

SYSTEMATIC REVIEW

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Cultural barriers influencing virtual community of practice: a scopic review

Shamaila Manzoor^{1,2*} and Noor Atiq³

Abstract

Background Connectivism is the philosophy of education for the digital age, making Vygotsky's concept of zone of proximal development (ZPD) more flexible. Stretching it to include learning that lies outside the learner, in social networks and technological tools. It has replaced passive teaching methodologies with more active ones, including student-centered learning, the co-creation of knowledge, and peer review assessment strategies. Subsequently, the virtual communities of practices are considered an important medium for generation and dissemination of soft or tacit knowledge.

Objective The objective of this scopic review was to explore the cultural factors which hamper the growth of a 'virtual community of practice' of any organization.

Methods This scopic review was done using Arksey and O'Malley framework. This framework is comprised of following five steps: (1) identification of the research question, (2) identifying pertinent studies, (3) study selection, (4) charting the data, (5) organizing, summarizing, and reporting the results.

Findings This research was conducted in ERIC, Pub med, Psycinfo and Cochrane library. A total of 31,000 records were acknowledged. After data characterization of full text articles, four themes emerged from the articles which fulfilled the criteria of inclusion: Individualism vs. collectivism, power distance, in group vs. out group orientation, cultural values and language barrier. Cultural factors like difference in time zone, working in a complex learning environment, missing organized guidance and the social presence of facilitators were also identified as minor aspects impeding the growth of virtual community of practice.

Conclusion The research reported five major cultural elements which have influenced the virtual community of practice, that is, collectivism versus individualism, power distance in society language and geographical barriers, cultural values and in group versus out group orientation. Competitiveness and job security related fears are further influential barriers in the knowledge sharing across different cultures.

Keywords Cultural differences, Knowledge sharing, Virtual community of practice, Power distance, Individualism and connectivism

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Operational definitions

Collectivist cultures emphasize the needs and goals of the group over the needs and desires of everyone.

Individualistic cultures are those that stress the needs of the individual over the needs of the group.

Digital literacy is the ability to effectively use, assess and manage technology.

Background

The digitalization of the world has led to the emergence of a new learning paradigm known as *connectivism*. Positioned as a contemporary educational philosophy for the digital age, connectivism extends Vygotsky's concept of the Zone of Proximal Development (ZPD) beyond individual cognition to encompass learning distributed across social networks and technological tools. Subsequently, extending it to include those areas, which are unreachable for learners, by communal webs and scientific gears [1]. This social networking contributed to replacing passive teaching methodologies by more active ones, including student-centered learning, the co-creation of knowledge, and peer review assessment strategies. Therefore, connectivism can be considered as an updated version of constructivism, considering it as a general philosophy of education for the digital age.

The Covid-19 pandemic forced every facet of life to transform. Educators felt hesitated to follow principles conventional theories, in the era of pandemic as these learning theories were developed mainly for face to face teaching [2]. While connectivism was found as a suitable conceptual framework that initiates learning through digital enablers, discussions and social networking. It has served to make mental models from various pieces of information from different digital sources [3]. Thus, connectivism became the mainstream premise of learning in the era of pandemic, as learning became a network directed activity [4]. As a result, many virtual communities of practice were established. These virtual communities were based on common goals, knowledge exchange, relationships among members of a community and a shared repertoire. The virtual communities of practices, are considered an important medium for generation and dissemination of soft or tacit knowledge, that is, the knowledge which is hard to communicate because it is mostly intuitive and embedded in a specific context [5]. Moreover, these Virtual Community of Practice have promoted knowledge translation, which is application of knowledge in real world scenarios, directly from researchers to end users for the betterment of humanity [6]. The knowledge sharing is being done through web-browsers, E-mail, wikis, on-line discussion forum, social networks, you-tube and various other tools which enable people to connect with each other across the globe. Moreover, propensities such as virtual and augmented

reality, artificial intelligence, machine learning, semantic web, internet of things, and learning analytics have revolutionized the educational methodologies and technologies, particularly in distance education. Health care professionals and social workers have used a wide range of virtual communities of practice for learning, supporting and continuing professional education for knowledge management and information sharing, to provide best health care in their context [7]. Introduction of digital means in medical education has promoted learner engagement, feedback, collaboration, and the development of professionalism [8].

Connectivism allowed learners to develop the key competences that lay at the foundation of 21st-century teaching and learning, as the application of e-learning program supported critical thinking, problem solving, and activities that support and direct large amounts of information [9]. However, the spirit of connectivism is fenced by language barriers and difference in contextual meaning, leading to misinterpretation of the key knowledge, especially in multidisciplinary settings [10]. Moreover, connectivism emphasizes the building of network of communication aligning with digital environment but it underplays the human cognitive process explained through cognitivism and socially learned knowledge through constructivism [11]. These orthodox frameworks emphasize cognition, context, reflection and facilitation, the features particularly relevant in cross-cultural setup. Therefore, integration of connectivism with cognitivism and constructivism provides a richer understanding of online learning. The Hofstede's cultural dimensions theory explains the cross-cultural differences in organizational and national culture [12]. It emphasizes why diverse population behave/think differently (focusing on how one communicates), while working in the same community. It covers six main dimensions including power distance, individualism vs. collectivism, masculinity vs. femininity, uncertainty avoidance, long term vs. short term avoidance and indulgence vs. restraint. Whereas, a closely similar framework, that is, Edward Hall communication context, explains the individual communication patterns, interpersonal behavior, and non-verbal communication in a specific cultural context, time and space [13]. Nevertheless, the contemporary concept of cultural hybridity provides a platform where diverse cultural values, characteristics and practices interact and evolve through continuous interaction [14]. This hybridity reduces the cultural barriers by development of mutual understanding [15]. Aligned with cultural hybridity, critical digital pedagogy promotes equity and inclusiveness in learning through ethical and reflective use of digital technologies. Still, language and expression differences, implicit hierarchies and power imbalance may cause digital and cultural divide [12, 16]. Moreover,

scarce digital literacies, misalignment of cultural values and fear of dissent impedes the implementation of this pedagogical approach [17]. So, the objective of this scopic review was to search the cultural impact of knowledge management among members of these virtual communities. For this review the research question was: “What are cultural factors/differences which hamper the growth of a ‘virtual community of practice’ of any international organization”?

For this study, culture was defined as the characteristics and knowledge of a particular group of people, encompassing language, religion, cuisine, and social habits. The literature reviewed for research purposes included a wide range spanning from trust antecedent of virtual communities of practice to typology (demography, organizational context, membership characteristics, cultural influences, technological advances) [18].

Methods

The qualitative method of literature review was opted for this study. This scopic review was steered using Arksey and O’ Malley framework, with inclusion of identification of search terms (using key words) and databases

[19]. This framework is comprised of the following five steps: (1) identification of the research question, (2) identifying pertinent studies, (3) study selection, (4) charting the data, (5) organizing, summarizing, and reporting the results. The initial search was conducted on Nov 27th, 2023, using four electronic databases, that is, ERIC, PubMed, PsycINFO and Cochrane library. The following search terms were used for data collection, cultural differences, knowledge sharing, Virtual community of practice, Power distance, individualism and connectivism. The search was time bound (2019–2023), and the search query was tailored according to each database. All citations were managed through ‘Mendeley’. Next, duplicate citations were removed manually while further duplicates removed when found later in the process.

A two steps process was adopted to assess the relevance of the data collection during the survey. In the first step screening the titles and abstracts were reviewed (31,000) to collect only such articles which fulfill the inclusion criteria. Titles for which no abstract was available were kept aside by the reviewer for the next step of data characterization. In the second step after the title and abstract selection completed data was obtained for full article review. Only those studies were included in this scopic review which precisely described the cultural impact on virtual community of practice of international organizations and published in English. Studies with more complete data were included (24 studies). Certain characterization of the obtained data was done, which included cultural background of participation in virtual community of practice, cultural trends, and barriers to involvement in virtual community of practice. Studies not fulfilling these characteristics were excluded. Similarly, the literature available other than English, was excluded. This whole process is depicted below in the PRISMA flow diagram (Fig. 1), which facilitated the reviewers to report their reviews rigorously with more clarity, transparency, and in depth to empower reproducibility [20]. The articles which were not available directly on databases were explored from other sites and requested from peers to be sent. Following Joanna Briggs Institute (JBI) methodology, abstracts and title screening, followed by full text review was done by two reviewers, independently. Both reviewers applied predefined inclusion and exclusion criteria to ensure consistency and transparency [21]. The data was charted on a standardized form, independently by the two reviewers. All discrepancies arose during data extraction phases were resolved through discussion and consensus. When consensus was not achieved, a third reviewer was consulted to mediate and reach a final decision. Thematic analysis of extracted data was done manually, using an inductive approach.

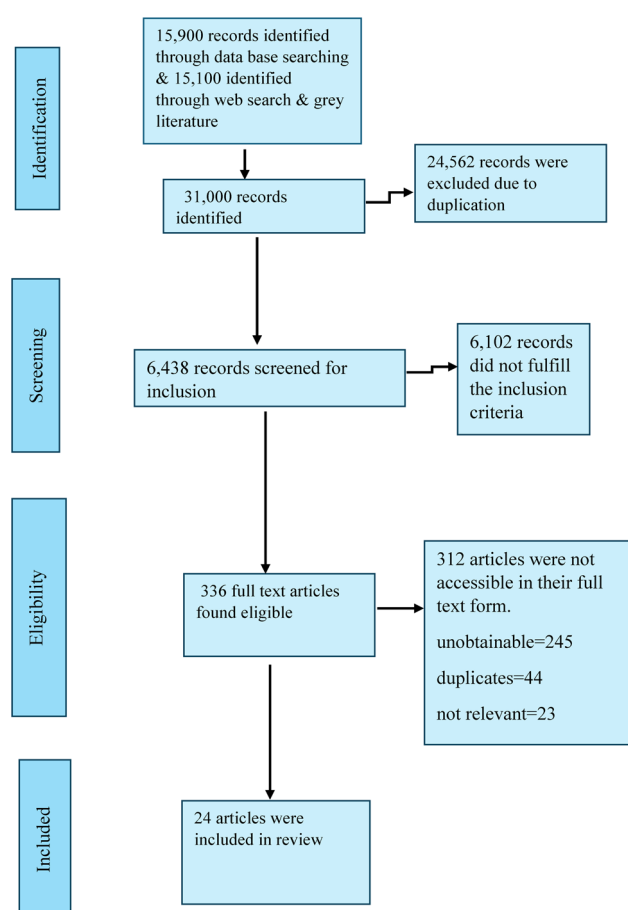


Fig. 1 Prisma Flow Chart of literature selection

Findings

This research was conducted in Nov 2023, which resulted in 15,900 journal articles, from following databases: ERIC, PubMed, PsycINFO and Cochrane Library. Whereas 15,100 records were identified through web search and grey literature (Google scholar). Quality appraisal of grey literature was done using AACODS (Authority, Accuracy, Coverage, Objectivity, Date, Significance) checklist [22]. A total of 31,000 records were acknowledged, out of which 24,562 records were excluded after duplication and relevance screening. On eligibility criteria 6,438 records were tested, and 336 articles were found eligible for review based on title and abstract. Next, efforts were made to obtain all full text articles for review, however 312 full text articles could not be obtained. After data characterization of full text articles, only 24 articles fulfilled the criteria of inclusion. The following themes emerged (Fig. 2) after thorough research in literature, depicting the significant impact on knowledge management across the international boundaries:

- 1) Individualism vs. collectivism.
- 2) Power distance; horizontal and vertical culture.
- 3) In group vs. out group orientation.
- 4) Language barrier and geographical barriers.
- 5) Cultural values.

Literature review has revealed that work mechanics of virtual communities are thoroughly different in collectivistic or individualist societies due to cultural variations. Communication style is a major factor which could either facilitate or hinder effective communication and collaboration. Collectivists accept information in its context and are more dependent on face-to-face or telephonic communication. This direct communication positively causes less misunderstandings. Whereas, individualistic tend to see the information independent of context, in written and codified form. Passive or aggressive communication style may lead to misunderstanding, within virtual communities. Formal communication is the mainstay in collective culture whereas informal and more casual communication prevails in individualistic cultures. Furthermore, in an individualistic environment, everyone prefers their personal goals. So, they seldom share their knowledge with their immediate colleagues. On the contrary, a member of a collectivistic culture emphasizes the goals of organization and group. They share their knowledge more readily with in group members. Therefore, these cultures always strive to embrace the collective goals of their community.

Language and geographical barriers emerged as another major theme. Virtual communities generally involve members all around the globe. The participants

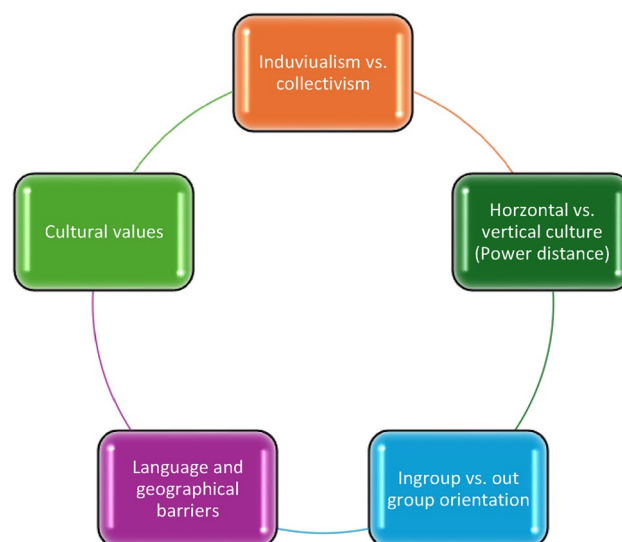


Fig. 2 Themes derived from scoping review

having diverse languages and variable proficiency levels, so non-native members were reluctant or avoid discussions when they must struggle with language. Subtle meaning and idiomatic expressions would augment misinterpretation in this situation. Native speakers dominate and their language proficiency was considered professional competence. Marginalization of participants on a language basis, affects the diversity and richness of shared ideas. Ultimately, they would not be comfortable in such a tiresome environment. Furthermore, real-time collaboration among participants becomes impossible due to varying time zones and diverse working hours. Overcoming this hindrance with recorded meetings or virtual seminar availability has been proposed and tried overtime. However, it does seem to impede the overall effectiveness in communication and collaboration, making virtual communities less operational. Moreover, different cultures have a distinct inclination towards digital literacy. (While digital literacy is the set of competencies and skills required for steering a fragmented and complex information ecology [23]. This inclination would be dependent on certain factors like language, access to technology and internet facilities, educational priorities and perception of digital literacy in that civilization. Therefore, many nations are more accustomed to digital technologies, while others encounter challenges in accepting them. So, this challenging situation for technological literacy among various cultures may hinder the effective use of virtual platforms.

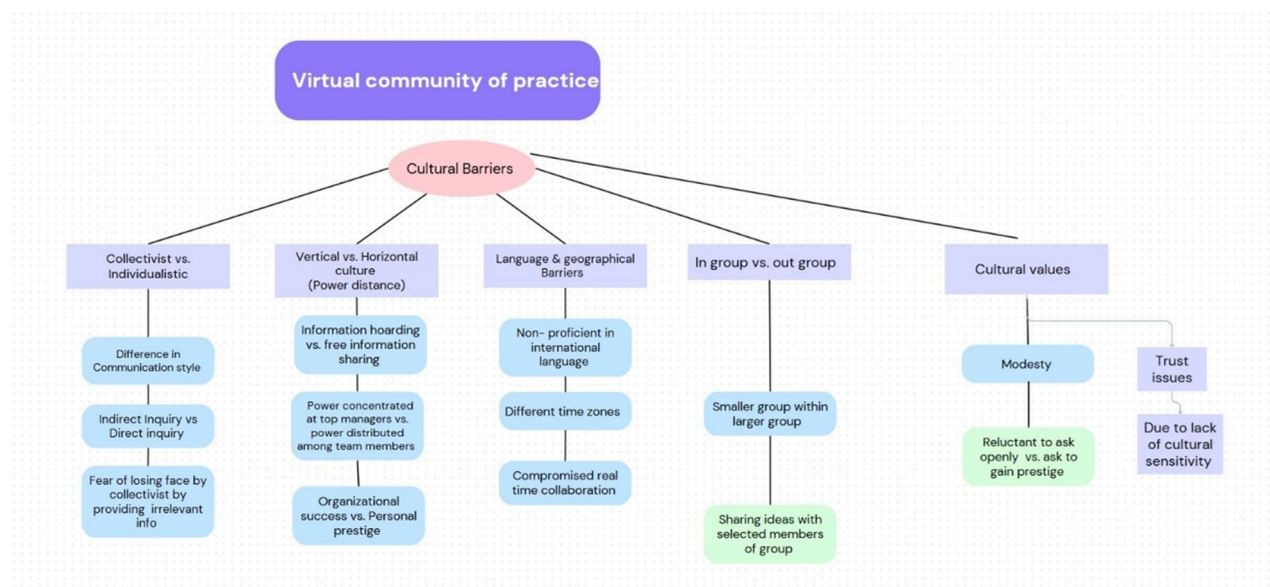
Next theme is group within group; family, close friends and work team are considered part of the self. Whereas other members are considered as outsiders so, trust does not prevail for whole group. Clear code of behaviours was found for dealing with in-group vs. outgroup individuals. Support, resources and opportunities were preferentially

offered to in-group members. The collectivist makes a sharper difference between in group and out group members. This quality promotes social harmony and mutual support, but it hampers achieving a collective goal of a virtual community of practice.

Power distance emerged as another dimension, particularly in vertical cultures. In vertical cultures people accept hierarchical order, without questioning authority, seniority and status. The vertical system associates' power with advancing personal status and prestige. Information is considered a source of power, therefore, to maintain hierarchy information is channelized in a controlled fashion rather than free dissemination. Controlling information will retain and reinforce their authority whereas sharing information freely might challenge their status. Hence, in vertical (collectivistic) culture information is constrained by hierarchy, lower-level employees may not get access to all the information, and this leads to obstacles of information sharing in members of different status of same vertical community of practice. Information hoarding is believed to be advantageous in these internal dynamics. The individualistic culture is horizontal, in horizontal cultures information flows in both directions. So, there is an exchange of information, insights and expertise among peers or colleagues within a group or organization. There is a cross functional interaction, where knowledge sharing occurs among all within an organization. It breaks down silos and encourages diverse community members to collaborate leading to a richer pool of expertise and insights. The leadership roles

are distributed among team members rather than concentrated at the top. When trust prevails then employees readily share their knowledge, this knowledge sharing ultimately enhances the overall performance, cultivates innovation, and contributes to organization success.

Furthermore, every culture has a discrete set of values that informs how a person will interact and collaborate in a certain context. Like, modesty is an important virtue in collectivistic culture. In collective cultures, people feel reluctant to express their ideas openly, therefore, a member of collectivistic culture will not ask questions in a group setting, rather he would prefer to use informal channels. They fear losing face, so they like asking questions from teachers personally, i.e. out of class. On the other hand, the members belonging to individualistic society have the courage to raise their queries in group discussions, not only to gain knowledge but to gain prestige and recognition. Disparities among social etiquette and formality expectation are major hurdles in harmony with any virtual community. Similarly, trust is the main pillar of success of any community, sometimes these cultural barriers make it difficult to establish trust. Participants are constantly asked for more time and energy which their geographical, language and social barriers do not allow them to meet. Misalignment of these cultural values creates friction and impedes the development of a cohesive environment of work. As a result, misunderstandings and conflict arise in a virtual community, especially on avenues of collaborative work due to lack of cultural sensitivity and awareness of each other's inclinations or situations.



Discussion

Cultural barriers do not influence individually, but they interact and reinforce each other to shape people perspective of participation in virtual communities of practice. This scopic review has identified numerous factors which interplay and impede the growth of virtual communities of practice in international establishments.

Individualism vs. collectivism

The communication approaches and behavior of both collectivist and individualistic do not operate in isolation, rather they explain how people behave on digital platforms. In collectivist culture, focus is on group harmony and consensus which interacts with fear of losing face, thus promoting a careful communication environment. They are more comfortable with controlled communication (either face-to-face communication or through telephonic communication) where meaning can be negotiated within trusted social boundary. Similar results were shown by studies that stated that inhabitants of collective cultures prefer direct communication rather than blogging and social networking [24, 25]. Moreover, a comparative study which stated that fear of 'losing collective face' provoked Chinese tourist to opt sophisticated behavior [26]. Contrary to this, individualistic societies believe in autonomy and use of digital tools like blogs, E mail and social media platforms for identity building and independent knowledge sharing. Open discussions and confrontations are not threats but considered constructive pathways for improvement of community. This is aligned with a previous research stating that various community members opt culture specific preference for communication mode [27]. Thus, collectivist use communication style to maintain group cohesion, while individualistic practice it to promote professional visibility. When these cultural orientations intersect in virtual communities it can impede their growth. As collectivist would consider the individualistic communication style as disrespectful while for individualistic the communication style would be unacceptable (less transparent), exercised by collectivist.

Power distance (Vertical vs. Horizontal group)

It is evident that in collective societies the interplay of socio-economic conditions, hierarchical structure and power distance held accountable for shaping communication behaviors. In hierarchical system, autocratic decision making at top is reinforced by tolerating inequality at lower end, as authority flows from top to bottom. These dynamics clearly daunt open discussions considering it disrespectful for superiors, especially when economic instability renders job security uncertain. Here, knowledge is considered as professional security and status symbol, so it is strictly hoarded by executives.

Consequently, information flow is restricted among top management, creating barriers to collaborating among members at different positions in same virtual community of practice. A relevant study has revealed that during global economic crises, with resultant downsizing in many organizations and fear of losing employment, ensued information hoarding [28]. Additionally, in vertical culture information is constrained by hierarchy, leading to obstacle of information sharing in members of different status of same vertical community of practice [29].

Nevertheless, in individualistic/horizontal cultures low power distance interact with egalitarian values to create an environment of shared decision making and endorse open communication. Knowledge sharing is perceived as competence and enhancing individual visibility aligning personal and organizational goals. Autonomy and equality prevail in their culture, so the members share information, ideas and expertise thus strengthening the innovative and collaborative potential of virtual communities of potential. These findings are evidenced by earlier studies showing that individualistic society have the courage to raise their queries in group discussions, not only to gain the knowledge but to gain prestige and recognition [30]. Learning occurs in a highly collaborative and interactive environment as evident by another comparative study [3].

In group vs. out group

Sometimes in collectivist culture a closely knitted small group within a larger virtual community reflects the power dynamics and trust issues. Because the collectivist believes in loyalty and harmony in group so they will collaborate with only those with whom they trust. This tendency is reinforced by the power distance, where information is not shared with superiors or outside their immediate circle, fearing judgment or losing face. A similar study has revealed that the members of collectivist culture are ready to share their knowledge with their in-group members but they show strong distrust towards out-group members [27]. Whereas, the individualistic are not reluctant to share their ideas, experience, or work with their community members as revealed by this review and supported by an earlier evidence [27]. These hierarchical norms and relational boundaries prevent knowledge dissemination across the whole community. Consequently, the community will be fragmented, as knowledge will be shared in clusters than being distributed among the whole community.

Cultural values

Modesty is being interlaced in the collectivistic culture; therefore, novices often refrain from sharing innovative ideas or their achievements openly to avoid

self-projection. This leads to disruption of group harmony and information restriction results in communication gap because juniors do not express diverging ideas with seniors. A previous work showed that values are determined by the culture [31]. Misalignment of these cultural values creates friction and impedes the development of a cohesive environment of work [32]. As a result, modesty, hierarchy, and collectivism collectively hinder open dialogue and the free exchange of knowledge, limiting the potential for collaborative learning within the community.

Language and geographical barriers

Language and geographical barriers interact in such a way that it hinders collaborative working. Different level of language proficiency makes it difficult to understand idioms and culturally embedded meanings leading to misunderstanding or marginalization within community. Geographical distance makes it impossible to develop a relation of trust and informal communication, contributing to the gravity of situation. Moreover, differing time zone further weakens the relational bonds. Thus, the language diversity, geographical dispersion and time difference creates practical communication barriers thus deterring the development of cohesive and inclusive learning environment within the virtual community. On the other hand, no language barriers were found in the individualistic culture [33].

Miscellaneous factors

Without prior and proper expert support, many perceive it hard to command digital literacy. This difficulty is compounded by the technologically demanding learning environment while lacking organized guidance. Consequently, it leads to cognitive overload and feeling of isolation.

It is evident that all participants are not being able to control their learning and master critical literacies, such as creation and use of digital tools [34]. Similarly, they face learning difficulty in a complex learning environment, missing organized guidance and the social presence of facilitators [1]. Consequently, limited digital literacy, environmental complexity and virtual guidance will lead to disengagement and disinterest in the virtual community.

Besides, contextual variations play a significant barrier in operation of virtual community of practice. Like in Vcop of healthcare system, accuracy, confidentiality and clinical responsibility under strict hierarchy scheme, reinforces cautious communication [35]. In comparison, educational Vcop may face challenges like digital literacy, technological discrepancies and workload constraints [36]. Implementation of unique educational frameworks in each community would also be a confounding factor.

In conclusion, healthcare Vcops are affected by cultural and hierarchical norms while educational one is mostly affected by technological and institutional factors.

Certain limitations of this review have been observed like entire data could not be explored, as unpublished data, and data from non-English sources has been overlooked, thus restricting generalizability of this study. Not every relevant study could be added due to language barrier and resource constraint (accessibility); therefore, this may not give a comprehensive overview of the literature.

Conclusion

The review reported five major cultural elements which influence the virtual community of practice, that is, collectivism versus individualism, language and geographical barriers, power distance, cultural values in society and in group versus out group orientation. Competitiveness and job security related fears are further influential barriers in the knowledge sharing across different cultures.

To transcend geographical and cultural boundaries, culturally sensitive VCops should be encouraged, which foster multilingualistic inclusivity by promoting bilingual moderators, translation apps and captioning facilities. Additionally, the concept of rotating leadership (contributions from all levels and all cultures) and co-facilitation roles from diverse cultures will augment psychological safety and collective ownership of learning. Likewise, continuous technical support and digital sessions ensure that members from diverse cultural and educational background can fully engage. This move will not only address cultural but digital divide.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s40359-025-03841-3>.

Supplementary Material 1

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Authors' contributions

SM (corresponding author) contributed to the conception, designing and writing of this study; plus prepared the figures. NA has contributed to writing the main manuscript and revised the work. Both authors have approved the manuscript before submission.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

Not applicable (as manuscript does not involve the use of any animal or human data or tissue).

Consent for publication

Not applicable.

Conflict of interest

There was no substantial disagreement between the researchers.

Competing interests

The authors declare no competing interests.

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