Enhancing The Sense of Social Cohesion Through Virtual Community : A Systematic Review

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Abstract. Fostering social cohesion is thought to be the best strategy because it can be difficult to create a sense of unity in a diverse community. In social systems, social cohesion is the degree to which members of the system identify with it and feel obligated to uphold its norms, values, and beliefs. The French sociologist Emile Durkheim went into great detail about this idea, emphasising that cohesiveness needs constant upkeep, development, and adaptation. On the other hand, not much research has been done on what makes virtual communities more cohesive socially. The purpose of this systematic review is to assess and summarise the ways in which interactions among members of virtual communities can strengthen social cohesion. In order to achieve this, we retrieved articles from the Scopus and Web of Science databases and performed a systematic review. Using keyword-based filters, we reduced the number of journal articles from the initial search, which produced 337, to fourteen studies that were pertinent. By encouraging a shared identity, a sense of belonging, task commitment, social trust, and social interaction, these studies show that interactions within virtual communities not only allow users to engage in social networking but also enhance the sense of social cohesion. We anticipate that these factors will provide insightful information for upcoming initiatives to enhance social cohesion in virtual communities.

Keywords: Virtual community, social cohesion, cohesiveness, communication, information management.

1   Introduction

Social cohesion is the aggregate of positive influences aimed at the welfare of all members, combating racial exclusion and marginalization, fostering a sense of belonging, promoting trust, and facilitating upward mobility, as described by Hogg (1993). It is characterized by a collection of socially desirable individual attributes, such as trust, tolerance, and active membership, within groups and communities. The concept of

social cohesion was first conceptualized by the French sociologist Emile Durkheim in 1897, who framed it as a set of norms and values governing collective social behaviour. Durkheim's studies delved into social phenomena, focusing on social integration, religion, and suicide, to understand how individuals connect with a collective society (Pahl, 1991).

In Asia, Khan (2001) argued that Asian values prioritize the family and the community over individualism, emphasizing the importance of social cohesion in nurturing interdependent relationships. Social cohesion, in this context, is not about uniformity of opinions but rather the mutual attraction among individuals from diverse backgrounds. It measures the degree of interdependence and cooperation among individuals (Thibaut & Kelley, 1959). Cartwright (1968) introduced the idea that social cohesion is the sum of the positive forces exerted by different individuals within each member's life-space. It results from various influences that encourage members to remain part of the group. Factors such as increasing income inequality (Wilkinson and Pickett, 2009), unemployment, and crime (Jenson, 1998), along with a rise in individualism, have contributed to the decline in social cohesion (Putnam, 2000).

Heuser (2005) highlights the role that trust and social capital play in promoting social cohesion, emphasising that social cohesion entails citizens internalising social ethics and acting morally for the benefit of society. In analysing the idea of social cohesion in policy discussions, Jenson (2010) highlights the importance of social cohesion in guaranteeing equitable access to social and economic rights. In response to the lack of agreement regarding the theoretical definition of social cohesion, Schiefer and Noll (2017) identify three crucial components: social relationships, identification with the local community, and a focus on the common good. In their investigation of the relationship between social cohesion and disability. According to Silveira et al. (2022), social cohesion is made up of several psychological elements, such as social skills, trust, and a sense of belonging. This highlights the significance of these elements for psychological resilience and offers suggestions for improving adaptive capacities. All things considered, these studies demonstrate how intricate and multidimensional the idea of social cohesion is. They highlight the value of equality, social inclusion, and trust as well as the necessity of having a sophisticated grasp of the variables affecting social cohesion. The research also indicates that social cohesion is a multifaceted concept that is impacted by both societal and personal factors rather than being a one-size-fits-all idea.

Computer-mediated communication seamlessly integrates with interpersonal communication, becoming increasingly prevalent in our modernized era. Emerging social media platforms like Facebook, Twitter, and Instagram have encouraged young people to use the internet as a medium for conveying messages. This prompts the question of how interaction within a virtual community (VC) can enhance social cohesion among its members. Therefore, this paper seeks to conduct a systematic literature review on the factors that can enhance the sense of social cohesion. While systematic literature reviews are well-established in fields like medicine and psychology, there is a notable gap in rigorous research on social cohesion within virtual communities. This paper aims to identify previous studies that shed light on the factors influencing social cohesion among social media users, ultimately contributing to the existing body of literature on relational cohesion theory (Lawler, Thye, & Yoon, 2000).

A diverse range of studies has examined the multifaceted concept of social cohesion in connection with various factors, including personality traits, family dynamics, community disasters, and social media engagement. For instance, Ye et al. (2019) uncovered the positive impact of family cohesion on social adjustment through students' sense of security and their interpersonal relationships, underlining the protective role of family cohesion and the potential consequences of disruptions in interpersonal relationships on social adjustment. Meanwhile, Zhang et al. (2020) delved into the dynamics of neighbourhood social cohesion among older Chinese adults, revealing its positive association with reduced psychological distress and heightened life satisfaction. This underscores the significance of cohesive social environments and resilience in shaping psychological well-being. Furthermore, Stieglitz and Ross (2022) drew attention to the capacity of social media to foster and maintain social cohesion for specific groups or publics. They illustrated how platforms like Online Neighbourhood Networks (ONN) can positively impact trust, reciprocal support, and a sense of community within neighbourhood communities.

The common thread throughout these studies is the importance of trust, equality, and social inclusion in fostering social cohesion. These factors play a crucial role in building interdependent relationships within communities and groups. The findings also underscore the dynamic role of social media in shaping social cohesion. Social media can serve as a double-edged sword, as indicated by Stieglitz and Ross (2022). It has the potential to either foster or hinder social cohesion, depending on how individuals actively or passively engage with it. Active use can enhance well-being and social connectedness, while passive use may not necessarily erode social connectedness and can even, in certain circumstances, enhance it.

Furthermore, the studies reflect the importance of comprehensive understanding and research on the factors influencing social cohesion. They highlight the need for nuanced investigations into social cohesion within virtual communities and suggest that the concept is evolving with the increasing integration of computer-mediated communication into daily life. These studies collectively emphasize the intricate and multifaceted nature of social cohesion, its dependence on a variety of societal and personal elements, and the evolving role of social media in shaping and influencing social cohesion dynamics in different contexts.

2   Literature Review

2.1 The importance of social cohesion

Social cohesion represents a social phenomenon that draws individuals toward one another and fosters a sense of unity within a group. As articulated by Cartwright (1968), it distinguishes itself from mere integration by encompassing the cumulative positive influences emanating from each individual's life-space, which result from various forces acting upon all group members, compelling them to remain connected. This concept is integral to the success of a society, as it bolsters cooperation and productivity

among individuals. Social cohesion can cultivate a profound sense of belonging and unity, with individuals identifying with and categorizing themselves within a specific social group. This identification often leads to favoritism toward the in-group and elicits commitment to the group, its products, or services (Hu, Zhang, & Wang, 2017).

By instilling a sense of social cohesion among community members, thriving environments are created where fear of differences is supplanted by a shared value system and a collective sense of purpose and belonging. This, in turn, fosters higher levels of trust, increased social and emotional support, resolution of tensions, and the unification of people (Jarvenpaa & Leidner, 1999). Unfortunately, factors such as escalating income inequality (Wilkinson & Pickett, 2009), unemployment, and crime (Jenson, 1998), as well as the emergence of a more individualized generation (Putnam, 2000), alongside anxiety, uncertainty, and ethnocentrism (Levin, Taylor, & Caudle, 2007; Logan, Steel, & Hunt, 2014), have been contributing to the decline in social cohesion. Additionally, building and sustaining a cohesive community remain challenging, particularly when it involves emotional facets like trust (Powell, Piccoli, & Ives, 2004).

Lawler, Thye, and Yoon (2000) elaborated on the role of emotions in their theory of relational cohesion, emphasizing their significance in augmenting social cohesion. This theory has undergone extensive study to elucidate how positive emotional processes, contingent on the frequency of interactions and shared focus, can generate commitment to relationships with others, both individually and collectively. Lawler et al. (2000) further contend that frequent social interaction engenders positive emotions that enhance commitment and ultimately encourage individuals to remain within those relationships. Social cohesion is about bringing people together and creating a sense of unity within a group. It's different from simply being part of a group; it's the positive bonds and influences that make people want to stay connected. This is important for a successful society because it encourages cooperation and productivity. Unfortunately, factors like income inequality, unemployment, and individualism have led to a decline in social cohesion. Building and maintaining strong communities can be challenging, especially when trust is involved.

2.2 Interaction within virtual communities

Virtual communities, facilitated by the internet, have become a significant part of people's lives, influencing various aspects, such as work, leisure, and social interactions. They offer a platform for individuals to connect, make new friends, learn, share opinions, and exchange information (Bagozzi & Dholakia, 2002). Online communities are essential resources for people with diverse interests and needs (Jin, Park, & Kim, 2010). These virtual communities have demonstrated the importance of community identification among members, leading to positive outcomes like consumption behaviors, positive word-of-mouth, and continuous usage (Chung, Tyan, & Chung, 2017).

Understanding the decline in social cohesion involves considering urbanization processes. Social disorganization, as highlighted by Walton and Hardebeck (2016), suggests that racial heterogeneity can hinder communication and the achievement of common goals in neighborhoods. Alesina and La Ferrara (2000) and Mennis, Dayanim, and Grunwald (2013) also support the idea that increased inter-ethnic neighborhoods may

lead to reduced participation in social activities due to poor cooperation and low social cohesion. However, the concept of diversity has evolved over time with changing demographics.

One essential element of cohesiveness in virtual communities is members' liking for each other and their shared goals, fostering a sense of belonging. Studies like Tobin, Vanman, Verreynne, and Saeri's (2014) and Sahharon, Bolong, Omar, and Shaffril's (2018) on Facebook use have explored the feeling of meaningful existence resulting from online interactions. Social media's impact on social cohesion depends on the level of an individual's active or passive engagement. Active use can improve well-being and social connectedness, while passive use may not necessarily harm social connectedness and can even enhance it in certain contexts (Ali et al., 2019). Duffy and Ling (2020) introduced the concept of "phatic news sharing" to describe how sharing news through social media can be an expression of care and contribute to social cohesion.

Additionally, Shepherd and Lane (2019) found that students with stronger integration into their school community are more likely to adopt various social media platforms, highlighting how social media can facilitate social connections and knowledge-sharing within a community. Page-Tan (2020) delved into the relationship between social capital and hyperlocal social media use in the aftermath of a disaster, revealing the potential of social media as a resource for support and collective action in times of crisis. These studies collectively show that social media can enhance social cohesion by supporting those with limited neighborhood support, bridging different social network communities, and promoting social capital creation and integration in the presence of bonding, bridging, and linking factors.

Overall, the mechanisms of social connection provided by social networking sites such as Facebook, Twitter, YouTube, blogs, and webpages have effects that are either favorable or unfavorable for social cohesion. It seems that these internet capabilities have the potential for working in both directions, which can be both undermining and enhancing social cohesion.

3 Methodology

3.1 Design

This systematic review adhered to the established criteria outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and diagram, as described by Moher, Liberati, Tetzlaff, and Altman (2010). The PRISMA guidelines provide a structured approach to identify the number of records retrieved through search engines, define the inclusion and exclusion criteria, and provide rationale for exclusions. This methodology ensures a comprehensive and systematic review of the literature, enabling the aggregation of all relevant studies that meet the specified eligibility criteria to address the objectives of this paper. Employing such a method minimizes bias and ensures a clear and systematic approach to the literature review.

3.2 Search Strategy

A strategized search was done through two main academic electronic data-bases: Scopus and Web of Science. A criterion for systematic search was established (refer to Table 1), the criterion includes keyword search and related text words as the search string.

Table 1: The inclusion and exclusion criteria

Criterion	Eligibility	Exclusion
Literature type	Journal articles	Books, conference proceedings
Language	English	Non-English
Subject areas	Psychology, Social Sciences, Sociology, Behavioral Sciences, Social Issues, Ethnic Studies, Communication, Arts and Humanities, Urban Studies, Human Relations, Small Group, Human Communication or Cultural Studies	Computer Science, Business, Management and Accounting, Economics, Econometrics and Finance, Engineering, Medicine, Mathematics, Agricultural and Biological Sciences, Health Professions, Nursing, Energy, Neuroscience

The search was conducted using combinations of exact key-words (i.e. enhance, intensify, increase, improve, strengthen, augment, boost, raise, elevate, enrich, heighten, deepen, social cohesion, social cohesiveness, group cohesiveness, cohesion, group cohesion, coherence, social connection, social connectedness, social interaction, social collectivity, togetherness, social belonging, social integration, virtual community, virtual society, online community, global village, social media community, virtual group, internet community, cyber community) on titles and abstracts as addressed by the review question (refer to Table 2).

Table 2: Search string used for the systematic review process

Databases	Keywords used
Scopus	((enhanc* OR intensify* OR increas* OR improv* OR strengthen* OR augment* OR boost* OR rais* OR elevat* OR enrich* OR heighten* OR deepen* OR reinforc*OR emphasiz*) AND ("social cohesion" OR "social cohesiveness" OR "group cohesiveness" OR cohesion* OR "group cohesion" OR coherenc* OR "social connection" OR "social connectedness" OR "social interaction" OR "social collectivist*" OR togetherness OR "social belonging" OR "social integration") AND ("virtual communit*" OR "virtual societ*" OR "online communit*" OR "global village*" OR "social media communit*" OR "virtual group*" OR "internet communit*" OR "cyber communit*"))

Databases	Keywords used
Web of science	TS=((enhanc* OR intensify* OR increas* OR improv* OR strengthen* OR augment* OR boost* OR rais* OR elevat* OR enrich* OR heighten* OR deepen* OR reinforc*OR emphasiz*) AND ("social cohesion" OR "social cohesiveness" OR "group cohesiveness" OR cohesion* OR "group cohesion" OR coherenc* OR "social connection" OR "social connectedness" OR "social interaction" OR "social collectivist*" OR togetherness OR "social belonging" OR "social integration") AND ("virtual communit*" OR "virtual societ*" OR "online communit*" OR "global village*" OR "social media communit*" OR "virtual group*" OR "internet communit*" OR "cyber communit*"))*Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years*

3.3   Inclusion and exclusion criteria

The reference management software Mendeley (Elsevier, Amsterdam) was used to organize the articles. Altogether, 337 articles were assessed for relevance by the researcher based on their titles, abstracts and keywords. Subsequently, only 82 full-text articles were retrieved from the database. All things were considered and only fourteen studies met the criteria of this systematic review. The process used to refine and exclude the articles is illustrated in the PRISMA flow diagram in Figure 1.

3.4 Data extraction and synthesis

In the initial phase of data extraction, the researchers examined a total of fourteen studies. This involved summarizing key information such as the author(s), publication year, research objectives, findings, and the fundamental elements of each study, as outlined in Table 3. The results and components from these previous studies concerning interactions within virtual communities were then categorized based on strategies aimed at enhancing the sense of social cohesion. Once the articles were refined and processed, a narrative summary was conducted to reinforce the systematic review, offering a more comprehensive and concise presentation of the findings (Pae, Wang, Han, Lee, Patkar, Masand, & Serretti, 2015).
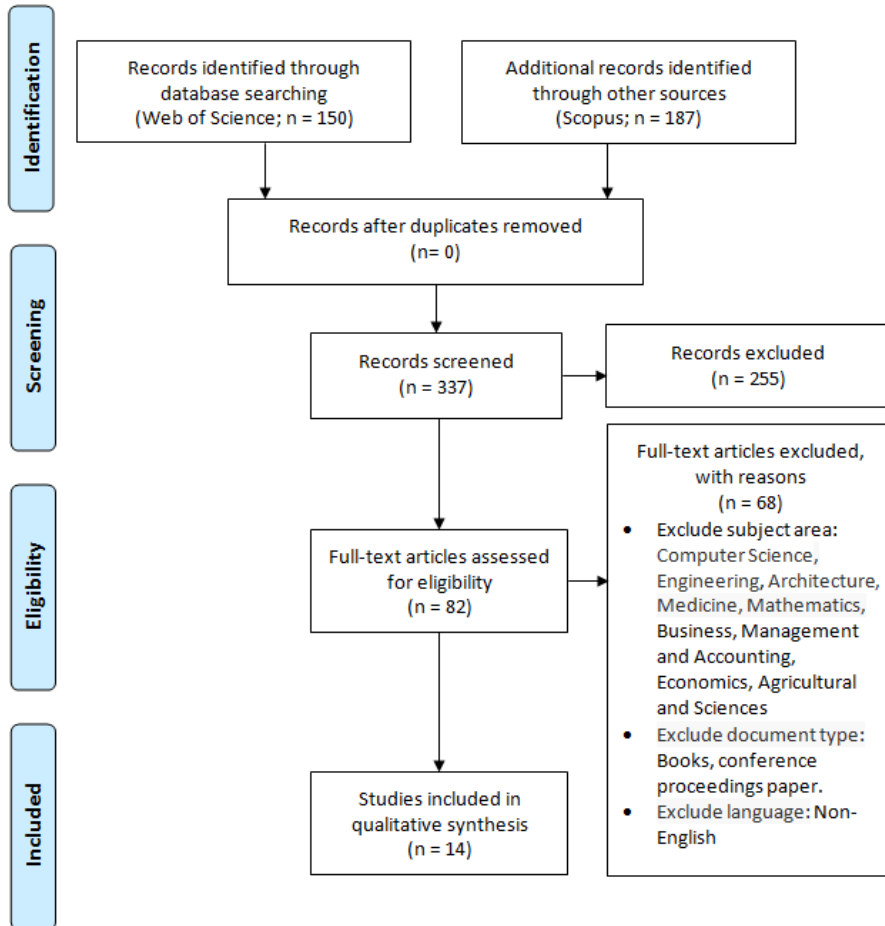
Figure 1: The flow diagram or the study. (Adapted from Moher et al., 2010)

Table 3: General description of the included articles

Author (s) and year	Objective	Findings	Components

Burnett (2000)	To draw upon theoretical and empirical work that emphasizes an environmental model of human information behavior.	It was found that interactions in Computer Mediated Communication systems can be "strikingly playful," and contribute to the sense of community in virtual communities. The heart of a virtual community can be found in the ongoing public discussions that constitute its primary activities. Such discussions may be focused directly on a specific topic or may be more amorphous and generalized. Virtual communities could provide emotional support for their participants.	Interactive behavior
			  Information exchange behavior (seeking, providing, sharing, gathering)
			  Neutral behaviors
			  Humorous behaviors
			  Empathic behaviors
			Sense of community
			  Emotional support

Hsu and Lu (2007)	To examine the influences of group cohesion on users' participating behavior.	It was found that active participation in the online community is mandatory and crucial rather than volunteering to maintain their identification or relationship with other online members. Perceived cohesion appears to be the important determinant of a user's preference for participating in the community, which is important for community growth. To satisfy individual's needs, they should achieve common interest and build relationships to perceive member's attraction to each other. Thus, the collective sense would develop cohesion and consequently form a positive attitude toward the community.	Social norms Perceived ease of use Perceived cohesion Perceived enjoyment Preference Loyalty

Schröder and Hölzle (2010)	To advance research by developing a comprehensive definition of virtual community and to identify relevant factors forming and influencing the interaction quality of the company and community.	High interaction quality is a very important facet of communication, mutuality, recognition of effort and cohesion. Cohesion within virtual communities refers to the degree to which community members continuously try to participate. Cohesion is a binding principle of a virtual community that attracts members to participate and it differs between communities. To have a community purpose is vital beforehand because it affects how members decide to stick to the community. With a purpose to interact, the virtual community members are bound by common interest, which allows them to perceive emotional value. Hence, they feel a sense of virtual community and therefore commit to the community. They feel a strong sense of support and belonging as members mutually encourage others' ideas and contribute to idea development. Virtual communities are considered a great tool to boost innovation activities.	Communication Mutuality Recognition of effort Cohesion Impact on innovation
Erickson (2010)	To investigate the geographic turn in networked interaction, particularly, emergent sense making regarding the role of location in distributed communities.	Although new media tools look similar, they yield different practices for interaction pattern. In Jaiku, extended interactions allow users to develop feelings of familiarity and trust with their interlocutors. Once they have established trust, they feel safe being part of the virtual community. On Twitter, users have fewer means to thread posts, so they utilize the unidirectional affordances of the tool to stake themselves out as eyes	Interaction patterns Local geography (salience) Trust

		and ears within a certain area; they act as news/information feeder for the benefit of the whole (public or community) but engagement between users only happens if the inputs are important and make sense. Locality also played an important role in indicating what is important for the community, both Jaiku and Twitter users continue to converse is they share a virtual place where bonds of trust would tie them together into a community.	
Wang and Chen (2012)	To understand how social motivations (that is, network externalities and social norms) affect members committed to online communities (OCs).	It was found that network externalities, social norms, and the role of familiar community members directly influences social interaction ties and relationship commitment, which subsequently leads to member's commitment towards a community. The two social norms facilitate member's participation in community activities, hence increases their interpersonal trust and social interaction ties, which enhances commitment to the online community. Plus, the member's recommended behavior may create a norm, causing a potential member to not only join a community, but also to participate frequently in the group because they believe that their friends or significant reference groups are concerned with their participation.	Network externalities Social norms Social interaction ties Trust in other members Relationship commitments
Guitton (2012)	To explore how meta-media can act on virtual community behavior, and on the immersive potential of the virtual world.	The textual, narration, and visual support of meta-media strongly reinforce the cohesion between members of the virtual Role-Play community, the coherence of the virtual world, between the groups, the environment, and ultimately the commitment of individual	Cohesion Coherence Commitment

		members toward their respective factions. Virtual spaces are more flexible than real physical space, thus virtual community members have a wide accessibility and were able to gather together following news release. The greater the interaction between on-line and off-line worlds allows them to connect the temporal aspects more strongly, which reinforces the virtual community. The combined ''in-world'' and ''out-world'' nature of meta-media increases the possibilities of inter-individual connections.	
Dahlberg and Bagga-Gupta (2013)	To understand the learning ecology of online education; investigates specific aspects of communication strategies employed by participants in a virtual classroom	Although an online community do not use visual access, when online community members make simple discourse markers such as "understood", "hello", "that's right", it significantly means they are engaged in a synchronous online communication. Hence, they made their presence in the virtual community known to the members. When online members orally acknowledge each other's presence, it is similar to face-to-face interaction, which in turn can enhance the social cohesion in the community.	Communication: Organization of time and space Translanguaging and coherence Dialogical engagement and performing learning and identity Transcription conventions
Lu and Brelsford (2014)	To investigate the dynamics of social networks and the formation and evolution of online communities in response to extreme events.	For all three networks, it was found that even though interactions between users were significantly increased under extreme events; most users remained in their original communities, and did not shift to other communities, which demonstrates the coherence of online social groups. Online social groups do cohere	Interactions Coherence Mutuality

		during difficult events due to an earthquake or a storm. Users who belonged to a community before the earthquake were more likely to remain in that community after the earthquake.	
Polukhina and Strelnikova (2015)	To find out (1) which rules and mechanisms exist in this type of economy; (2) what motivates people who are not acquainted with another to exchange gifts; and (3) understand the way this community exists.	The social capital accumulated by users increases the community commitment and cohesion by interpreting gifts as a set of resources to distribute fairly. The giving, the receiving and the exchanging are forms of communication that cause further communication. The mechanism of interactive reputation through comments can help the community to generate feedback, which is necessary to keep the network working and create trust in an online community. The people who are most trusted are those who have greater virtual social capital and higher reputation rating due to longer membership in the community. The basis for the existence of such a community is trust, the value of communication and acceptance of the legitimacy of the existing order.	Interaction Group-generalized community Social capital Trust
Nistor, Daxecker, Stanciu, and Diekamp (2015)	To investigate the relationships between the socio-emotional component of Sense of community (SoC) (SoC-S), CoP variables (such as time spent in communities of practice (CoP), the centrality of CoP members and socio-emotional interpersonal knowledge), and participants'	Intensive interactions within the community members sustain communities of practice members' feelings of membership, reciprocal influence and trust, as well as their integration and fulfilment of needs, which leads to stronger emotional connections. To reduce uncertainty, community of practice members needs to have more experience by turning to their peers and increase group cohesion. Plus, the member's sense of	Time in CoP Centrality in CoP and social networks Socio-emotional interpersonal knowledge (SEIK) Sense of community (social) Shared emotional connection/art Integration and fulfillment of needs/trade Influence/trust

	acceptance of knowledge sharing in face-to-face academic CoPs	community is mainly influenced by their socio-emotional interpersonal knowledge.	Membership/spirit
Kaur, Dhir, and Rajala (2016)	To understand the intrinsic aspects of user behavior in such communities is important for devising strategies to ensure user retention and active participation.	This study found that enjoyment, concentration, and social interaction are the components that constitute online user's flow experience. The three dimensions of social capital theory predict users' intentions to continue using Facebook fan pages. Specifically, they found that social interaction, shared values and trust anticipate users' continuation of usage intentions. However, flow experience constructs may vary for different social media platforms and cannot be generalized.	Social interaction Playfulness Enjoyment Concentration Skill Machine interaction Challenge Exploratory behavior Perceived ease of use Intrinsic interest
Zhou, Su, Zhou and Zhang (2016)	To understand about online community interactivity.	Consumers become friends online through frequent, cooperative online interactions with the aid of interactive information technology. Social presence plays a partial mediating role between interactivity and online friendship. Online friendship encourages members' commitment to their online brand communities. The findings suggest that brand communities must provide conditions for the creation of social presence online, which stems from online members' personal information, such as web names, avatars, slogans, text, pictures, and emoticons. Thus, relevant technologies that produce socially rich text content (e.g., personalized greetings, human-centric pictures, human audio or	Online community interactivity: active control Online community interactivity: two-way communication Online community interactivity: synchronicity Social presence community commitment Brand relationship quality Brand community responsibility Informational value

		human video) should be considered in the design of online forums.	
Kim and Kim (2017)	To identify online fan community attributes (i.e., social interaction, information quality, and contents) and explore their effects on the fan-celebrity relationship.	Findings show that social interaction, information quality and content significantly influenced online community's sense of identification and trust, which, in turn, enhance loyalty and encourage cooperation among fans virtually. Such influence of common identity and common bond attachments affected online user's behavior to build social ties and provides an opportunity for bonding. Plus, the number of connected hours moderated the paths between social interaction to community's trust, loyalty, and cooperation.	Social interaction Information quality Contents Celebrity trust Fan community identification Fan community trust Loyalty Cooperation
Nicholls and Rice (2018)	To explore responses to online communicative deviance by integrating social identity approaches (a group-level perspective) and expectancy violations theory (an individual-level perspective).	It was found that common identity among group member increases group identification and thus norm conformity; stigma and support more group identification. Large online communities as well as smaller online groups or subgroups can foster group identification and, therefore, respond to deviance. Social networking sites (SNS) can foster intergroup interaction among their users and collective action. Members can overcome deviant behavior by restoring group positivity, cohesion, and distinctiveness.	Common identity Online content Group Collective action Expectancies

3.5 Study Characteristics

VCs are online platforms where members engage in frequent text and photo exchanges, fostering ongoing conversations. Social networking sites (SNS) are a prime example of VCs that facilitate intergroup interactions and enhance social cohesion among members. There are several factors that contribute to social cohesion within VCs, enabling interactive activities related to information exchange, providing support, sharing, and socializing. While these interactions are primarily virtual and lack face-to-face contact, they still require active participant involvement to maintain practical, ongoing, and self-sustaining. Based on the chosen articles, there are five overarching themes for enhancing social cohesion through VC groups.

3.5.1 Common Identity

The first factor that enhances social cohesion in a VC is the member's sense of common identity. This factor enhances VC member's sense of social cohesion through being similar, which increases group identification and thus norm conformity (Dahlberg & Bagga-Gupta, 2013; Kim & Kim, 2017; Nicholls & Rice, 2018). It connotes the member's sense of similarity towards each other in the VC. This factor allows them to reminisce social values (Kaur et al., 2016; Zhou et al., 2016; Kim & Kim, 2017; Nicholls & Rice, 2018), social norms (Hsu & Lu, 2007; Wang & Chen, 2012), and intrinsic values (Kaur et al., 2016). These values render their sense of togetherness as they have a positive feeling towards one another with a form of attraction. As Guitton (2012) claimed, the textual, narration and visual support of a VC reinforces the member's cohesion as their commitment towards their respective factions allows them to connect the temporal aspect more strongly through similarity. This factor helps build their social identity or compose their mental self-categorization to the VC group as they have attracted based on race, occupation, age, values, hobby, personality in-group or out-group, and shared norms. This factor by far reinforces the members in a VC to think and behave accordingly to the group's norms. As insinuated by Wang and Chen (2012), social motivations such as social norms, the role of familiar community members, and social interaction ties influence the member's commitment and frequent participation to the VC due to their belief that their friends within the VC are concerned with their participation.

3.5.2 Sense of Belonging

The second factor leans more towards their inner mutuality relevant to local culture, which is their sense of belonging. Such factor entails social capital (Polukhina & Strelnikova, 2015; Kaur, Dhir, & Rajala, 2016), membership (Nistor et al., 2015), reciprocity (Nistor et al., 2015; Nicholls & Rice, 2018), recognition of awareness to common interest (Schröder & Hölzle, 2010), sense of community (Burnett, 2000; Nistor et al., 2015; Zhou et al., 2016; Kim & Kim, 2017; Nicholls & Rice, 2018), cooperation among group members (Kim & Kim, 2017), and last but not least familiarity (Erickson, 2010). Sense of belonging allows the members of a VC to share a feeling, action or a group honor. As Burnett (2000) depicted in his findings that ongoing discussion

between members constitute as the primary group activity within a VC, although the topic can be vague and generalized. However, Lu and Breldford (2014) said that perceived mutuality such as extreme events faced together also causes VC members to stay in their respective group, which demonstrate people tend to maintain cohesive during extreme events due to mutual sense of belonging. Another sub-factor such as social capital increases the member's sense of commitment by interacting actively to keep the network working and create trust (Polukhina & Strelnikova, 2015), the member's feelings of membership and reciprocal influence (Nistor et al., 2015). Such interactive behavior contributes to their sense of community, which comes after the members recognize similarities between one another because once they have built the sense of mutuality; they feel a deep sense of belonging to the group as a whole. Similar to past study by Sahharon et al. (2018), youths use Facebook functions to form some resemblance of identity, reputation and group. Such influence from similar and mutual attachments has affected the VC member's behavior to build social ties and provides an opportunity for bonding (Kim & Kim, 2017). Similar to a previous study by Powell et al. (2004), social bonding can be done partially via electronic communication tools such as social networking sites. This in turn heightens their sense of community and enhances social cohesion.

3.5.3 Task Commitment

Task commitment is the third factor contributing to social cohesion. Although a VC differ from face-to-face interaction, apparently the members can still work together to complete a shared task and accomplish collective goals. Working together would mean the members would exhibit a great sense of interdependence and responsibility to achieve a common goal. What is most important in achieving a task commitment is the social presence of its members within the VC through simple discourse markers such as "understood", "hello" and more (Dahlberg & Bagga-Gupta, 2013; Zhou et al., 2016), their commitment or loyalty to the group (Hsu & Lu, 2007; Wang & Chen, 2012; Guitton, 2012; Polukhina & Strelnikova, 2015; Zhou et al., 2016; Kim & Kim, 2017), the time spent in the VC moderated the paths between social interaction to community's trust, loyalty, and cooperation (Nistor et al., 2015; Kim & Kim, 2017), and recognition of effort (Schröder & Hölzle, 2010). Schröder and Hölzle (2010) showed that recognition of effort within a VC such as social presence (Zhou et al., 2016), continuously trying to participate, giving, receiving, and exchanging are forms of communication (Polukhina & Strelnikova, 2015) that could bind the members together and feel cohesive as they are bonded by a common interest; it becomes their principle to achieve the same community purpose. Moreover, Kim and Kim (2017) highlighted that social interaction, information quality and content influences CV members' sense of identification and trust, which enhances their loyalty. Plus, being engaged in a synchronous online communication by acknowledging each other's presence can enhance the member's sense of social cohesion (Dahlberg & Bagga-Gupta, 2013), which is parallel to Kelley et al.'s (2003) findings that stated a purely intergroup interaction causes the members to relate entirely as representatives of their groups. Moreover, members within a VC usually act as news/information feeder for the benefit of the whole (Erickson, 2010). Hence, the members perceive a strong sense of support and belonging to

the members as they committedly encourage each other's ideas to complete a common task.

3.5.4 Social Trust

Social trust is the fourth factor and is crucial for members to feel emotionally safe within the VC. Trust is built through cooperation and collaboration and is influenced by perceived enjoyment, shared values, and social interactions. Social trust is a belief in others' integrity and liableness but after several cooperation and collaboration, social trust is an issue that could hinder members from feeling socially cohesive. As depicted by Hsu and Lu (2007) and Kaur et al. (2016), perceived enjoyment within a VC can only be entrusted if the members feel they can trust one another (Erickson, 2010; Wang & Chen, 2012; Polukhina & Strelnikova, 2015; Nistor et al., 2015; Kaur et al., 2016; Kim & Kim, 2017). Kaur et al. (2016) further stated that perceived enjoyment within a VC constitute online member's flow experience in their intention to continue using Facebook fan pages. Specifically, it was found that trust, shared values, and social interaction influences member's loyalty and continuance to participate (Kim & Kim, 2017). Although interactions within a VC can be playful, Burnett (2000) insinuated their ongoing discussions could provide a sense of community and provides emotional support for its members, even trust is similar to what Kim et al. (2008) and Jarvenpa and Leidner (1999) found in their previous study. Just as Hsu and Lu (2007) mentioned in their findings, to satisfy the member's needs, they should achieve common interest and continue to build a relationship online to perceive member's attraction to one another. Similarly, Schröder and Hölzle (2010) and Nistor et al. (2015), claimed that when members decide to stick to the community and sustain the community with a purpose to interact due to a common interest, it allows them to perceive emotional value. As a result, their fulfillment of needs leads to stronger emotional connections and sense of community. As Erickson (2010) found in her study, new media tools such as Jaiku and Twitter may yield different practices for interaction behavior, but the extended interactions allow users to develop a sense of familiarity and trust with their interlocutors. Social interaction ties, relationship commitment facilitate the member's participation in activities in the VC and subsequently increases their interpersonal trust (Wang & Chen, 2012; Polukhina & Strelnikova, 2015). Such interaction behavior allows them to establish a collective sense of support and bonds of social trust, which forms a positive attitude, enhances commitment, and tie them together into a community.

3.5.5 Social Interaction

The final factor focuses on social interaction within the VC. Effective communication and cooperation are essential for fostering emotional support, strengthening cohesion, and building a sense of community. This includes various forms of interaction, such as textual, visual, and semantic play, which create an environment that encourages emotional support and cohesiveness among members. A group must resume their discussion as a primary mechanism to keep members' relationship going (Burnett, 2000). This is true, especially when interactions in a VC can be "strikingly playful" through semantic play such as memes, emoticons, use of abbreviations, and aspects of playing a role. This in turn can create an environment within the VC that provides emotional

support for members due to its cohesiveness (Hsu & Lu, 2007; Schröder & Hölzle, 2010; Guitton, 2012; Dahlberg & Bagga-Gupta, 2013; Lu & Brelsford, 2014), collectiveness (Nicholls & Rice, 2018), integration (Nistor et al., 2015), preference (Hsu & Lu, 2007), interactive pattern/communication (Burnett, 2000; Schröder & Hölzle, 2010; Erickson, 2010; Dahlberg & Bagga-Gupta, 2013; Polukhina & Strelnikova, 2015; Zhou et al., 2016; Nicholls & Rice, 2018), information exchange behavior such as seeking, providing, sharing gathering, neutral, humorous, empathic, enjoyment (Burnett, 2000; Nistor, et al. ,2015; Kaur et al., 2016), social ties (Wang & Chen ,2012; Lu & Brelsford, 2014; Polukhina & Strelnikova ,2015), informational values (Kaur et al., 2016; Zhou et al., 2016; Kim & Kim ,2017; Nicholls & Rice ,2018), and engagement (Schröder & Hölzle ,2010; Dahlberg & Bagga-Gupta ,2013; Lu & Brelsford ,2014; Nicholls & Rice, 2018) to continue ongoing information exchange activities. As Hsu and Lu (2007) highlighted, active participation in a VC is mandatory and crucial to maintain the members' sense of identification with one another, which is similar to what Tobin et al. (2014) and Bolong (2011) have found in their previous studies. Such loyal participation only ensues when the members perceived cohesion in the VC, which contributes to the growth of the community. These sub-factors of perceived cohesion could in turn enhance the sense of social cohesion within a VC.

3.6 Strengths and Limitations

This systematic review represents the first comprehensive examination of factors influencing social cohesion within virtual communities (VCs) through online interactions. It employed a structured search encompassing academic databases and online search engine articles to gain a deeper understanding of these factors and their impact on relational cohesion. While earlier theories had generally asserted that positive emotions played a role in enhancing social cohesion, this review provided specific insights. It identified five key factors: common identity, a sense of belonging, shared task commitments, social trust, and frequent social interactions as pivotal for fostering and sustaining social cohesion. Despite the challenge of comparing results due to the diversity in research designs, settings, programs, and outcome measures, the review offered a narrative summary to accommodate the heterogeneous nature of the studies.

The review also highlighted a significant gap in the existing research, as the number of studies exploring social cohesion within virtual communities remains limited. This limitation stems from the scarcity of specific research into the types of online interactions that provide emotional support and enhance members' sense of community. Future research should focus on understanding how effective communication in online interactions within virtual communities can provide emotional support for members. It is likely that a wide range of positive interactions, including those related to information exchange and other forms, contribute to creating an environment perceived as supportive and welcoming by participants. To validate the findings from this review, future studies should apply and test the five main factors identified (common identity, sense of belonging, task commitment, social trust, and social interaction) to gain a more comprehensive understanding of how social cohesion can be instilled and enhanced within virtual communities.

4   Conclusions

The systematic review offers valuable insights into the factors occurring within virtual communities (VCs) that can strengthen the sense of social cohesion among their members. In particular, it delves into the detailed examination of the five key factors: common identity, sense of belonging, task commitment, social trust, and social interaction, which exert a significant influence on the behavior of VC members in online interactions. The interactions within virtual communities that promote and strengthen social cohesion among participants are critically reviewed in this paper, which also summarises the results of fourteen studies. It is hoped that these factors, when they act as magnets, will bring members of the group and one another closer together, encouraging a group effort to accomplish common goals. Anxiety, uncertainty, and ethnocentrism have been linked to a decrease in social cohesiveness in a world where there is an increase in income disparity, unemployment, and crime rates as well as a generation that is becoming more individualistic. The hope is that these elements will serve as a framework, encouraging users to foster a vibrant community where the fear of differences is replaced by a shared sense of purpose and belonging, enhanced trust, better social and emotional support, the ability to resolve conflicts, and the maintenance of meaningful relationships.

References

Aldous, J., Durkheim, E., & Tonnies, F. (1972). An exchange between Durkheim and Tonnies on the nature of social relations, with an introduction by Joan Aldous. *American Journal of Sociology*, *77*(6), 1191-1200.

Alesina, A., & La Ferrara, E. (2000). Participation in heterogeneous communities. *The quarterly journal of economics*, *115*(3), 847-904.

Ali, M., Azab, N., Sorour, M. K., & Dora, M. (2019). Integration v. polarisation among social media users: Perspectives through social capital theory on the recent Egyptian political landscape. *Technological Forecasting and Social Change*, *145*, 461-473.

Bagozzi, R. P., & Dholakia, U. M. (2002). Intentional social action in virtual communities. *Journal of interactive marketing*, *16*(2), 2-21.

Bolong, J. (2011). *Minda Komuniti Maya*. Bangi: Universiti Kebangsaan Malaysia.

Burnett, G. (2000). Information exchange in virtual communities: a typology. *Information research*, *5*(4). Retrieved from http://informationr.net/ir/5-4/paper82.html

Cartwright, D. (1968). The nature of group cohesiveness. *Group dynamics: Research and theory*, *91*, 109.

Chung, N., Tyan, I., & Chung, H. C. (2017). Social Support and Commitment within Social Networking Site in Tourism Experience. *Sustainability*, *9*(11). Retrieved from https://www.mdpi.com/2071-1050/9/11/2102/htm

Dahlberg, G. M., & Bagga-Gupta, S. (2013). Communication in the virtual classroom in higher education: Languaging beyond the boundaries of time and space. *Learning, Culture and Social Interaction*, *2*(3), 127-142.

Duffy, A., & Ling, R. (2020). The gift of news: Phatic news sharing on social media for social cohesion. *Journalism studies*, *21*(1), 72-87.

Erickson, I. (2010). Geography and community: New forms of interaction among people and places. *American Behavioral Scientist*, *53*(8), 1194-1207.

Fischer, E., & Reuber, A. R. (2011). Social interaction via new social media:(How) can interactions on Twitter affect effectual thinking and behavior?. *Journal of business venturing*, *26*(1), 1-18.

Green, A., Janmaat, J. G., & Han, C. (2009). *Regimes of Social Cohesion*. Published for the Centre for Learning and Life Chances in Knowledge Economies and Societies. Retrieved 10 March 2014 from http://www.Ilakes.org.uk

Guitton, M. J. (2012). The immersive impact of meta-media in a virtual world. *Computers in human behavior*, *28*(2), 450-455.

Heuser, B. L. (2005). The ethics of social cohesion. *Peabody Journal of Education*, *80*(4), 8-15.

Hogg, M. A. (1993). Group cohesiveness: A critical review and some new directions. *European review of social psychology*, *4*(1), 85-111.

Hsu, C. L., & Lu, H. P. (2007). Consumer behavior in online game communities: A motivational factor perspective. *Computers in Human Behavior*, *23*(3), 1642-1659.

Hu, M., Zhang, M., & Wang, Y. (2017). Why do audiences choose to keep watching on live video streaming platforms? An explanation of dual identification framework. *Computers in Human Behavior*, *75*, 594-606.

Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization science*, *10*(6), 791-815.

Jenson, J. (1988). *Mapping Social Cohesion*. Ottawa: Canadian Policy Research Network.

Jenson, J. (1998). *Mapping Social Cohesion: The State of Canadian Research,* 109-128. Ottawa: Canadian Policy Research Networks Inc.

Jenson, J. (2010). *Defining and measuring social cohesion* (No. 1). Commonwealth Secretariat.

Jin, B., Park, J. Y., & Kim, H. S. (2010). What makes online community members commit? A social exchange perspective. *Behaviour & Information Technology*, *29*(6), 587-599.

Kaur, P., Dhir, A., & Rajala, R. (2016). Assessing flow experience in social networking site based brand communities. *Computers in Human Behavior*, *64*, 217-225.

Kelley, H. H., Holmes, J. G., Kerr, N. L., Reis, H. T., Rusbult, C. E., & Van Lange, P. A. (2003). *An atlas of interpersonal situations*. Cambridge: Cambridge University Press.

Khan, H. (2001). *Social policy in Singapore: a Confucian model?* Washington DC: World Bank Institute.

Kim, M. S., & Kim, H. M. (2017). The effect of online fan community attributes on the loyalty and cooperation of fan community members: The moderating role of connect hours. *Computers in Human Behavior*, *68*, 232-243.

Laurence, J. (2014). Reconciling the contact and threat hypotheses: does ethnic diversity strengthen or weaken community inter-ethnic relations? *Ethnic and Racial Studies*, *37*(8), 1328-1349.

Lawler, E. J., Thye, S. R., & Yoon, J. (2000). Emotion and group cohesion in productive exchange. *American Journal of Sociology*, *106*(3), 616-657.

Levin, S., Taylor, P. L., & Caudle, E. (2007). Interethnic and interracial dating in college: A longitudinal study. *Journal of Social and Personal Relationships*, *24*(3), 323-341.

Logan, S., Steel, Z., & Hunt, C. (2015). Investigating the effect of anxiety, uncertainty and ethnocentrism on willingness to interact in an intercultural communication. *Journal of Cross-Cultural Psychology*, *46*(1), 39-52.

Lu, X., & Brelsford, C. (2014). Network structure and community evolution on twitter: human behavior change in response to the 2011 Japanese earthquake and tsunami. *Scientific reports*, *4*, 6773.

Mennis, J., Dayanim, S. L., & Grunwald, H. (2013). Neighborhood collective efficacy and dimensions of diversity: a multilevel analysis. *Environment and Planning A*, *45*(9), 2176-2193.

Mennis, J., Dayanim, S. L., & Grunwald, H. (2013). Neighborhood collective efficacy and dimensions of diversity: a multilevel analysis. *Environment and Planning A*, *45*(9), 2176-2193.

Mesure, S. (2013). Durkheim and Tönnies: Exchanged Perspectives on Society and Its Knowledge. *Sociologie*, *4*(2), 201-211.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2010). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *International journal of surgery*, *8*(5), 336-341.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2010). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *International journal of surgery*, *8*(5), 336-341.

Nicholls, S. B., & Rice, R. E. (2017). A dual-identity model of responses to deviance in online groups: Integrating social identity theory and expectancy violations theory. *Communication Theory*, *27*(3), 243-268.

Nistor, N., Daxecker, I., Stanciu, D., & Diekamp, O. (2015). Sense of community in academic communities of practice: Predictors and effects. *Higher Education*, *69*(2), 257-273.

Oliveri, F. (2005). Security and Social Cohesion: Deconstructing fear (of others) by going beyond stereotypes. *Trends in Social Cohesion, 11,* Strasbourg: Council of Europe Publishing.

Pae, C. U. (2015). Why Systematic review rather than narrative review? *Psychiatry investigation*, *12*(3), 417-419.

Pae, C. U., Wang, S. M., Han, C., Lee, S. J., Patkar, A. A., Masand, P. S., & Serretti, A. (2015). Vortioxetine: a meta-analysis of 12 short-term, randomized, placebo-controlled clinical trials for the treatment of major depressive disorder. *Journal of psychiatry & neuroscience: JPN*, *40*(3), 174.

Page-Tan, C. (2021). 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. *Natural Hazards*, *105*(2), 2219-2240.

Pahl, R. E. (1991). The search for social cohesion: from Durkheim to the European Commission. *European Journal of Sociology/Archives Européennes de Sociologie*,

32(2), 345-360.

Piccoli, G., Powell, A., & Ives, B. (2004). Virtual teams: team control structure, work processes, and team effectiveness. *Information Technology & People*, *17*(4), 359-379.

Polukhina, E., & Strelnikova, A. (2015). Exploring the Russian Online Gift-Exchange Communities: The Results of Nethnographic Approach. *The Qualitative Report*, *20*(12), 2041-2049.

Powell, A., Piccoli, G., & Ives, B. (2004). Virtual teams: a review of current literature and directions for future research. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*, *35*(1), 6-36.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Touchstone.

Sahharon, H., Bolong, J., Omar, S. Z., & Shaffril, H. A. M. (2018). Facebook usage pattern among rural youths of 1Malaysia Wireless Village. *International Journal of Academic Research in Business and Social Sciences*, *8*(3), 354-374.

Schiefer, D., & Van der Noll, J. (2017). The essentials of social cohesion: A literature review. *Social Indicators Research*, *132*, 579-603.

Schröder, A., & Hölzle, K. (2010). Virtual communities for innovation: Influence factors and impact on company innovation. *Creativity and Innovation Management*, *19*(3), 257-268.

Shepherd, H., & Lane, J. (2019). In the mix: Social integration and social media adoption. *Social Science Research*, *82*, 1-17.

Silveira, S., Hecht, M., Adli, M., Voelkle, M. C., & Singer, T. (2022). Exploring the structure and interrelations of time-stable psychological resilience, psychological vulnerability, and social cohesion. *Frontiers in Psychiatry*, *13*, 804763.

Stieglitz, S., & Ross, B. (2022). The Impact of social media on Social Cohesion: A Double-Edged Sword. *Media and Communication*, *10*(2), 104-107.

Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York: Wiley.

Tobin, S. J., Vanman, E. J., Verreynne, M., & Saeri, A. K. (2015). Threats to belonging on Facebook: Lurking and ostracism. *Social Influence*, *10*(1), 31-42.

Walton, E., & Hardebeck, M. (2016). Multiethnic neighborhoods on the ground: Resources, constraints, and sense of community. *Du Bois Review: Social Science Research on Race*, *13*(2), 345-363.

Walton, E., & Hardebeck, M. (2016). Multiethnic neighborhoods on the ground: Resources, constraints, and sense of community. *Du Bois Review: Social Science Research on Race*, *13*(2), 345-363.

Wang, E. S. T., & Chen, L. S. L. (2012). Forming relationship commitments to online communities: The role of social motivations. *Computers in Human Behavior*, *28*(2), 570-575.

Wilkinson, R. & Pickett, K. (2009). *The Spirit Level: Why More Equal Societies Always Do Much Better*. London: Allen Lane.

Wilkinson, R. G., & Pickett, K. E. (2009). Income inequality and social dysfunction. *Annual Review of Sociology*, *35*, 493-511.

Ye, B., Lei, X., Yang, J., Byrne, P. J., Jiang, X., Liu, M., & Wang, X. (2021). Family cohesion and social adjustment of chinese university students: the mediating effects of sense of security and personal relationships. *Current Psychology*, *40*, 1872-1883.

Zhang, W., Liu, S., Zhang, K., & Wu, B. (2020). Neighborhood social cohesion, resilience, and psychological well-being among Chinese older adults in Hawai'i. *The Gerontologist*, *60*(2), 229-238.

Zhou, Z., Su, C., Zhou, N., & Zhang, N. (2016). Becoming friends in online brand communities: evidence from China. *Journal of Computer-Mediated Communication*, *21*(1), 69-86.