristics of this site, identify all the factors associated with it, and then study the impact of these factors on the user's stickiness to this site.

LIMITATION

The current study included several limitations that need to be considered in future studies. First, stickiness was defined as a completely different concept from loyalty or engagement, so we excluded any

article that defined stickiness as a customer's repeat purchase behaviour or defined stickiness as a dimension of engagement. Second, we studied online stickiness only, so any articles that studied offline stickiness have been excluded. Third, our systematic review used four academic databases (Emerald, EBSCOhost, Science Direct, and SCOPUS). Although these databases are considered the most recognised and complete scientific databases, they might have omitted some relevant articles published in other databases. Fourth, our sample included only English articles published in peer-reviewed academic journals, including the ABS or ABDC journal quality guide. We may have excluded some relevant works, such as book chapters, conference proceedings, editorials, and other non-refereed publications that may offer insightful perspectives. Fifth, it's possible that not all pertinent articles were included due to the search criteria and filtering procedure. Notwithstanding these restrictions, we are convinced that the systematic review's techniques have decreased the likelihood that any omitted data will cause our results to change.

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