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Influencing Factors and Promotion Strategies of Knowledge Sharing in Research Teams

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Abstract: This study investigates knowledge sharing among research teams within a four-level framework of factors affecting and encouraging knowledge sharing. Drawn from social exchange theory, theory of planned behavior, and knowledge management theory, the analysis assesses factors of influence at four levels: individual (competence, motivation, perception), team (trust, psychological safety, leadership), organizational (policies, culture, incentives), and technological (integration, tools, platforms). Concurrent strategies are defined at all levels, with their interplay as the focus. Implications are that successful knowledge sharing calls for systematic intervention of all levels simultaneously, not interventions in discrete fashion. Technology, lacking social and cultural roots, cannot function, and team dynamics must have organizational scaffolding for long-term sustainability. Within areas of conceptual orientation as a paradigm, this research neither empirically investigates nor considers differences between disciplines that uncover lines of further research.

Keywords: knowledge sharing; research teams; multi-level framework; influencing factors; promotion strategies

1. Introduction

Knowledge is now a central asset for modern scholarship, where innovation is a function of how various knowledge is shared and integrated by groups (Wang & Noe, 2010). Research teams are the primary scientific discovery units, and knowledge sharing---the manner in which members share information, skills, and experiences---is crucial for the generation of new ideas and solving complex issues.

However, successful sharing of knowledge remains challenging. There are groups that face "knowledge silos" where useful information is stuck with individuals rather than shared freely (Osei-Frimpong et al., 2023). Members may not share due to competition problems, time problems, or struggling to explain expert knowledge across domains.

Previous research has provided rich data on individual influences such as trust, incentives, and technology. But there are few studies on how multiple factors interact. Individual motivation, team culture, organizational policies, and technological tools all influence sharing, but we know very little about how they interact with one another. Fewer studies provide guidance on how to overcome challenges.

This study bridges these research gaps by establishing a multi-level model that identifies key determinants at the individual, team, organizational, and technological levels and proposes corresponding strategies. Drawing on social exchange theory, theory of planned behavior, and knowledge management theory, this study contributes to academic knowledge and practitioner advice for improving knowledge sharing among research teams.

2. Literature review

2.1. Concept of Knowledge Sharing

Knowledge sharing is how people exchange information, expertise, and knowledge. Researchers broadly agree that this involves both the willingness to share your knowledge and the capacity to make that knowledge accessible to others. Research recognizes two types: explicit knowledge, which is easily recorded such as

research data and methods; and tacit knowledge, which is made up of personal intuition and skills gained from practice that are harder to articulate (Esmaeili et al., 2024).

Research teams face unique challenges due to highly specialized knowledge. Members struggle to communicate complex ideas across disciplines, and much valuable tacit knowledge is difficult to articulate.

2.2. Theoretical Foundation

Three theories can explain knowledge sharing patterns. Social exchange theory predicts that people think in terms of trading costs and benefits, expecting to be reciprocated (Yan et al., 2016). This explains why trust and giving back matter---people share because they expect others to share, but not when it is too expensive.

Theory of planned behavior identifies three psychological factors: personal affect for sharing, personal beliefs regarding if others respect sharing, and belief in sharing ability (Manaseer et al., 2022). Academics might think sharing is vital but are not willing if team culture does not favor it or they have a negative perception of their communication competency.

Knowledge management theory describes the flow of knowledge in organizations, with the argument that sharing involves the storage, creation, dissemination, and use of knowledge rather than information transfer. Effective sharing entails suitable environments and channels for knowledge to move and grow.

2.3. Review of Previous Research

Research has suggested key factors at various levels. Individual-level research suggests that individual incentives matter in the context of driving sharing, competition fears suppressing it while kind-hearted dispositions promoting it. Team-level research suggests trust to matter-team members share more when they trust other team members not to exploit knowledge. Psychological safety in which team members feel safe to pass ideas without adverse responses also strongly maps onto sharing (Hao et al., 2022).

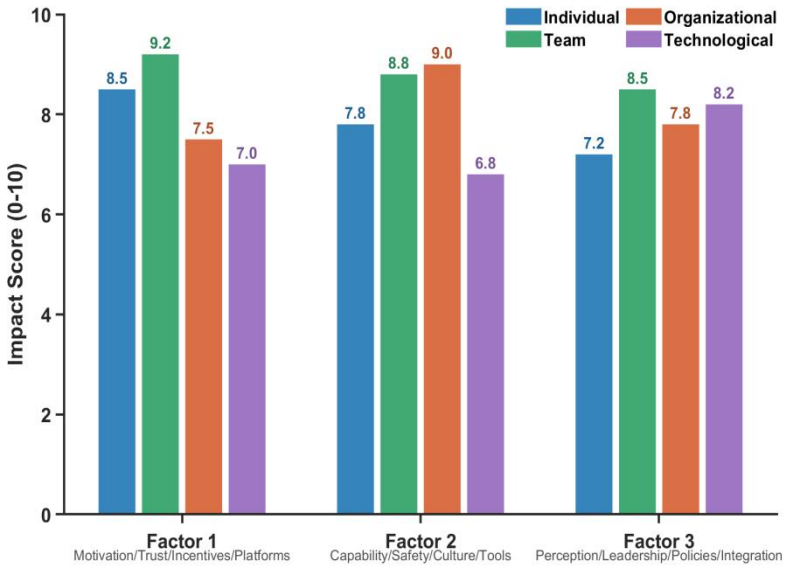
Organizational research varies in outcome for reward systems: rewards can motivate sharing, while poorly constructed rewards can lead to surface-level exchange.

Organizational culture emphasizing teamwork has more influence than formal reward systems (Zhang, 2018). Technology research finds that platform availability does not necessarily ensure use---ease of use and integration into regular work greatly influences adoption.

However, much of the research examines factors individually rather than examining how factors relate to each other. In addition, research is prone to developing barriers without providing near-practice solutions. These shortfalls spur this study's comprehensive multi-level exploration and strategy development. As illustrated in **Figure 1**, the influencing factors operate across multiple interconnected levels.

Figure 1

Impact of Knowledge Sharing Factors across Different Levels



3. Influencing Factors of Knowledge Sharing in Research Teams

3.1. Individual-Level Factors

Individuals need to choose if and how they will share what they know, considering what it costs them compared to what they benefit. Most researchers fear sharing knowledge will damage their competitive edge, particularly in environments that emphasize individual achievement. Aside from considering themselves, personality plays a role---some individuals have the tendency to like assisting others and feel happy when others around them succeed (Baxter et al., 2024). Convinced

your expertise is worth something influences sharing, as does having faith that co-workers will use it appropriately and reciprocate.

Wishing to share is not enough without the ability. Good expertise and skill are necessary to explain elaborate ideas clearly, especially between disciplines. Much research know-how exists tacitly, lodged in practice and intuitive knowing, so it's hard to share. Good sharers interpret specialist thinking into plain language. Modern research also demands technical facility with digital platforms used in exchanging knowledge.

How people perceive sharing affects behavior. Those viewing sharing as critical to development become more involved. However, intellectual property and career concerns cause hesitation. When sharing contributes to career progress, participation increases; otherwise, people opt out.

3.2. Team-Level Factors

Team settings constitute the immediate setting in which sharing takes place. Trust must be the most important. Team members trusting each other have faith in sharing important information with no fear of being taken advantage of. Trust minimizes perceived risk, especially when tacit knowledge is being shared. High-trust teams share more intensively since members will anticipate colleagues to do what is right with information. Trust develops from repeated positive interactions.

Psychological climate deeply affects sharing patterns. Groups where individuals feel safe to speak, ask, and admit mistakes have open sharing (Chen et al., 2020). Such freedom, established through psychological safety, enables individuals to share nascent ideas that can drive innovation. Competition and cooperation need to be balanced-too much competition stifles sharing, yet cooperative climates enhance sharing. Team cohesion promotes sharing for the collective good.

Leadership has a significant impact on how things are accomplished. Leaders who set examples, make resources available, and eliminate barriers create positive conditions. The demonstration of shared behavior by leaders provides unmistakable examples that are replicated by members. Rewards for contributions reinforce the worth, but emphasizing competitive individualism sends the wrong message. These team attributes are instantiated in larger organizational forms (Cummings, 2004).

3.3. Organizational-Level Factors

Organizations provide the structural framework and cultural context. Formal systems of rewards communicate what is valued. Monetary rewards can motivate sharing, although poorly framed rewards are shallow sharing. Non-monetary rewards like approval, career progression, and competence increase skills better. Successful strategies incorporate reward types, are equitable, and involve timely feedback.

Organizational culture sets norm. Sharing comes more easily in those organizations where sharing is a sincere value and not just policy. Culture works through collective belief and not written word. Learning cultures of trial and rewarding team success provide an environment where sharing occurs. Such embedded cultures result in long-term change since members make sharing a part of the way things are done (Raziq et al., 2024).

Formal systems have necessary guarantees. Clear guidelines regarding intellectual property and ownership remove fears. Systematized means for documentation and finding knowledge remove confusion. Quality checks prevent souring up. Job performance assessments specifically articulating sharing articulate serious commitment. Such formal elements ensure stable expectations. Strong social and formal foundations require technology backup to run smoothly.

3.4. Technological-Level Factors

Technology provides infrastructure to record, store, and disseminate knowledge. Fantastic platforms will support a wide variety of content with full search and collaboration facilities. Ease of use is most important, though—complicated systems that require a lot of training suffer from bad adoption.

Different tools do different jobs. Video calls facilitate rapid exchange, and message boards facilitate reflective sharing (Dorta-Afonso et al., 2024). Video is best utilized to represent tacit knowledge; document platforms are best utilized to maintain explicit knowledge. Combined tools provide easy creation of workflows, while defective systems deter users.

Knowledge sharing demands that all four levels be functioning harmoniously. Personal motivation must be backed by team, organizational, and mandatory technology. These dependencies must be recognized as a necessary condition for successful multi-level strategies. **Table 1** provides a comprehensive summary of these influencing factors and their mechanisms.

Table 1

Summary of Knowledge Sharing Influencing Factors in Research Teams

Level	Key Factors	Primary Mechanisms
Individual	Motivation, Capability, Perception	Cost-benefit evaluation, Skill enablement
Team	Trust, Psychological Safety, Leadership	Relationship building, Climate establishment
Organizational	Incentives, Culture, Policies	Motivation alignment, Norm internalization
Technological	Platforms, Tools, Integration	Infrastructure provision, Workflow optimization

Note. Factors are listed based on prominence within each level.

4. Promotion Strategies for Knowledge Sharing in Research Teams

4.1. Individual-Level Strategies

More drive requires smart recognition systems that seize money reward, work recognition, and career growth chances. Making it equal and timely feedback enables one to feel special kinds of connections between effort sharing and reward. Allowing researchers to feel that sharing forms their own strength and creates good professional reputation more strongly establishes inner drive.

Capacity development must be systematic. Training needs communication skills---simplifying complex concepts, making language easily understandable to different listeners, and translating tacit knowledge into sharable forms. Technical training for knowledge management systems eliminates participation barriers (Nahidi et al., 2024). Once people are at ease with know-how and communication skill, sharing comes naturally. Individual strategies need to be complemented by supporting team environments.

4.2. Team-Level Strategies

Trust will be built through hard work. Regular team excursions enable members to connect on a personal level. Cooperating on structured, smaller projects enables individuals to build positive interactions and learn to trust fellow employees over time.

Open communication policies eliminate suspicion and establish trust (Levin & Cross, 2004).

Building positive attitude involves building psychological safety. Leaders must promote questioning and establish norms in which it is safe to say I don't know. Regular thinking-back sessions with learning as opposed to blame as the agenda allows for open discussion. Shared goals as opposed to competition lower risk in serving to enable others to win.

Leadership development makes teamwork possible. Training leaders in supportive practices-facilitating participation, rewarding contributions, and modeling target behaviors-improves their capability to build sharing. Active sharers who convey positive value for contributions construct strong models that shape team norms. Success in teamwork depends on company support.

4.3. Organizational-Level Strategies

Good reward systems use many types of recognition besides money. Organizations can create sharing awards, highlight contributors in the organization, or offer professional development opportunities. Performance reviews must actively consider sharing contributions. Design, however, must prevent undesirable effects---measuring only quantity encourages surface sharing.

Cultural change can be stronger than monetary reward. Sharing organizational culture is developed through leader communication that is constant, rewarding good examples, and institutionalizing sharing as part of daily practices (Pößneck et al., 2024). Creating learning-oriented settings where experimentation is welcomed makes sharing less dangerous. Changes in culture take time, developing progressively through efforts that are consistent.

Official policy gives structure as required. Clear guidance on credit granting and intellectual property rights answer common questions. Typical knowledge-capturing and knowledge-locating techniques eliminate ambiguity. Inclusion of sharing in performance measures and job descriptions demonstrates company commitment. These practices offer handy context calling for technology setup.

4.4. Technological-Level Strategies

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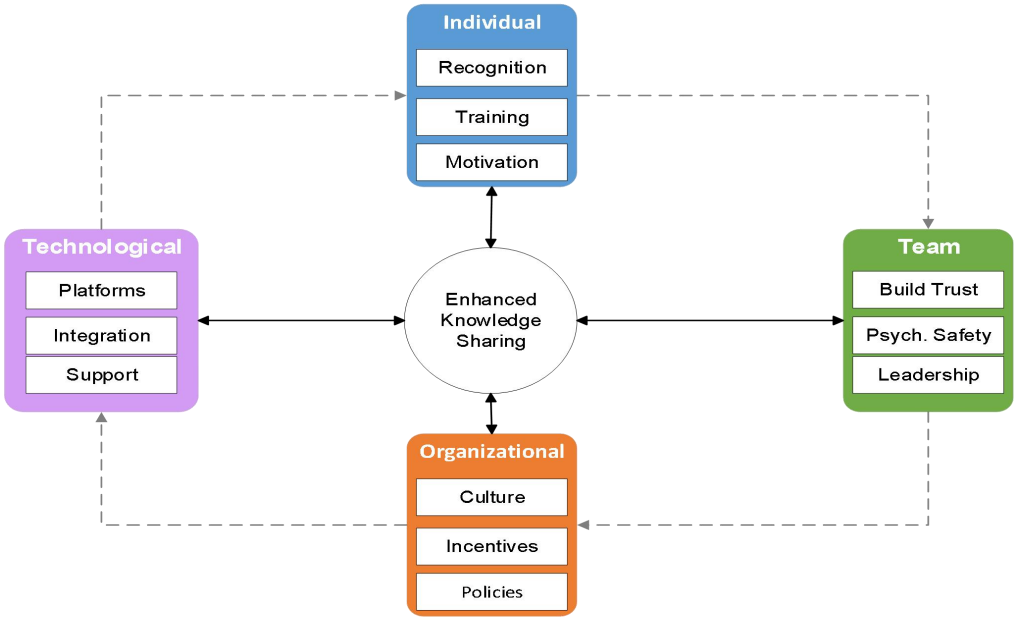
Creating thriving knowledge management platforms is a matter of thinking about what they do and how simple they are to use. Platforms need to be able to handle different kinds of content, offer straightforward search facilities, and offer teamwork options. Suggestion mechanisms allow researchers to find relevant information. But smart platforms fail if too difficult to use-pragmatic design second optimizes people's use (Alavi & Leidner, 2001).

Aggregating communications tools smartly improves information exchange. Companies should offer good tools for different activities---video conferencing for meetings, instant messaging for ask-me-anything sessions, shared documents for working together. More important than tool selection is integration of tools between different systems. Smooth interfaces improve work routines, while fragmented systems are a hindrance. Offering training and technical help allows individuals to utilize tools to the maximum. Ongoing feedback allows increment upgrades at periodic intervals. **Figure 2** illustrates the implementation framework showing how these strategies integrate across all organizational levels.

Figure 2

Implementation Framework of Knowledge Sharing Promotion Strategies



The foregoing strategies synergize at various levels. Organizations would be required to examine their specific situations and design holistic strategies dealing with individual, team, organization, and technological variables simultaneously. **Table 2** summarizes the strategy framework for promoting knowledge sharing.

Table 2

Framework of Knowledge Sharing Promotion Strategies

Level	Strategic Focus	Key Actions	Expected Outcomes
Individual	Enhance motivation and capability	Recognition systems, Training programs	Increased willingness, Enhanced skills
Team	Build trust and psychological safety	Team activities, Transparent communication	High-trust environment, Open exchange
Organizational	Transform culture and structures	Multi-form incentives, Clear policies	Sharing culture, Sustainable engagement
Technological	Optimize platforms and integration	User-friendly design, Tool integration	Efficient knowledge flow, High adoption
Integrated Approach	Coordinate across all levels	Multi-level interventions, Continuous evaluation	Synergistic effects, Comprehensive improvement

Note. Strategies should be implemented simultaneously for maximum effectiveness.

5. Conclusion

This work researched knowledge sharing across research teams and concluded that it is the outcome of four interdependent levels combined together: individual, team, organizational, and technology. It is beneficial for people to share knowledge but occurs in team environments driven by trust, psychological safety, and leadership. The team environments are shaped by organizational culture, rules, and rewards and enabled by technology. For research managers, systematic response, not ad hoc fixes. New software will not work if team members do not trust each other, and super teams will die unless assisted at the organizational level. Long-term cultural change is superior to short-term incentive schemes.

This work has limitations as a theoretical framework without empirical validation. Future research should validate these ideas through empirical observations, examine disciplinary differences, and explore how emerging technologies like artificial intelligence affect knowledge sharing in research teams.

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