

A systematic literature review (SLR): How do social networks increase social capital?

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(Communicated by Rahman Marefat)

Abstract

Real and legal people are seeking to increase their social capital via social networks all over the world. Therefore, most recent studies on networks focus on the way of increasing social capital in this way, and each of them has addressed this issue from one aspect. The present research aimed to provide an integrated literature review and develop a comprehensive model for promoting social capital via social networks. The research method had a systematic literature review (SLR) type. Open, axial, and selective coding methods were used for data analysis. In this search, 2338 documents were found and 46 ones were selected for in-depth review after applying exclusion criteria. Therefore, the obtained narratives were categorized into 66 codes, 14 sub-categories, and 5 main categories. This research led to the creation of a new model that included the following categories: The user's motivation to use social networks, the technical and media structures of social networks, the intensity and use of networks, the individual's behavior in social networks (communication and participation, observer, grouping, helping, self-disclosure, applying rational criteria of benefit-cost, and enjoyment and entertainment), bonding social capital, bridging social capital, and maintenance of social capital. This model can be a basis for increasing social capital via social media.

Keywords: social capital, social media, social network users, bonding social capital, bridging social capital, maintenance of social capital

2020 MSC: 62P25, 91D30

Introduction

Efforts to increase social capital by people, enterprises, and governance institutions are natural and long-standing phenomena in the global arena [72].

The researchers' findings indicate that media are the best tools to communicate with people with a vast effect and spread; hence, governing bodies and politicians have used media, especially social networks, in recent years to send direct or implicit messages to the general public to increase their social capital and digital platform [11, 68]. As a strategy, the Internet has greater effects on social capital than mass media [23].

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There are few studies on modeling and conceptualizing the relationship between social media and capital [34]. Furthermore, the lack of a model and a systematic approach to social categories has caused a lot of costs and damage to many Iranian organizations [54].

Despite the vast research on the relationship between social capital and media, it is still necessary to indicate the quality and quantity of this relationship. Accordingly, the present research sought to identify and evaluate components of social capital promotion in social media as well as the relationship between these concepts.

According to the examination of studies on increasing social capital via social networks, each research has investigated one or more effective components in this field. For example, some studies have addressed only the general relationship between social capital and networks, but have not mentioned its quality and quantity.

Some articles have considered social capital as a whole unit, but others have classified the principle of social capital into 2 to 6 separate components.

Some other studies have only focused on the effectiveness of specific behavior to promote the social network and neglected other underlying factors.

Some studies have paid attention to the technical structure of social networks, and others have not taken this important component into consideration. Furthermore, the literature review indicates that a model can be efficient in a social network platform but inefficient in another platform.

Owing to all these theoretical gaps, the present study aimed to provide a systematic literature review in this field to obtain a comprehensive model.

The present research utilized a systematic literature review (SLR) to determine the model of using social networks to promote social capital. This systematic review aims to accumulate the data obtained from first-hand research studies. This research method combines the data of primary studies and achieves a comprehensive and reliable image of the research topic. Furthermore, it is sought to collect all models and concepts in relevant articles, and then obtain a comprehensive model by combining them. This research seeks to find answers to the following questions:

1. What is the comprehensive model of promoting social capital via social networking sites?
2. What are the dimensions and components of the social capital promotion model via social networking sites?

Literature review and research background

Social capital

Social capital is a popular concept that has emerged in sociology in recent years and it seeks to investigate and create values based on society and social networks as a well-known sociological proposition [22]. On the other hand, there is no single definition for it owing to the wide application of the concept of social capital. This concept focuses more on social relations, networking, and the creation of trust [13]. The distinctive feature of social capital is that it does not rely exclusively on personal or social benefits rather it defines personal benefits as a tool to secure social benefits. Therefore, social capital is explained and finds meaning in the context of public interest [41].

Putnam, as an important theorist of social capital with a power-based and political approach to this concept, describes social capital as a comprehensive umbrella term that covers the relational aspects of structured and semi-structured networks, the practical norms of the network, and reliability and provides social cohesion for the network (social group) through these functions. Social capital can have two aspects: A cognitive aspect that reflects the individuals' attitudes and tendencies for interpersonal interaction, and communication that reflects the power of social communication in society [42].

The use of social media at work has caused fundamental and serious changes in employees' behavior in today's competitive market where organizations do not ignore minor internal and external changes in organizations [19]. Technology-based innovations, including social media, have enriched organizations and provided many capabilities and applications for organizations such as creating new business models and marketing methods, new learning methods, increasing innovation, sharing knowledge, and communication [46].

The extent of social capital, as a theoretical basis for various fields, has roots in its purpose, that is, the examination of dynamics and systematic value of social relations. Accordingly, many researchers believe that social capital has become increasingly important for decision-makers and policy-makers. The central core of social capital lies in the mutual relationships in wide social networks and it creates mutual value for activists and the social system [21].

Social capital and roles of media in its promotion

Social capital can be considered a measurable resource of organizations. A part of this measurable resource in today's environment, which is intertwined with the concept of social media, can be called the social network capital of an organization. In other words, social media capital refers to the capital that an organization has in social networks or is obtained on social networks [65].

Social networks and media

A social network is an interactive online environment that allows people to communicate, share ideas and information, and exchange feelings in society [9]. A social network is a set of people or groups that are connected to each other through meaningful social relationships. The Internet provides a context for social interaction, encourages people to connect with people who share similar interests and creates social unity. This sense of friendship, which can be obtained via social networks, may be helpful in creating a loyal organizational culture, increasing morale and a general sense of unity among employees, and ultimately resulting in the social capital of employees in an organization or society [67].

Social networks and social capital

Organizations can save costs, interact with customers, and create trust in customers' minds via social media. Furthermore, social media can provide better services every day with innovations and updates of their features [32]. The marketing activities of companies in social media affect the customers' purchase intention by affecting their social identity, perceived value, and customer satisfaction [14].

Compared to private institutions, public institutions have an easier way to get social capital because even though the use of media with a commercial structure does not have a significant relationship with the reduction or increase of social capital, the use of media with public and democratic structures increases social capital [23].

The literature review indicates that social media in the general sense and their roles in the production, sharing, and integration of knowledge, and then creating social capital have been investigated until now [53].

According to studies, all social media help increase social capital [6]. Digital communication can strengthen social capital owing to its low cost and easy access [65].

Methodology

According to the research questions, the present research is basic in terms of purpose, cross-sectional in terms of data collection time, and descriptive in terms of data collection method or research method and nature, and seeks a comprehensive and standard review of existing studies on the "relationship between social capital and use of social networking sites". Based on the collection of documentary data, this study is a systematic literature review (SLR) which improves the quality of the research review and analysis of results owing to the use of a codified and repeatable procedure [50].

Moher et al. [39], consider a systematic literature review as a standardized method for examining the evidence on a specific topic. Systematic review means a cumulative review of scientific research that reveals strengths, weaknesses, and gaps in knowledge background and provides an opportunity to provide a general picture of research efforts in a specific subject. It also allows researchers to discover new relationships and provides the basis for future studies.

The systematic review of the present study utilizes the study by Hill et al. The proposed method has 10 steps that are classified into three stages [25]:

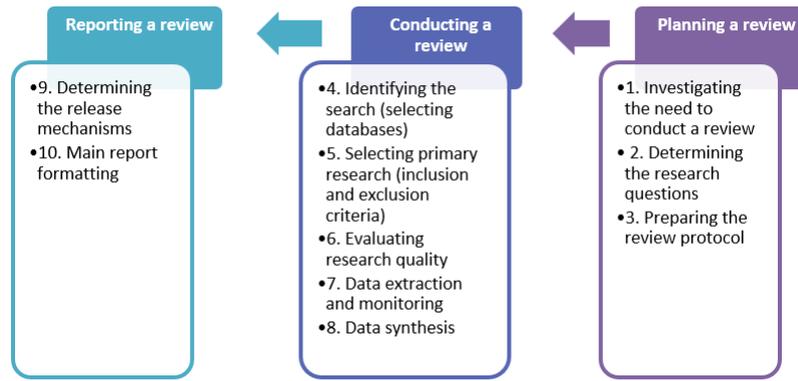


Figure 1: The process of conducting a systematic review [25]

Furthermore, the statistical population of the research consisted of scientific-research articles about social capital and media. The desk method was used to collect data in this research. The need to conduct a systematic review and research questions were mentioned earlier and the research protocol was set at the beginning of the study.

Research sources

The foreign scientific databases were generally searched in databases that often had articles about management, social sciences, and media. The following top three universities in Iran in terms of having scientific research publications constituted a search criterion in the Persian databases: The scientific journal database of Islamic Azad University (121 journals), the scientific journal database of the University of Tehran (104 journals), and the scientific journal database of the Ferdowsi University of Mashhad (45 journals) respectively. The Scientific Information Database (SID) was also utilized.

The following reliable databases were used to access foreign and domestic research articles:

Table 1: Selection of databases

Type of source	English articles	Persian articles
Database	googlescholar.com sciencedirect.com springer.com taylorandfrancis.com emeraldinsight.com	sid.ir journals.ut.ac.ir journals.iau.ir

Since the emergence of social networks started with Orkut social network in Iran in 2005 [20], the statistical population of this research consists of scientific-research articles on the relationship between social capital and media that have been written since the beginning of 2005.

Furthermore, the present research was conducted from mid-August to the end of January 2022. Persian and English languages were searched in this systematic literature review.

Table 2: Inclusion and exclusion criteria of primary studies

Inclusion criteria	Publication from 2005 to 2023
	Persian and English languages
	Evaluated articles
	Publication in reliable scientific journals A and B in domestic journals and Q1 and Q2 in foreign journals
	Journals about management, media, or social sciences
	Direct simultaneous connection with social capital components and social networking sites (SNS)
Exclusion criteria	Lack of simultaneous focus on “social capital” and “social networking sites” concepts
	Writings other than articles (editorials, a chapter of a book, or book review, ...)
	Publishing in a period outside the specified time

The search in scientific-research information sources was performed simultaneously in three categories to consolidate the search:

1. Titles of articles
2. Keywords section
3. Abstract of articles

We tried to consider all the keywords at the beginning of the search and if we came across other keywords during the search, they were re-included in the search.

Table 3: Search keywords in databases

Research questions	English keywords
What is the comprehensive model of social capital promotion via social networking sites?	Social capital social media social network social network site digital platform
What are the dimensions and components of the social capital promotion model via social networking sites?	Bonding social capital Bridging social capital Promoting social capital

Some similar keywords were removed to determine the boundaries of this research more precisely, including individuals' social networking, virtual space, and digital space because investigating all studies with these keywords is time-consuming and reduces the accuracy of research boundaries due to the large number of research with these keywords.

Analytical framework

Consideration of the above-mentioned criteria significantly reduced the number of studies in the review research. In the first stage, the sources were searched based on the above criteria and the number of sources reached 2338. The zero number of articles received in three consecutive pages of the search in a database was the criterion for stopping the search in that database. In the second stage, duplicate sources indexed in different databases were removed.

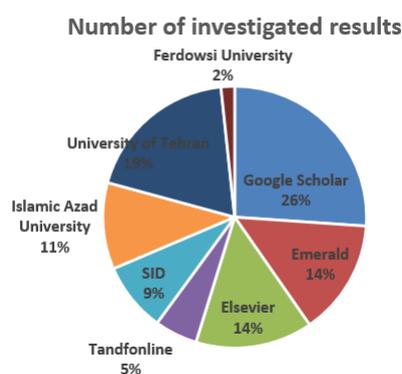


Figure 2: The contribution of each scientific database in 2338 articles and scientific works reviewed in the first stage

In the third stage, only the following articles were selected:

1. The articles which studied the main element (social capital or network) and their mutual relationship.
2. The articles which had a judgment stage; in other words, only articles, which were published in scientific research journals or prestigious conferences, were selected for the second stage because we could rely on their scientific evaluation and consider their scientific method valid.
3. The articles which were published in journals about management or media.

4. There was full access to their text.

After examining the titles and abstracts of the studies, irrelevant sources were removed both in terms of content relevance and the appropriateness of the research field; and the number of studies reached 101.

In the fourth stage, 101 article titles were investigated in terms of the scientific rank of the accepted journal, and the high compliance with the topic of the present research. Descriptive analysis or bibliographic analysis was performed at this stage. Different sections of the article, methods, and data were reviewed and articles, in which the results were worth mentioning or meaningless by the researcher, were excluded. In cases where the abstract of the article was not enough to make a decision, the conclusion and the research method sections were also studied. A total of 55 out of 101 articles were excluded for the following reasons in the third stage:

Table 4: Reasons for excluding the articles in the fourth stage

Reasons for excluding the articles in the fourth stage	Number
Journals with no rank and a rank lower than B in domestic journals using .msrt.ir, and q3 and q4 ranks in foreign journals using scimagojr.com	24
Repetitious	6
Unreviewed books or articles	8
Articles that do not focus on the "social capital" dimension or social networks	14
Articles that do not have meaningful results from the author's perspective	3
Total	55

Finally, 46 studies with complete content appropriateness were extracted and the rest were removed after examining the obtained models or the theory used in each research.

Table 5: The number of articles found from certain sources at the end of each stage of screening

Source of search	Output of the first and second stages	Output of the third stage	Output of the fourth stage
Google Scholar	610	34	18
Sage	334	24	6
Elsevier	336	14	10
Tandfonline	123	10	2
Islamic Azad University	250	5	3
Scientific Information Database (SID))	200	3	1
Ferdowsi University of Mashhad	39	1	0
University of Tehran	44	11	6
Total	2338	101	46

The set of selected studies was reviewed several times, and articles and texts, which did not match the topic, were excluded at each stage. The following figure shows the frequency of articles by year, indicating that the contribution of products related to the relationship between social networks and capital has increased year by year.

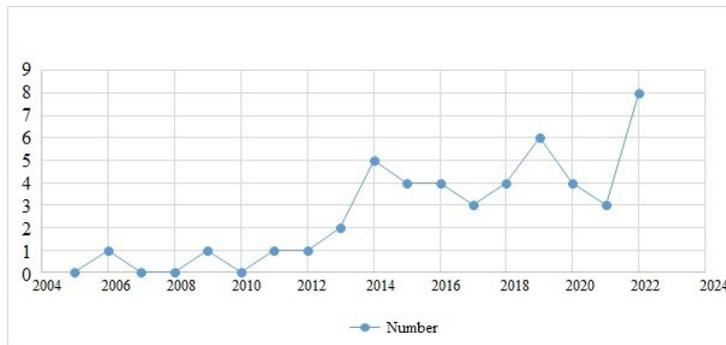


Figure 3: Distribution of selected articles in terms of publication year

The contribution of each publisher in 46 final articles indicates that most final articles in this regard are published by Elsevier.

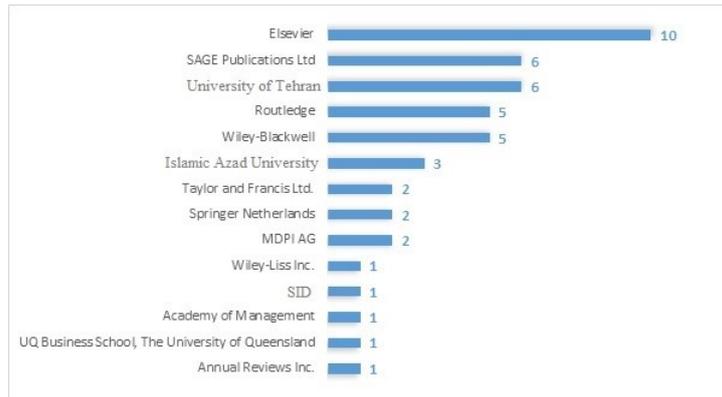


Figure 4: Each publisher’s contribution to selected final articles

The aim was to comprehensively examine the model of increasing social capital via social networking sites. Therefore, all previous definitions and conceptualizations were collected. All theories, models, dimensions, and components affecting social capital promotion were coded via networks. The documents were broken into small units and the pieces of information were named. The purpose of doing this work was to answer the research question and translate texts into an analyzable language. Duplicate items were removed at the secondary coding stage. The methodological quality of the studies was evaluated in the next step as soon as the articles were examined for proportionality with the research parameters. The purpose of this step was to exclude articles that the researcher did not trust their findings; hence, the researcher may reject an article that should be included in the final study. Throughout the method, the selected and finalized articles were continuously reviewed to obtain the intra-content findings in which original and primary studies were conducted.

Therefore, the extracted narratives were categorized into 66 codes, 14 sub-categories, and 5 main categories. Table 4 reports this process. Since the number of narrations was very large, we omitted their report in this article and only presented the frequency of narrations related to each code. The total number of narrations of each category was also written next to each category. This number indicated the number of articles that mentioned the desired category in the personal development program. As mentioned, the purpose of the systematic review method was to create a unified and new interpretation of findings. This method was accepted to clarify concepts, patterns, and results in screening the existing states of knowledge and the emergence of operational models and theories. In the present research, all factors extracted from the studies were first considered as codes (indices), and then they were grouped in a similar concept considering the concept of each code so that the research concepts were created. The questions and methods of this work were evaluated by experts in the systematic review, social networks, and social capital. The following figure summarizes the stages of research, search, and selection of articles.

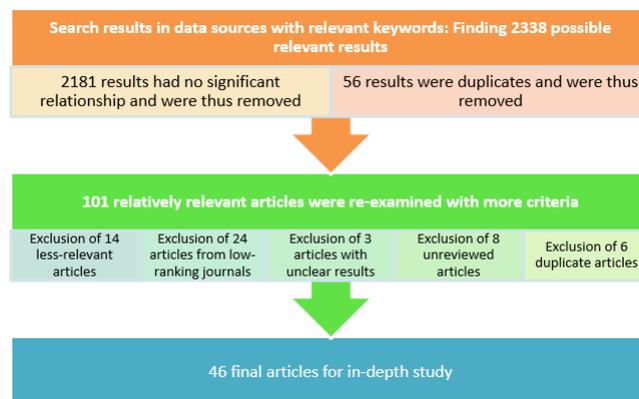


Figure 5: Search and selection of final articles

The following table presents a total of 46 selected articles and some of their characteristics, including the name of the article, the author’s name, the publication year, the social network studied in the article, the research method based on qualitative and quantitative categories, the research method, and the sample population.

Table 6: Characteristics of 46 final articles

Row	Title of article	Author and colleagues	Publication year	Social network	Qualitative/ quantitative/ Mixed	Research method	Sample population
1	Investigating the role of social media on citizens' participation in the participatory budgeting process	Somayeh Pourhassan	2019	Not mentioned	Qualitative	Grounded theory	18 Iranian experts
2	The effect of self-disclosure in social networks on the development of social capital (investigating the role of intellectual capital)	Behzad Mohammadian	2014	Not mentioned	Quantitative	Data analysis	380 Iranian students
3	Designing the model of social capital promotion in Iran's government organizations: Qualitative research based on the grounded theory	Mansour Kheyrkou	2018	Not mentioned	Qualitative	Grounded theory	27 public Iranian managers
4	Designing the social capital model in public organizations (aligned with the perspective document and resistance economy policies)	Mohammad Sattar Arjmandi, Maryam Majidi, Zeynolabedin Amini, Ehsan Sadeh	2022	Twitter	Mixed-methods	Desk review and semi-structured interview	14 consultants, 186 Iranian employees
5	Virtual networks, rational selection, and online political participation	Yaghoob Ahmadi, Parvin Alipour	2019	Not mentioned	Quantitative	Data analysis	384 Sanandaj citizens from Iran
6	The effect of Twitter social network on the political participation of Tehran users	Meysam Dolatabadi Farahani, Sara Mohammadpour	2020	Twitter	Quantitative	Survey	320 Tehrani Twitter users who have more than 10,000 followers
7	Examining the role of mobile social networks on the development of social participation	Hanneh Zeynali, Mohammad Soltanifar, Afsaneh Mozafari	2018	Not mentioned	Quantitative	Survey	60 Iranian communication and journalism specialists
8	Analyzing the effect of cyberspace in increasing political participation and its effect on the level of social capital of Iranian citizens	Afshin Mottaghi, Sepehr Arash Ghorbani, Zahra Ansari	2019	Not mentioned	Qualitative	Descriptive-analytical	Not mentioned
9	The communication model of social networks, media literacy, social capital, and social identity of those involved in IRIB sports programs	Hossein Zokaei, Seyed-Hamid Sajjadi Hezareh, Farshad Tojjari, Abdolreza Amirtash	2021	Facebook	Quantitative	Survey	324 agents in IRIB sports programs
10	The role of organizational social capital in affecting the use of social media at work on job commitment and organizational identification	Mehdi Yazdanshenas, Farzaneh Mehrabi Koushki	2022	Facebook	Quantitative	Descriptive-correlational	200 business experts in Digikala

11	Women's social media needs and online social capital: Bonding and bridging social capital in Pakistan	Iffat Ali Aksar , Mahmoud Danaee , Huma Maqsood & Amira Firdaus	2020	Facebook	Quantitative	Correlational	240 female students in Pakistan
12	Bridging social capital through the use of social networking sites: A systematic literature review	Zaheer Ahmad - Saira Hanif Soroya - Khalid Mahmood	2022	Not mentioned	Mixed-methods	Literature review	29 scientific-research articles until 2021
13	The effects of helping self-expression and enjoyment on social capital in social media the moderating effect of avoidance attachment in the tourism	Myung Ja Kim	2018	nextdoor	Quantitative	Correlational	452 Korean citizens older than 50
14	Social Media Platforms, Social Capital, and Idea Co-creation: Towards a Theory of Social Ideation	Pratyush Bharati - Kui Du - Abhijit Chaudhury - Narendra M. Agrawal	2018	Not mentioned	Mixed-methods	Grounded theory	79 employees of American companies
15	Social capital in media societies: The impact of media use and media structures on social capital	Sarah Geber - Helmut Scherer - Dorothee Hefner	2016	Not mentioned	Mixed-methods	Correlational	53 European citizens from 27 countries
16	The Relationship between Social Capital and Social Media Addiction: The Role of Privacy Self-Efficacy	Franck Soh - Kane Smith - Gurpreet Dhillon	2022	Not mentioned	Mixed-methods	Correlational	414 American citizens
17	Association of demographics, motives, and intensity of using Social Networking Sites with the formation of bonding and bridging social capital in Pakistan	SaeedAhmad. Mudasir-Mustafa. AhsanUllah	2016	Facebook	Quantitative	Correlational	461 Pakistani students
18	Social media as a tool for social movements: the effect of social media use and social capital on intention to participate in social movements	Hyesun Hwang, Kee-Ok Kim	2015	Facebook	Quantitative	Correlational	2302 Korean young people
19	Do social networking sites build and maintain social capital online in rural communities?	SanjibTiwari. Michael-Lane. KhorshedAlam	2019	LinkedIn	Quantitative	Survey	1500 Australian household heads
20	The contribution of mobile social media to social capital and psychological well-being: Examining the role of communicative use, friending and self-disclosure	Hsuan-Ting Chen. Xueqing Li	2017	Facebook, Twitter, Instagram, and Snapchat	Mixed-methods	Correlational	814 Hong Kong citizens
21	Tweeting Alone? An Analysis of Bridging and Bonding Social Capital in Online Networks	Javier Sajuria, Jennifer vanHeerde-Hudson, David Hudson, Niheer Dasandi, and Yanniss Theocharis	2014	Twitter	Quantitative	Case study	Twitter statistical data of UK citizens from 2011 to 2013

22	From high school to university: Impact of social networking sites on social capital in the transitions of emerging adults	Elvis Mazzone, Maria Iannone	2014	Facebook	Quantitative	Survey	297 Italian adolescents on the verge of adulthood
23	Teenagers' Experiences With Social Network Sites: Relationships to Bridging and Bonding Social Capital	June Ahn	2012	Facebook	Quantitative	Survey	852 American high school student
24	Exploring the effects of social capital on the compulsive use of online social networks in civil unrest contexts	Mijail Naranjo-Zolotov - Albert Acedo - Jorge Edison Lascano	2022	Facebook	Quantitative	Correlational	237 Ecuadorian citizens
25	Network domains in social networking sites: expectations, meanings, and social capital	Xiaoli Tian	2015	Facebook - Renren	Mixed-methods	Correlational	45 Hong Kong students
26	Facebook helps; a case study of cross-cultural social networking and social capital.	Yifan Jiang	2013	Facebook	Mixed-methods	Correlational	100 Chinese and 100 English citizens
27	How behaviors on social network sites and online social capital influence social commerce intentions	Shwu-Min Horng - Chih-Lun Wu	2020	Facebook	Quantitative	Correlational	970 Chinese citizens
28	Is There Social Capital in a Social Network Site?: Facebook Use and College Students' Life Satisfaction, Trust, and Participation	Sebastin Valenzuela, Namsu Park, Kerk F. Kee	2009	Facebook	Quantitative	Correlational	2603 Texas high school student
29	The social academic: a social capital approach to academic relationship management on social media	Sanja Kapidzic	2019	Several networks	Quantitative	Correlational	1500 Academic force in Germany
30	Bonding, bridging, and linking social capital and social media use: How hyperlocal social media platforms serve as a conduit to access and activate bridging and linking ties in a time of crisis.	Courtney Page-Tan	2021	Nextdoor	Mixed-methods	Correlational	3570 Citizen of California
31	The use of online social networking sites to nurture and cultivate bonding social capital: A systematic review of the literature from 1997 to 2018	Joshua R. Williams	2019	Not mentioned	Mixed-methods	Literature review	54 scientific research articles
32	Social Capital and Internet Use: The Irrelevant, the Bad, and the Good	Barbara Barbosa Neves	2013	Not mentioned	Qualitative	Descriptive-analytical	-
33	A review of social networking service (SNS) research in communication journals from 2006 to 2011	Yin Zhang - Louis Leung	2015	Not mentioned	Mixed-methods	Literature review	80 scientific articles until 2013
34	Explaining the unpredictability: A social capital perspective on ICT intervention	Zafor Ahmed	2017	Not mentioned	Mixed-methods	Literature review	127 scientific-research articles from 2000 to 2016
35	Media and Social Capital	Filipe Campante - Ruben Durante - Andrea Tesi	2022	Not mentioned	Mixed-methods	Literature review	Scientific-research articles from 1998 to 2021

36	Social networks, social capital, social support and academic success in higher education: A systematic review with a special focus on 'underrepresented' students	Shweta Mishra	2020	Not mentioned	Mixed-methods	Literature review	69 scientific-research articles from 1975 to 2019
37	Developing social capital through professionally oriented social network sites	Morteza Mashayekhi - Milena-Head	2022	LinkedIn	Mixed-methods	Grounded	377 LinkedIn users in Germany
38	Corporate Users' Attachment to Social Networking Sites: Examining the Role of Social Capital and Perceived Benefits	Suparna Dhar & Indranil Bose	2022	Several networks	Quantitative	Survey	316 employees of Indian companies
39	On and off the 'Net: Scales for Social Capital in an Online Era	Dmitri Williams	2006	Facebook	Quantitative	Survey	286 students of Michigan State University
40	Uses and gratifications of social networking sites for bridging and bonding social capital: A comparison of Facebook, Twitter, Instagram, and Snapchat	JoePhua - Seunga VenusJin - Jihoon (Jay)Kim	2017	Several networks	Quantitative	Survey	297 high schools in America
41	Brand interactions and social media: Enhancing user loyalty through social networking sites	Tahir M.Nisar - CarolineWhitehead	2016	Several networks	Quantitative	Survey	530 retail customers in the UK
42	Linking dimensions of social media use to job performance: The role of social capital	HossamAli-Hassan - DoritNevo - Michael-Wade	2015	Not mentioned	Quantitative	Survey	1700 employees in knowledge-based companies
43	How new media affords network diversity: Direct and mediated access to social capital through participation in local social settings	Keith N. Hampton, Chul-joo Lee, Eun Ja Her	2011	Not mentioned	Mixed-methods	Correlational	2512 American citizens
44	Social media and citizen engagement: A meta-analytic review	Marko M Skoric mskoric@cityu.edu.hk, Qinfeng Zhu, [...], and Natalie Pang	2016	Not mentioned	Quantitative	Meta-analysis	22 scientific-research journals from 2007 to 2013
45	Cultivating Social Resources on Social Network Sites: Facebook Relationship Maintenance Behaviors and Their Role in Social Capital Processes	Nicole B. Ellison, Jessica Vitak, Rebecca Gray, Cliff Lampe	2014	Facebook	Quantitative	Correlational	614 American citizens
46	Social Capital on Social Networking Sites: A Social Network Perspective	Natalia Snchez-Arrieta, Rafael A. Gonzalez, Antonio Caabate and Ferran Sabate	2021	Not mentioned	Mixed-methods	Literature review	76 scientific-research journals from 2009 to 2020

A total of 66 codes were identified and named by examining 46 reviewed articles and coding the concepts. Thereafter, 14 subcategories and 5 main categories were obtained by categorizing these 66 codes. The following table presents the main categories, subcategories, codes, and numbers of articles in which the codes are found:

Discussion and analysis of research findings

The capacity to socialize and create networks and groups in society is the first reason for answering the question of why people spend a lot of time on social networking sites [70]. In an article titled “How new media affords network diversity”, Hampton et al. [24], state that information and communication technologies such as social networks diversify the communication network and social capital of people. The positive effect of social capital on social networks has always been a controversy in academic circles. At the beginning of his article, Neves [44] admits that the use of new media, especially social networks, reduces social capital in many academic circles.

The tools of this meaning should be known to understand it. For example, Lee [34] believes that social network analysis is the best approach in social network research which shows who is connected to whom and what this connection means, to finally find how and where social capital is created in social networks.

Almost all articles, which talk about the effects of “using social networks” on “increasing social capital”, mention two separate dimensions of social capital, called bonding and bridging social capital.

Many studies about the effects of social networks on social capital indicate that the effect of using social networks on social capital is not unequivocal and permanent, but it depends on conditions and factors that can be understood through a systematic review of this field [64]. Furthermore, the way of using social networks can have an effect on one component of social capital but not on another component of social capital [12].

For example, Geber et al. [23] found that the impact of using social networks on social capital was different depending on the media structure which could have a commercial or informational structure, and depending on the type of user use which can be informative or entertaining.

According to Soh [58], the use of social networks has different effects on components of bonding and social capital depending on the audience’s purpose and motivation to use social networks and the extent of their dependence on it. It can also be seen in articles by Ting Chen et al. [14], and Sajuria et al. [51].

With a systematic study of articles about the promotion of social capital via social networks, Williams [63] indicates that these articles often address the effects of the intensity and use of social networks on the promotion of social capital in users. The same meaning was also found in studies by Hwang et al. [27], Ahn [5], Jiang [29], Ahmad et al. [1], Phua et al. [48].

Personal behaviors and actions on social networking sites are the main factors that are stated in many articles as a condition for the effect of using social networks on social capital. For example, Neves [44] confirm the effect of social networks on social capital, indicating that this effect is not necessarily a function of two-way and interactive communication of people in social networks, but a part of it is due to the exchange of resources and information in social networks. In an article titled “Developing social capital through professionally oriented social network sites”, Mashayekhi et al. [36] indicated that the value of social networks for people depended on the links and connections they obtain in those networks. Naranjo et al. [43] investigated the role of using social networks in civil chaos and mentioned four components affecting social capital, namely bonding social capital, bridging social capital, trust, and shared values, and concluded that interaction in social networks had effects on bonding and bridging social capital, but contrary to many studies, their study claimed that trust did not affect these two components of social capital. Tian [59] started his article with the question of why the use of social networks by different users caused different results in the social capital components. Utz et al. [61] reported that social networks had a good potential to strengthen strong ties but they did not necessarily have the same performance in maintaining weak ties. Min Horng et al. [56] indicated that users’ behavior in social networks affected social business tendencies but it acted as a moderating variable among bonding and bridging social capital. Min Horng’s research results also indicated that web browsing behavior had a greater impact on increasing social capital than interactive behavior. Page-Tan [47] reported that bridging and bonding social capital could lead to various results. Examining the roles of local social networks during the crisis, he concluded that social networks could be among the first service providers to people during the crisis. Page-Tan emphasized the role of using social networks to increase social capital to overcome social crises. Campante et al., [12] examined the role of media technologies in the consolidation of collective actions. Dhar et al. [16] examined the employees’ use of social networks in a company and concluded that if employees in a company used social networks only to acquire knowledge and information, they would only improve their bridging social capital but the social use of these networks promoted both bonding and bridging social capital dimensions. Furthermore, the increase in bridging social capital improved

the employees' skills, in both operational and strategic affairs of organizations, but the promotion of bonding social capital only improved the employees' operational skills.

Social capital is classified into two main dimensions in almost the vast majority of studies: bonding and bridging social capital. Williams [63] highlighted the boundaries between bonding and bridging social capital and reported that even though these two components were two separate domains, they affected each other. In his article, he developed and validated the measurement scales of these two components of social capital.

Even though many articles on social capital have mentioned a third dimension called linking social capital, it was only mentioned in Page-Tan's article [47] according to the review of articles in the present research, and most studies have mentioned the term "social capital maintenance" as the third dimension of social capital such as studies by Tiwari et al. [60], Mazzone et al. [37], Utz et al. [61], Nisar et al., [45], Ellison et al. [18], and Ali-Hassan et al. [7].

Another dimension, which was abundantly found in the articles, was that technical structures of social networking platforms were effective in the process of affecting social capital. For example, Phua et al. [48] compared the satisfaction levels of Instagram, Twitter, Facebook, and Snapchat users and reported that Twitter users had gained the highest bridging social capital compared to users of the three other social networks. On the contrary, Snapchat had the highest degree of bonding social capital, indicating that even the social network platform was a determinant factor in finding which component of social capital was affected.

The summary of the findings of this research can be displayed in the following diagram:

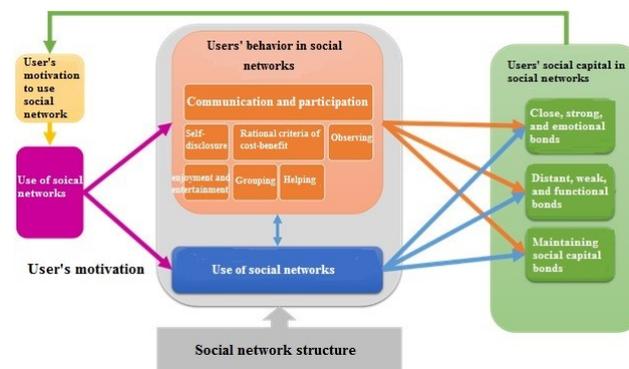


Figure 6: The final model obtained from the systematic review of relevant articles

Conclusion (comparison of the developed model with previous models):

The existing models in the field of increasing social capital via social networking sites do not have complete comprehensiveness for users and each one has examined a part of the process.

Arrieta et al., [52] analyzed the elements of measuring social capital in social networking sites with a systematic review of 76 articles and reported that most of the studies lacked methodological precision and the concepts were not carefully examined and clearly expressed.

Therefore, the purpose of this systematic review was to discover the most important and frequent findings and theories and put them together to reach a more comprehensive model that could bring together scattered concepts and ideas to an acceptable extent and provide good inclusion for users of the research results.

Unlike many studies, which simplified the categories and concepts and indicated that the use of social networks necessarily improved individuals' social capital, the present study systematically examines domestic and foreign scientific research articles from 2005 until now and concludes that the increase of social capital through the use of social networks is not an inevitable, permanent, and inviolable matter, rather the use of social networks increases social capital of users in certain circumstances, not in all aspects of social capital.

For example, some models consider social capital as a whole unit, and thus it is not well found which sub-category of using networks has an effect on which sub-category of social capital, and it is thus considered a theoretical gap. Some other findings only mention the two dimensions, bonding and bridging social capital, but the third dimension (maintenance of social capital) is neglected. Putting research results together, this model presents all three dimensions of social capital and their determinants.

Table 7: Main categories, subcategories, codes, and numbers of articles

Main categories	Sub-categories	Number of articles and the code in the article
Purpose of social network use	Strengthening bridging communication	10, 11, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 26, 29, 31, 35, 38, 39, 40, 41, 45, 46
	Strengthening bonding communication	10, 11, 14, 15, 17, 18, 19, 21, 22, 23, 24, 26, 29, 30, 35, 38, 39, 40, 46
Media structure	Social Media structure	13= Democratic and monopoly media 32= Structural concepts of the media 34= Contextual features of the media 37= Media size 46= Media structure
Social network use and intensity	Use and intensity	5= Media use and intensity 10= Media use intensity 13= Informative and knowledge use of the media 14= Media use intensity 15= Ethics and motivations for media use 16= Media use pattern 17= Low and high use of media 18= Types of media use 21= Time spent on media (good and bad experiences during use) 25= Intensity of intercultural use of media 26= Review or collaborative use of media 27= Intensity of using Facebook 32= intensity and variety of use 34= Selectivity while using the media 36= The meaning and concept of the type of media use 37= Users' actions 38= Social use and informational use of media 40= Strength, homogeneity, and intensity of use 41= User loyalty 43= intensity and frequency of use 44= Meaningful, informative, and relational use of media 45= Meaningful behaviors of users
Individuals' use behavior	Communicative and participating	18= Interactive and communicative behavior 25= Mutual communication 26= Cooperative behavior 28= cooperative behavior 34= Communication to perform a set of behaviors 37= Active cooperative behavior 42= Social action 45= Meaningful interactive actions
	Observing and browsing	25= Observing 6= Browsing and web surfing 29= Browsing and web surfing 37= Passive consumption
	Grouping	25= Grouping 34= facilitating group coordination 37= Active cooperative behavior
	Helping	11= Helping spirit 29= Social support behaviors
	Self-expression Self-disclosure	1= Self-disclosure 6= Self-disclosure 11= Self-disclosure 18= Self-disclosure 24= Self-disclosure 37= Profile disclosure
	Rational cost-benefit criteria	4= Rational measures of opportunity-cost 6= Weighing the cost and benefit
	Enjoy and entertainment	11= Use for fun and entertainment 14= Use to communicate with relatives 18 = Use for friendship 23= Open and recreational use of the network 25= Strengthening friendship 42= Enjoyable use
Users' social capital dimensions in social networks	Bridging social capital	10, 11, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 26, 29, 31, 35, 38, 39, 40, 41, 45, 46
	Bonding social capital	10, 11, 14, 15, 17, 18, 19, 21, 22, 23, 24, 26, 29, 30, 35, 38, 39, 40, 46
	Maintenance	17= Construction and maintenance of social capital 20, 24, 41, 45

Even though many models in the articles have classified social capital into 2 to 6 different components, the technical structure of social networking sites has not been taken into consideration. This factor has caused the results of some studies to seem contradictory, for example, an article indicates that the recreational use of Snapchat increases bonding social capital, but another article indicates that the recreational use of Twitter increases bridging social capital! This shows that the effect of individuals' presence in social networks on the social capital concept can be a function of the "technical structure of social networking sites". In other words, a specific action in social network "A" can have a different result than the same specific action in social network "B".

Furthermore, most models do not consider the audience's intention and motivation in using the social networks but this model properly indicates that the motivation of social network users is effective in the type of their actions in the social network and is also involved in the effect of that behavior on social capital.

For example, some articles report that the use of Facebook promotes the maintenance of social capital, but another article indicates that it promotes bridging social capital. A careful study of previous models indicates that the structure of the research population and their motivations for action in social networks are different and thus they have different results. In this model, the types of goals, motivations, and intentions of social network users are obtained and their relationship with the main category of social capital promotion is indicated. In other words, the question of "which sub-categories of social capital are improved by the use of social networks" is a function of the "users' motivation and behavior in social networks".

Even though the category of "intensity and extent of using social networks" is mentioned in many models, many of them do not consider this important category. In other words, the principle of using social networks is considered an independent variable regardless of the fact that social capital promotion can be affected by the intensity and extent of users' use of social networks.

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