E-ISSN: 3108-4176

APSSHS

Academic Publications of Social Sciences and Humanities Studies
2025, Volume 6, Issue 2, Page No: 94-105
Available online at: https://apsshs.com/

Annals of Organizational Culture, Leadership and External Engagement Journal

From Training to Practice: The Emergence of Peer Leadership Networks in Rehabilitation Healthcare Settings

Hiroshi Nakamura[1]*, Yuta Kato[1]

1. Department of Organizational Leadership and Innovation, Faculty of Business Administration, Nagoya University, Nagoya, Japan.

Abstract

This study examined how rehabilitation professionals interact within their peer leadership networks during the first year after completing leadership development training. The goal was to gain insight into their networking experiences, the formation of peer leadership networks, and the strengthening of collective leadership within the organization. A sequential, exploratory mixed-methods approach combining Q-methodology with focus group interviews was used to capture the experiences of 11 rehabilitation professionals working at an urban rehabilitation hospital over the first year following leadership development training. The analysis generated three key themes: (a) opportunities to establish connections, (b) a shared community of leaders, and (c) the emergence of a supportive peer leadership network. The findings suggest that meaningful shared experiences and accessible opportunities for connection within a strong peer leadership network can foster leadership growth across individuals, regardless of their prior leadership or networking abilities. Engaging in collective dialogue within a supportive peer leadership environment can reinforce learning from leadership development programs, promoting both individual leadership advancement and broader organizational improvement. Healthcare organizations are encouraged to actively support connection-building within healthy leadership networks to strengthen both individual and collective leadership capacity.

Keywords: Leadership, Leadership development, Healthcare, Peer leadership network

How to cite this article: Nakamura H, Kato Y. From Training to Practice: The Emergence of Peer Leadership Networks in Rehabilitation Healthcare Settings. Ann Organ Cult Leadersh Extern Engagem J. 2025;6(2):94-105. https://doi.org/10.51847/fXbhGqGh02

Received: 16 May 2025; **Revised:** 08 October 2025; **Accepted:** 14 October 2025
Corresponding author: Hiroshi Nakamura
E-mail ✉ hiroshi.nakamura@outlook.com

Introduction

Effective leadership is critical for organizations to adapt to the continuously evolving healthcare landscape. Developing strong leaders alongside promoting shared or collective leadership has become a key priority for healthcare systems [1]. While previous studies have explored how leaders use networking behaviors to structure their social networks [2] and proposed models explaining how these networks contribute to both individual and collective leadership development [3], there is still limited understanding of the specific networking behaviors employed after leadership development training, how these experiences shape peer leadership network development, and which networking processes contribute to collective leadership growth within organizations [4, 5].

This study seeks to deepen understanding of the networking behaviors and experiences of rehabilitation professionals during the first year following leadership development training. It aims to identify the specific behaviors used to build peer leadership networks and to explore how interactions within these social networks contribute to the development of collective leadership within organizations. This social network analysis examined the connectivity, strength, and outcomes of peer leadership

© 2025 The Author(s).
Copyright CC BY-NC-SA 4.0

networks and collective leadership structures as potential drivers of sustained leadership development in a rehabilitation services organization.

Literature review

Formal training may enhance leaders' knowledge and skill sets; however, it is insufficient on its own to produce the profound transformation needed for sustained leadership development over time [6, 7]. Leadership development extends beyond acquiring competencies and involves enduring changes such as shifts in mental models, the ability to interpret diverse experiences, and effective participation in collective leadership within organizations [8, 9]. It is fundamentally a socially embedded process that unfolds within organizational social networks [8].

Social networks shape leadership development through the interactions and behaviors that occur within them [10]. Networking behaviors refer to approaches used to establish, sustain, utilize, and transition relationships [11]. Although these strategies are broadly similar across different network types, a leader's level of engagement and activity within a social network may be shaped by their role, gender, intended outcomes, perceptions of leadership within their work environment, and their degree of autonomy and agency in the organization [4].

A specific form of social network is the peer leadership network. This network consists of autonomous connections among leaders formed around shared interests, responsibilities, commitments, or information exchange. It plays a crucial role in fostering both individual and collective leadership development within organizations [12]. The peer leadership network represents an informal system of interconnected social and leadership relationships built on trust and mutual respect, developed through ongoing shared experiences. After leadership development training, both the individual leader and the peer leadership network influence one another, shaping personal leadership growth and the evolution of collective leadership in the organization [4].

A leader's level of participation in their network significantly affects both their own leadership effectiveness and the broader success of the organization [4]. Leaders can develop more effective network engagement skills through training, practice, and feedback [11]. Such interventions aimed at strengthening networking capabilities have been shown to enhance both individual and collective leadership capacity within organizations [10].

Collective leadership refers to the coordinated interaction among leaders, teams, and their broader social networks, characterized by trust, mutual respect, and shared understanding [5]. It is a multifaceted, layered social phenomenon embedded in organizational or social contexts [8, 10]. These interconnected, multilayered leadership networks support contemporary organizational structures that are increasingly collaborative and decentralized [10].

Collective leadership emerges through the development of individual leaders, the formation of relationships, cross-organizational networking, and the coordination of actions across workgroups, facilitated by the expansion of organizational social networks [8]. The development of individual and collective leadership is mutually reinforcing, as both are shaped by continuous information exchange and shared goals embedded in the network's structure and communication patterns [9].

Conceptual framework

Cullen-Lester *et al.* [3] introduced a conceptual model describing how social networks facilitate the shift from individual leadership competencies toward both personal leadership development and collective leadership emergence within organizations. The model outlines three key mechanisms: (1) enhancing an individual's social competence, (2) actively shaping personal networks, and (3) jointly constructing collective networks. Once basic intrapersonal and interpersonal communication skills are in place, interventions to develop individuals' network capacity can be implemented. In parallel, broader social networks simultaneously evolve, supporting the formation of collective leadership within the organization.

Although this model offers a structured explanation of how individual and collective leadership may develop through social networks, empirical understanding remains limited regarding the specific networking behaviors that leaders use to construct their peer leadership networks [4, 9]. In addition, relatively little evidence exists on how lived networking experiences influence leadership development or how peer leadership networks contribute to the formation of collective leadership structures [5, 13]. Much of the existing literature has emphasized improving leadership-related human capital; however, there is increasing recognition of the importance of examining social capital and networking experiences as key drivers of leadership development [11, 14].

Sarpy and Stachowski [12] recommended that future leadership research incorporate social network analysis to better understand how leadership development initiatives affect network formation and organizational outcomes. Examining network connectivity, relational quality, and functional outcomes of peer leadership networks following leadership development training can enhance understanding of how such programs influence both individual leadership growth and collective leadership development within organizations.

Purpose

This study aimed to investigate the networking experiences of rehabilitation professionals during the first year after completing leadership development training. The researcher focused on how these professionals engage in their peer leadership networks and how these interactions contribute to the development of both individual and collective leadership within the organization.

Research question

Research Question 1: What networking behaviors are exhibited by rehabilitation professionals after completing leadership development training?

Research Question 2: In what ways do rehabilitation professionals experience their peer leadership networks in relation to building collective leadership within the organization following leadership development training?

Materials and Methods

A sequential exploratory mixed-methods design, integrating Q-methodology with focus group interviews, was used to examine the experiences of rehabilitation professionals within peer leadership networks during the first year after leadership development training. Q-methodology is considered particularly well-suited for leadership research1 because it enables the identification and measurement of shared subjective experiences within groups. In this study, it was used to capture the prevalence of collective perceptions and behaviors within the social network. In line with established guidance for both Q-methodology and social network analysis, a mixed-methods approach was employed to generate insights that could not be achieved with a single method. Semi-structured focus groups were conducted to explore participants' interactions, perspectives, and shared experiences within the social setting [15]. These discussions helped reveal the relational quality, degree of connectivity, network health, and overall outcomes associated with participants' experiences in the peer leadership network.

Sample

Rehabilitation professionals working in a large urban rehabilitation hospital were recruited one year after completing a standardized national leadership development curriculum. Eligible participants held professional roles as physical therapists (PT), occupational therapists (OT), or speech-language pathologists (SLP). They had all completed the same leadership development program offering and remained employed within the same organization during the same period. Individuals from other professional backgrounds, clinicians who already held additional degrees in management or leadership, direct supervisory staff, and those who participated in different versions of the leadership development program were excluded from the study. Based on these inclusion and exclusion criteria, 14 participants qualified. All eligible individuals were invited to participate voluntarily via their work email addresses.

Instrumentation

In Q-methodology, participants are provided with a collection of statements known as a Q-set. Although the number of statements can vary, an optimal range of 30–40 items is recommended to ensure an appropriate balance between analytical robustness and participant engagement [16]. Participants then organize these statements through a ranking procedure known as a Q-sort. In this methodology, statistical power is determined by the number of statements in the Q-set rather than the number of individuals completing the sorting process [16].

In this study, Q-methodology was applied using 30 networking behavior statements derived from Cullen-Lester *et al*. [2] as the Q-set. Following the Q-sort process, participants took part in semi-structured focus group interviews. The moderator guide used for these interviews was developed by the researcher. It included questions based on established social network analysis frameworks by Hoppe and Reinelt [15] as well as additional prompts informed by the Q-sort results.

Q-methodology is regarded as a reliable and valid approach because it captures individuals' subjective viewpoints in a structured manner [17]. The use of previously validated networking behavior statements and structured interview questions further strengthened reliability and validity. To minimize bias and enhance methodological rigor, the researcher incorporated expert review of language modifications, conducted member checking after the focus groups, and applied triangulation by reviewing participant feedback surveys collected after the leadership training program.

Data collection

Data were gathered one year after the completion of the leadership development program. After receiving Institutional Review Board (IRB) approval, eligible participants were sent an email containing information about informed consent, a link to the online Q-sort, and a schedule for joining one of four Zoom-based focus group sessions. Using specialized online Q-methodology software [18], participants categorized 30 networking behaviors into three groups: (1) frequently implemented, (2) occasionally implemented, and (3) not implemented over the previous year.

Participants then further ranked these behaviors based on frequency of use along a predefined 9-point quasi-normal distribution. The rightmost column represented "most frequently used" (+4), the leftmost column represented "least frequently used" (−4), and the central column indicated a neutral position (0). After completing the Q-sort, participants were assigned to and participated in one of four Zoom focus group discussions.

Data analysis

Sample description

Of the 14 individuals who met the eligibility criteria, 13 completed the Q-methodology phase of the study. Two participants did not attend the focus group sessions, leaving 11 participants who completed both components of the research **(Table 1)**.

Table 1. Participant demographics.

Participant in the Q method	Sex	Discipline	Location	Department	Title
1	X	X	X	X	X
2	X	X	X	X	X
3	F	PT	Flagship	Development	Practice lead
4	M	PT	Network	Outpatient	Manager
5	F	SLP	Flagship	Development	Practice lead
6	F	OT	Flagship	Development	Practice lead
7	F	OT	Flagship	Research	Manager
8	F	PT	Flagship	Inpatient	Manager
9	F	OT	Flagship	Inpatient	Manager
10	F	SLP	Flagship	Inpatient	Manager
11	F	PT	Flagship	Pain	Manager
12	M	PT	Flagship	Development	Clinical educator
13	F	PT	Flagship	Pediatrics	Manager

Note: X = not obtained.

Research question 1: What are the networking behaviors of rehabilitation professionals following leader development training?

Data analysis was supported using Q-method software18. Each Q-sort was carefully checked, and no missing or invalid responses were identified. To examine relationships among participant responses, a Pearson correlation matrix was computed as a standardized indicator of linear association between variables.

Factor extraction was then carried out using principal component analysis (PCA), chosen for its suitability for classification-oriented analysis and its ability to handle potential multicollinearity across variables. The patterns derived from this analysis were subsequently used to inform the development of additional questions for the focus group phase.

Research question 2: How do rehabilitation professionals experience their peer leadership network to build collective leadership in an organization following leader development training?

Focus group recordings were automatically transcribed through the Zoom platform and then imported into NVivo for qualitative analysis. The transcripts were reviewed, and any transcription inaccuracies were corrected, with edits marked using brackets.

Initial analysis began by applying factors identified through Q-methodology as deductive codes. After this step, open coding was conducted to capture additional concepts emerging from the data, and the resulting codes were clustered to identify relationships across participants' responses. This open coding process generated four initial nodes.

No new codes emerged during the final two focus groups, indicating that thematic saturation had been reached. The resulting codes were subsequently refined and merged into broader, more meaningful themes.

Results and Discussion

Research question 1: What are the networking behaviors of rehabilitation professionals following leader development training?

The Q-methodology factor analysis yielded eight principal components **(Table 2)**. A significance threshold for factor loadings at the 0.01 level was calculated as $2.58(1/\sqrt{30})$, yielding a cutoff of 0.47. Three factors exceeded this threshold, with loadings ranging from 0.48 to 0.87. These same three factors also satisfied the Kaiser–Guttman retention rule.

Together, the three retained factors explained 64.29% of the total variance, with each contributing at least 10%. The pattern of declining eigenvalues, along with the scree plot, further supported the decision to retain three factors.

Table 2. Determination of factor rotation.

Factor	8	7	6	5	4	3	2	1
Eigenvalue	0.46	0.64	0.69	0.77	0.92	1.32	1.47	5.57
% Explained variance	3.52	4.89	5.31	5.89	7.07	10.18	11.28	42.82
Cumulative variance	90.97	87.45	82.55	77.25	71.36	64.29	54.11	42.82
Humphrey's rule	0.09	0.12	0.17	0.12	0.21	0.27	0.30	0.70
Standard error	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28

Following varimax rotation, factor-specific Q-sort scores and z-scores were generated for each retained factor **(Table 3)**. The factor structure was further examined for negative or bipolar loadings, overlapping (confounding) loadings, and statistically non-significant associations, as well as covariance, shared variance (commonality), and hyperplane percentages.

Covariance values among the three factors ranged from −0.03 to 0.09, indicating minimal inter-factor relationships. Communality values ranged from 0.57 to 0.79, suggesting that the extracted factors explained a relatively large proportion of variance beyond that captured by the individual items.

Table 3. Factor Scores for Networking Behaviors.

Type of strategy	Strategy	Factor 3 z-score	Factor 3 Q-sort	Factor 2 z-score	Factor 2 Q-sort	Factor 1 z-score	Factor 1 Q-sort
Building	Connecting through online social networking platforms	−1.12	−3	−1.35	−3	−0.67	−1
	Participating in conferences and conventions	0.11	0	0.85	2	0.27	0
	Attending formal networking or workplace events	−0.16	0	−1.30	−2	0.28	1
	Volunteering for a new project or committee	1.21	2	1.79	3	0.37	1
	Scheduling one-on-one meetings with desired contacts	1.38	2	−0.31	0	0.07	0
	Requesting introductions from known contacts	−0.78	−1	−0.54	−1	−0.19	0
	Seeking a mentor	0.22	1	−0.13	0	−1.09	−2
	Becoming a mentee	0.35	1	0.85	2	−0.35	−1
	Joining a formal mentoring program at work	−0.45	−1	−0.36	−1	−0.52	−1
Maintaining	Providing advice, time, or resources to others	1.50	3	2.07	4	1.25	2
	Sharing articles, books, or relevant upcoming activities with colleagues	0.55	1	0.72	1	1.22	2
	Organizing one-on-one conversations	1.80	4	−0.26	0	1.73	4
	Offering to connect people within your network	1.80	2	0.50	1	1.67	3
	Developing friendships with colleagues beyond work roles	−1.06	−2	1.30	3	1.09	2
	Scheduling periodic follow-up calls	−0.23	0	0.59	1	−0.35	−1
	Sending thank-you cards	1.66	3	−0.99	−2	−1.60	−3
	Creating a contact database to manage connections	−1.17	−2	−1.79	−3	−1.22	−2
	Organizing small group activities	−0.03	0	1.22	2	0.04	0
Leveraging	Requesting advice, time, or resources	0.74	1	0.42	0	1.63	3
	Seeking perspectives from less frequently contacted colleagues	0.03	0	−0.98	−2	0.63	1
	Discussing personal branding or business needs	−0.92	−2	−0.59	−2	−0.67	−1
	Asking contacts for introductions to desired individuals	−0.86	−1	−0.54	−1	0.75	2
	Sharing narratives about future challenges and needs	0.37	0	−0.98	−2	0.63	1
	Requesting recommendations from a contact for job opportunities	−1.01	−2	−0.28	0	0.40	1
Transitioning	Referring contacts to other people	1.31	2	1.11	2	0.24	0
	Delaying responses	0.35	1	0.85	2	−0.35	−1
	Using a recent transition to reduce contact frequency	−1.73	−4	0.44	1	−1.27	−2
	Indicating a lack of qualification for the requested tasks	−0.37	−1	0.44	1	−1.84	−4
	Postponing in-person or virtual meetings	−0.34	0	−0.00	0	−0.86	−2
	Avoiding events attended by a contact	−0.37	−3	−0.54	−1	−1.62	−3

The latent constructs of the three factors derived from the Q-Methodology were identified to answer Research Question 1. They were included as deductive codes in the analysis of the focus group data.

To begin, statements that best and moderately represented each factor were selected. Each networking behavior was then categorized into one of four groups: (a) building, (b) maintaining, (c) leveraging, and (d) transitioning. These categories were used to determine the dominant behavioral pattern within each factor, which, in turn, informed the labeling of the factors based on their underlying conceptual meaning. The resulting constructs were defined as (1) actively seeking opportunities, (2) relationship-centered networking, and (3) networking for personal development. **Table 4** displays each factor alongside the behaviors most strongly or moderately associated with it.

Table 4. Networking behaviors for each factor.

Most characteristic networking behaviors of the factor	Quite characteristic networking behaviors are unique to the factor
Actively seeking opportunities	
Scheduling dedicated one-on-one conversations	Sharing articles, books, or relevant upcoming activities with colleagues
Providing introductions within your network	Requesting introductions through your existing connections to desired individuals
Requesting advice, time, or resources	Seeking perspectives from colleagues you do not regularly interact with
	Requesting that a contact recommend you for a workplace opportunity
	Volunteering for a new project or committee
	Participating in formal networking events or workplace gatherings
Relationship-centered networking	
Providing advice, time, or resources to others	Organizing small group activities
Volunteering for a new project or committee	Attending conferences and professional conventions
Developing friendships with colleagues outside of work-related roles	Scheduling periodic follow-up check-ins
	Indicating that you are not qualified for what is being requested
	Delaying responses
Networking for self-development	
Scheduling one-on-one conversations	Arranging one-on-one meetings with individuals you wish to meet
Sending expressions of gratitude, such as thank-you cards	Identifying or seeking a mentor
Providing advice, time, or resources to others	
Scheduling one-on-one conversations	

Factor 1: Actively seeking opportunities in the organization

This factor reflects a pattern of intentionally identifying and pursuing organizational opportunities and was linked to maintaining (n=5/42, 42%) and leveraging (n=5/12, 42%) networking behaviors used to align work activities across the organization. It included both internal cohesion-building actions within existing groups and outward-reaching bridging behaviors that extended connections beyond immediate networks. The dominant behaviors combined reciprocal interactions within groups and directional bridging actions that connected participants to broader organizational structures. Because this factor involves strengthening internal ties while expanding external reach, it corresponds most closely with Approach 3: Collectives Co-creating Networks in the Cullen-Lester *et al*. [3] conceptual framework.

Factor 2: Relationship-centered networking

This factor was primarily associated with building (n = 3/12, 25%) and maintaining (n = 6/12, 50%) networking behaviors occurring both inside and outside the organization. These actions involved forming new connections and sustaining ongoing reciprocal relationships within the collective. The dominant pattern emphasized bonding processes, focusing on strengthening interpersonal ties and sustaining relational continuity within the network. This factor aligns most closely with Approach 2: Individuals Shaping Their Networks in the Cullen-Lester *et al.* [3] conceptual framework.

Factor 3: Networking for personal development

This factor centered on individual growth and was associated with building (n = 4/12, 33%) and maintaining (n = 5/12, 42%) networking behaviors. The defining features of this factor were mostly one-directional, non-reciprocal interactions that primarily supported individual-level development. These behaviors were largely self-focused and aimed at enhancing personal professional advancement. This factor corresponds to Approach 1: Individuals Developing Competence in the Cullen-Lester *et al*. [3] conceptual framework.

Research question 2: How do rehabilitation professionals experience their peer leadership network to build collective leadership in an organization following leader development training?

Only codes that appeared in at least two focus groups and were mentioned at least five times in each transcript were included and ranked according to frequency. The most frequently occurring codes were shared learning (n = 67, 14.2%), informal social

connections (n = 39, 8.3%), structured recurring activities (n = 31, 6.7%), meetings (n=28, 5.9%), network growth (n = 28, 5.9%), encouragement and support (n = 27, 5.7%), investment in relationships (n = 21, 4.4%), shared understanding (n = 21, 4.4%), COVID-related impact on networking (n = 20, 4.2%), and exposure to diverse viewpoints (n = 20, 4.2%).

All Q-sort-derived factors were reflected within these high-frequency codes. The thematic results indicated that participants' experiences covered the full range of dimensions outlined in the Cullen-Lester *et al*. [3] conceptual framework, demonstrating representation of all three developmental approaches within the dataset.

Themes

Through open coding, the researcher derived three primary themes: opportunity to connect, a community of leaders, and outcomes of a healthy peer leadership network **(Table 5)**.

Table 5. Opportunity to connect.

Subtheme	Quote
Formal meetings	"It's through the formal groups that we have … time to kind of reconnect and catch up"
Team Retreat	"Our team held a retreat day where we … really reflected on our team dynamics and what we wanted to achieve over the next year"
Meeting agenda items	"Our department includes it in our weekly agendas. Overall, it really contributes to building leadership skills by sharing our experiences"
Professional conferences	"The conversations that emerged from simply having people in the same space were remarkable. And the follow-up meetings after the conference—those just don't happen in a virtual setting"
Learning partners	"We discuss the challenges we are facing, explore solutions together, and then check in every few months on those goals and development areas"
Small groups	"We've continued our small group meetings, which have been really useful for keeping conversations going and sharing insights with others"
Team lunches	"The social side of having more organic interactions has definitely been limited over the past three years—simple things like having lunch with a colleague. I feel it really reduces our ability to interact and have those informal 'water cooler' moments"
Informal social events	"It's social, but it's also very much professional networking. People get to know each other at a deeper level, which later makes it easier for them to approach one another"
Limitations	"We're still holding meetings virtually. It's really difficult to have follow-up conversations afterward. It significantly limits relationship development"

Opportunity to connect

Across all focus groups, participants consistently emphasized that having space and occasions to connect with others was essential. They referred to both formal structures—such as scheduled meetings, small-group sessions, learning partnerships, team retreats, and professional conferences—and informal encounters, including post-meeting conversations, shared lunch breaks, and social interactions beyond the workplace. These varied contexts collectively enabled meaningful engagement and ongoing exchange among participants.

Informal interactions emerged as the most frequently cited form of connection. Participants described these casual exchanges as fostering both personal and professional development while also making later workplace interactions smoother and more accessible. As one participant noted, "It's social, but it really is very much like professional networking, too…people getting to know each other on a deeper level and allowing them to then later approach each other much more easily."

Learning partnerships and small group discussions were also repeatedly highlighted as valuable spaces for growth. One participant stated, "The small groups have been sharing a space for professional growth". These interactions were viewed positively because they were straightforward, required minimal preparation, and were closely tied to real clinical and professional experiences. Both dyadic mentorship and group-based exchanges were described as particularly meaningful forms of professional learning.

Formal settings such as meetings, retreats, and conferences were also recognized as important opportunities for interaction. One participant explained,

"We talk about an off-topic. But that's our chance to connect… that's really the micro networking pieces that are so valuable."

In some teams, leadership development was embedded in regular meetings through a standing agenda item that served as a recurring prompt for reflection and discussion without requiring additional scheduling. Conferences were similarly described as useful environments for informal relationship building and expanding professional networks. Across contexts, informal conversations occurring after structured sessions were repeatedly identified as the most impactful moments for establishing and strengthening connections with both internal and external colleagues.

The leadership development course itself was also viewed as a key point of connection, supporting both relationship formation and ongoing professional development within the peer leadership network. While participants agreed that a strong core

network had persisted after the program, some expressed concern that continued interaction was necessary to maintain its momentum over time. As one participant reflected, "I'm not sure how we're gonna keep it going, if we don't have an annual check-in, or something. Everyone has great intentions, but it's just you get busy".

Another frequently mentioned loss was the absence of shared lunchtime gatherings, which participants associated with reduced informal bonding opportunities. This decline was attributed in part to COVID-related precautions during 2022, which limited in-person social interaction.

Overall, participants described a wide range of structured and unstructured experiences that enabled ongoing connection. These interactions facilitated communication, knowledge exchange, and relationship-building among leaders. Collectively, these engagement opportunities contributed to the development of the peer leadership network and the strengthening of collective leadership within the organization.

Community of leaders

A further theme emerging from the analysis was the presence of a community of leaders **(Table 6)**. This theme reflected a relational environment characterized by trust, in which individuals, pairs, and the broader group developed through mutual encouragement, the exchange of guidance, and shared support. This collaborative climate was consistently evident in participants' speech and interactions during the focus groups. Across discussions, participants frequently expressed appreciation for others' input, offered encouragement, and showed openness to differing viewpoints. They also described a pattern of both seeking advice from colleagues and contributing their own expertise when needed. One participant highlighted this by noting that interacting with colleagues from different professional roles broadened their understanding and offered new ways of interpreting situations.

Table 6. Community of leaders.

Subtheme	Quote
Support	"I feel grateful that you can approach any leader and receive that kind of support"
Trust	"There is a strong level of trust across the organization"
Personal and professional advice	"We are continually seeking each other's input and advice on how to approach or shape specific situations"
Variety of perspectives	"It also really helps to have connections with individuals in slightly different roles, as this helps you gain alternative perspectives"
Personal and professional connections	"Within our social groups, we are speaking with friends and colleagues. We are exchanging feedback and input on our behaviors and their interpretations of different situations"
Location	"Groups of leaders tend to form based on job roles and physical proximity in the workplace"
Organizational culture	"The culture is very much about uplifting, supporting, and encouraging one another. There is a strong emphasis on mutual support and helping each other grow"
Limitations	"We had a group that struggled to keep up because several members transitioned into new roles"

Participants also emphasized that exchanging insights related to both career development and personal experiences played a meaningful role in shaping their growth as leaders. One participant reflected that discussing not only work-related matters but also personal interests and life experiences created value for everyone involved. Advice-sharing and supportive interactions occurred at both one-to-one and group levels within the network. Another participant described this relational dynamic as evolving organically through existing relationships and informal interactions, which made connections feel more authentic and personally meaningful.

Regardless of leadership experience level, participants consistently viewed access to a supportive, advice-rich environment as an important feature of their professional community.

At the same time, participants identified structural and contextual barriers that limited the development of this community. Geographic separation and frequent staffing changes linked to the "great resignation" were described as major challenges. The Great Resignation refers to a widespread pattern of voluntary job departures that began in 2021 during the COVID-19 pandemic, which significantly disrupted healthcare workforces. These ongoing transitions disrupted team continuity and made sustained relationship-building more difficult. Physical distance between work sites was also reported as a constraint, with some participants describing parts of the network as socially or professionally disconnected, which reduced opportunities for meaningful interaction.

Despite these limitations, participants consistently described an organizational culture strongly grounded in interpersonal connection. One participant explained that colleagues were deeply committed to building meaningful relationships, which in turn encouraged reciprocal efforts to support others. They also noted that these relationships had a meaningful impact on their professional growth, confidence, and career progression.

This relationship-oriented culture was perceived as extending beyond the peer network itself and into the broader leadership structure of the organization. Overall, participants viewed this environment as a key factor supporting positive relational experiences and enabling both individual and collective leadership development.

Outcomes of a healthy peer leadership network following leader development training

Participants across all focus groups described the peer leadership network as strong, cohesive, and functioning effectively **(Table 7)**. Following the leadership development program, they reported noticeable improvements in trust, relational connectivity, and diversity within their professional relationships. Increased engagement after training was also reported to enhance coordination and collaborative work among leaders. Overall, participants characterized the peer leadership network as a positive, enabling environment that supported ongoing leadership development after the training.

Table 7. Outcomes of the peer leadership network.

Subtheme	Quote
Increased network connectivity	"We quickly built stronger relationships and a more robust network. In that sense, it also supported me in expanding my relationships within my network."
Improved organizational outcomes	"I genuinely believe our collaboration and coordination have increased significantly over time."
Increased job satisfaction	"For me, job satisfaction is closely tied to the relationships I maintain with other managers."

Every focus group agreed that shared learning during the leadership development program strengthened coordination, collaboration, and overall connectivity within the network. The training served as an initial bonding point that later extended throughout the organization, improving how information flowed among members with different expertise.

Participants explained that the program not only created new relationships but also enhanced their ability to operate within their social networks. One participant described this shift by noting that their network had become more robust and that they now felt more confident expressing needs and reaching out to others with a broader set of skills: [My network is] healthier and stronger than it was before, and maybe it's just that I have the confidence to communicate what I need or have different … and more skills that [now] let me go to people more [sic].

Another participant emphasized the expanded reach of their connections, stating:

"[The course] has opened up more doors. It's beyond the network that I would have imagined".

Together, this more diverse and supportive environment expanded the collective learning and experience of all leaders involved in the peer leadership network during the first year after training. Whether participants were initiating network development, sustaining existing relationships, or intentionally using connections to extend reach across and beyond the organization, these patterns were consistently evident. One participant summarized this by saying: "And so I think overall it helped grow the network, but also [the] quality of the people in the network, and the quality of the relationships in those in the network [sic]".

Overall, the findings show that leadership growth is strongly influenced by shared experiences and meaningful opportunities for connection within a supportive learning environment. These effects were observed regardless of participants' starting point in leadership development. Individuals ranged from those newly engaging in networking behaviors to those maintaining established ties and those actively using networks to advance collective goals. Across all groups, participation in a strong peer leadership network was consistently described as improving effectiveness within the organization. The presence of this network reinforced learning from formal training and supported both individual progression and broader organizational performance.

The results highlight that leadership development at all levels is strengthened through interaction, shared experience, and access to a functioning peer network. This environment provided both emotional and professional forms of support, including advice exchange and ongoing dialogue. It also reinforces the idea that leadership is developed through multiple pathways, including structured instruction, mentorship, and lived experience [19]. Prior work by Hoppe and Reinelt [15] showed that shared work experiences enhance connections within leadership groups. This study extends that idea by showing that informal conversations surrounding shared work, especially in a supportive and diverse network, further deepen collective leadership capacity.

These findings also align with social network and relational leadership perspectives, demonstrating how both individual and collective leadership develop following structured leadership interventions [4, 9]. They further support Lieff *et al*. [4] in emphasizing the importance of continued networking after formal training. In addition, they are consistent with McCauley and Paulus[8], who highlighted that peer networks not only support individual leadership growth but also help sustain and advance collective leadership within organizations.

These results are consistent with earlier studies that have emphasized the role of a supportive community in fostering both leadership development and the formation of peer leadership networks [12]. Such a community appears to function not only as a foundation for building peer networks but also as a reciprocal contextual influence that shapes leaders' identity formation

and their sense of leadership self-efficacy. Building on this, Becker *et al*. [20] identified supportive relationships as the most critical element in effective mentorship practices. Together, these findings imply that early or proximal markers of leadership development—such as psychological safety, awareness of others' expertise, and shared learning orientations within teams—remain closely tied to longer-term developmental outcomes.

Positive experiences within the leadership network were also associated with greater job satisfaction, stronger relational connectivity, and improved collaboration and coordination, all of which contributed to enhanced organizational performance. Similar research has highlighted the importance of peer relationships in facilitating knowledge exchange, improving job performance, and increasing overall organizational satisfaction [14]. In addition, Floyd *et al*. [21] and Gerbasi *et al*. [22] further supported these conclusions by demonstrating the link between peer networks, collective leadership, and broader outcomes such as leadership effectiveness, self-efficacy, and satisfaction.

Although the findings of this study are broadly consistent with the Cullen-Lester *et al*. [3] framework for leadership development, the presence of all three themes across each factor—each aligned with different stages of leadership development within that framework—suggests that the developmental process may be more dynamic and less sequential than originally proposed. The overlapping and fluid nature of outcomes observed after leadership training in this study may be more closely aligned with the model proposed by Hofmann and Vermont [23]. Their framework emphasizes concurrent individual and organizational outcomes emerging from clinical leadership development, highlighting the role of interprofessional dialogue in enhancing collaboration, improving coordination, and accelerating innovation and practice change within organizations.

In line with both conceptual models, this study's findings suggest that leadership development training, along with subsequent networking experiences, can serve as a mechanism that simultaneously advances individual and system-level outcomes. Engagement within peer leadership networks appears to support the growth of individual leaders while also contributing to the emergence of collective leadership within organizations. These perceptions may also indicate sustained post-training effects, including strengthened collective leadership and improved organizational performance. The presence of a supportive peer leadership community fostered both personal and professional relationships among participants. This relational foundation was identified as a key driver in the development of individual leadership capacity, the strengthening of collective leadership structures, and the enhancement of overall organizational outcomes.

Limitations

Although each focus group was initially planned to include more than four participants, last-minute scheduling conflicts led to variations in group size. This unintentionally reduced and unevenly distributed speaking time among participants across sessions. In addition, the study relied on a relatively small sample of rehabilitation leaders from a single organization during the COVID-19 period and the era of the "great resignation." These contextual conditions may restrict the extent to which findings can be generalized to other settings or timeframes within the same organization [24]. As further evidence emerges regarding COVID-19's impact on the healthcare workforce, interpretations of these findings may shift accordingly.

Furthermore, incorporating demographic variables into the analysis might have provided additional insight. During focus group analysis, it became apparent that workplace location influenced the level of engagement within the peer leadership network. In addition, the existing literature consistently shows that gender can affect professional networking patterns [11, 25]. Had demographic data been directly linked to each Q-sort, manual factor rotation could have been used to examine potential differences by work location or gender.

Participant familiarity with the researcher, along with researcher involvement, may also have influenced the findings. While prior relationships may have enhanced participant comfort during discussions, they may also have introduced biases such as acquiescence, social desirability, habituation, and sponsorship effects. Despite efforts to minimize bias throughout the research process, the possibility of its influence cannot be fully eliminated in qualitative work.

Recommendations

Future research should examine both short-term and long-term changes in leadership networks, collective leadership processes, and organizational culture following leadership development interventions. Longitudinal designs are recommended to better understand how collective leadership influences individual leadership development, and how individual factors such as autonomy and self-efficacy enable leaders to actively shape their social networks. Further investigation is also needed into how multiple overlapping social networks interact and jointly influence the development of both individual and collective leadership within organizations.

Conclusion

This study examined the experiences of rehabilitation professionals within their peer leadership network following participation in leadership development training. Findings indicated that opportunities for informal interaction within a

supportive leadership community can enhance both individual and collective leadership development within organizations. Social learning experiences were found to reinforce formal leadership training by extending both individual and collective development, ultimately influencing organizational functioning.

Overall, participants in the peer leadership network benefited from engaging in the shared leadership development program. Collectively training groups of leaders enabled individuals to develop their leadership capabilities while simultaneously strengthening the peer leadership network and expanding collective leadership capacity within the organization. As both individuals and the collective advanced, engagement and connectivity within the social network increased through informal exchanges, strengthening mutual support. These interactions extended learning beyond immediate training effects, contributing to more sustained and long-term leadership development outcomes.

Organizational performance may be enhanced when leaders at all levels, regardless of prior competency, participate in shared leadership development experiences. Healthcare organizations should therefore create and maintain opportunities for ongoing dialogue within supportive learning communities to complement formal leadership training. By doing so, organizations can strengthen peer leadership networks and expand collective leadership capacity, ultimately improving outcomes across interconnected systems.

Acknowledgments: None

Conflict of interest: None

Financial support: None

Ethics statement: The proposal was reviewed by the ATSU Kirksville College of Osteopathic Medicine IRB and found to be in the exempt category according to 45CFR46.104 (d)(2)(ii). The IRB Number is EB20220829-001.

Informed consent in this study included publication of anonymized responses as stated within the consent process, which included the wording: “You understand that the results of the research study may be published, but that your name or identity will not be revealed and that your records will remain confidential…. The information will be de-identified before publication and throughout dissemination. Careful consideration, including de-identification and quote selection during the dissemination”.

References

1. Day DV, Fleenor JW, Atwater LE, Sturm RE, McKee RA. Advances in leader and leadership development: a review of 25 years of research and theory. Leadersh Q. 2014;25(1):63-82.
2. Cullen-Lester KL, Woehler ML, Willburn P. Network-based leadership development: a guiding framework and resources for management educators. J Manag Educ. 2016;40(3):321-58.
3. Cullen-Lester KL, Maupin CK, Carter DR. Incorporating social networks into leadership development: a conceptual model and evaluation of research and practice. Leadersh Q. 2017;28(1):130-52.
4. Lieff SJ, Baker L, Poost-Foroosh L, Castellani B, Hafferty FW, Ng SL, et al. Exploring the networking of academic health science leaders: how and why do they do it? Acad Med. 2020;95(10):1570-7.
5. Whitney JM, Henry SE, Bradley BH. Maybe it is who you know: social networks and leader–member exchange differentiation. Group Organ Manag. 2022;47(2):300-47.
6. Nagyo Fotso G. Leadership competencies for the 21st century: a review from the Western world literature. Europ J Train Develop. 2021;45(6/7):566-87.
7. Walker DOH, Reichard RJ. On purpose: leader self-development and the meaning of purposeful engagement. J Leadersh Stud. 2020;14(1):26-38.
8. McCauley CD, Palus CJ. Developing the theory and practice of leadership development: a relational view. Leadersh Q. 2021;32(5):101456.
9. Eva N, Cox JW, Herman HM, Lowe KB. From competency to conversation: a multi-perspective approach to collective leadership development. Leadersh Q. 2021;32(5):101346.
10. Maupin CK, McCusker ME, Slaughter AJ, Ruark GA. A tale of three approaches: leveraging organizational discourse analysis, relational event modeling, and dynamic network analysis for collective leadership. Hum Relat. 2020;73(4):572-97.
11. Woehler ML, Cullen-Lester KL, Porter CM, Frear KA. Whether, how, and why networks influence men’s and women’s career success: review and research agenda. J Manage. 2021;47(1):207-36.
12. Sarpy SAC, Stachowski A. Evaluating leadership development of executive peer networks using social network analysis. Int J Leadersh Educ. 2020;19:2.

13. Piggot-Irvine E, Ferkins L, Rowe W. Leadership in action research: surfacing the collective nature of leadership. Syst Res Behav Sci. 2021;38(6):851-65.
14. Swanson E, Kim S, Lee SM, Yang JJ, Lee YK. The effect of leader competencies on knowledge sharing and job performance: social capital theory. J Hospital Tour Manag. 2020;42:88-96.
15. Hoppe RC, Reinelt C. Social network analysis and the evaluation of leadership networks. Leadersh Q. 2010;21(4):600-19.
16. D'Amato D, Droste N, Winkler KJ, Toppinen A. Thinking green, circular or bio: eliciting researchers' perspectives on sustainable economy with Q Method. J Cleaner Prod. 2019;230:460-76.
17. Cheng X, Van Damme S, Li L, Uyttenhove P. Evaluation of cultural ecosystem services: a review of methods. Ecosyst Serv. 2019;37:100925.
18. Lutfallah S, Buchanan L. Quantifying subjective data using online Q-methodology software. Ment Lexicon. 2019;14(3):415-23.
19. Channing J. How can leadership be taught? Implications for leadership educators. Int J Leadersh Educ Leader Prepa. 2020;15(1):134-48.
20. Becker ES, Grant M, Witte MM, Deveikis LT, Traisman RK. Exploring outcomes in formal physical therapy mentorship programs. Educ Health Professions. 2023;6(1):34-41.
21. Floyd TM, Cullen-Lester KL, Lester HF, Grosser TJ. Emphasizing "me" or "we": training framing and self-concept in network-based leadership development. Hum Resour Manage. 2023;62(4):637-59.
22. Gerbasi A, Emery C, Cullen-Lester K, Mahdon M. Satisfied in the outgroup: how co-worker relational energy compensates for low-quality relationships with managers. In: Understanding Workplace Relationships: An Examination of the Antecedents and Outcomes. Cham: Springer; 2023:137-65.
23. Hofmann R, Vermunt JD. Professional learning, organizational change, and clinical leadership development outcomes. Med Educ. 2021;55(2):252-65.
24. Ornell F, Halpern SC, Kessler FHP, Narvaez JC. The impact of COVID-19 pandemic on the mental health of healthcare professionals. Cad Saude Publica. 2020;36(4):e00063520.
25. Grosser TJ, Sterling CM, Piplani RS, Cullen-Lester KL, Floyd TM. A social network perspective on workplace inclusion: the role of network closure, network centrality, and need for affiliation. Hum Resour Manage. 2022;2022:1.