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A Team-Level Study of the Relationship between Knowledge Sharing and Trust in Kenya: Moderating Role of Collaborative Technology

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Abstract: Research on team dynamics is gaining popularity because teams are yielding positive organizational outcomes. Advanced technologies are often used to enhance team outcomes for improved productivity and to create effective knowledge-sharing contexts in teams, particularly in contexts where trust among team members is vital. This study analyzed the influence of knowledge sharing on trust at the team level in Kenya. The objective was to determine practical implications to assist organizations with their efforts to optimize the association between knowledge sharing and team-level trust and to consider the moderating role of collaborative technology on this relationship. Data were collected from 300 professional employees at three organizations in Kenya, aggregated into 75 teams, and analyzed in a hierarchical multiple linear regression. The team-level analysis found that knowledge sharing was significantly and positively related to the extent of team trust, and the relationship was moderated by the perception of collaborative technology. Organizations should consider their teams' knowledge sharing and trust to support team dynamics and achieve organizational and team goals. Employees' perceptions that technologies support team processes influence the effectiveness of knowledge sharing as a way to build team trust.

Keywords: trust; social exchange theory; knowledge sharing; collaborative technology

1. Introduction

The proliferation of specialized journals, such as knowledge management journals and conferences, demonstrates the increasing prominence of research about knowledge sharing. According to Zack [1] and Andriessen [2], knowledge is considered the most strategically important resource, not only for learning but for productivity in an organization; therefore, this knowledge has to be managed and utilized accordingly. Due to the changing nature of competition among firms on global levels, organization ought to find ways to remain relevant and profitable, and one way to do so is by utilizing Knowledge-Based Inter-Organizational Collaborations [3] to overcome limitations and allow intangible resources such as knowledge to be shared and combined. Wilkinson and Young [4] note that such collaborations will facilitate easy access to knowledge among organizational members.

However, although organizational actors tend to recognize the value of knowledge sharing, most organizational knowledge is not shared. Most organizations currently use team-based strategies and employ technologies to support team members achieving quick and effective results. These work environments require high levels of knowledge sharing, trust among team members, and appropriate technological support. The technology component has become a vital component of an organization's ability to manage regular team functions, including communication, decision-making, learning, and knowledge management. Knowledge sharing is important for organizational outcomes, and it

is vital for employees/members, because it allows them to contribute to their organizations [5]. Knowledge sharing that takes place among team members builds ties and relationships which, in turn, enhance team performance. As a result, extensive research on knowledge management and knowledge sharing has held a vital spot and continues to remain an area of interest for researchers. Knowledge can either be explicit or tacit [6,7]. Explicit knowledge refers to the type of knowledge that can easily be communicated with words, codified, and finally shared with the intended recipient. Explicit knowledge is mainly facilitated by information technology capabilities. Tacit knowledge, on the other hand, is related to an individual's experience and thoughts. It is mostly associated with social interactions and often takes place through face-to-face interactions [8]. With technology advancement, the ability to come up with new knowledge has increased immensely. However, the dilemma of how to maximize the use of tacit knowledge residing within an organization and its workers still remains unsolved. If an organization wants to improve the sharing of tacit knowledge among employees, it may need to widen its scope by being a technology-oriented organization [9].

In competitive industrial environments, employees may want to protect what they perceive to be their unique patent—that is, special knowledge that they possess. This may be due to uncertainty with how others may use their special knowledge or because of a lack of trust. Thus, when individuals willingly share their unique knowledge, they are able to win the trust of fellow teammates. In addition, peoples' behaviors and actions are often based on the law of reciprocity such that they share knowledge anticipating that others will return the good deed when required. Since sharing knowledge, like trust, is often an act of generosity, one will hope that team members will act out of reciprocity and give trust to the knowledge sharer.

Trust requires time to develop. However, with the continuous recruitment of new workers, frequent personnel changes, and changes in team composition, most workers do not have the luxury of time necessary to build trust with one another. Thus, the sharing of knowledge is one alternative means through which employees can win the trust of others. Advanced information technologies (IT) and network systems enhance the knowledge dissemination mainly performed among employees [8,10]. The motive for using advanced technologies is that they serve as tools to support and elevate knowledge sharing techniques, which advances the individual knowledge of workers [5].

Kenya Vision 2030 is a national strategy intended to position Kenya as a knowledge-driven society in which knowledge sharing steers the national agenda toward rapid economic growth [11]. The availability of research and learning networks will facilitate the increase of the knowledge and innovation capability in an organization. This attribute is beneficial for both participants and the organization at large [3]. This suggests that start-up businesses in Kenya may benefit from having multiple types of support to enhance their innovation and creativity. One such alternative could be to encourage knowledge sharing between established enterprises and startups [5]. Consistent with this argument, Tiwana [12] asserted that one of the key characteristics of knowledge is that it has assumed the role of a strategic resource for both established companies and new entrants joining the network. Many of Kenya's start-up businesses might benefit from guidance and support from established enterprises because that might be the only way for these new enterprises to obtain the information they need to advance and improve their businesses. For example, [13] found that information sharing within the emerging business community is an important determinant of success.

Sohail [14] argued that technology is important to most organizations, and the support and improvement of existing technologies and the promotion of relevant skills enhance organizational performance. The majority of organizations have shifted from individual to teamwork structures in response to IT advances, particularly because these technologies have improved the nature of teamwork [15], and Alavi [16] pointed out that organizations are increasingly using teams to accomplish complex and unusual tasks. Properly managed teams might be valuable assets for organizational outcomes that enhance competitive advantages. It is widely accepted that individuals, teams, and organizations in the twenty-first century must continually create knowledge and ideas because of the rapidly changing environment where innovation has an important role in developing new

businesses, processes, and products. Success is relatively likely when employees share knowledge to facilitate the generation of new ideas, and organizations are structuring team-based environments to consolidate employees with expertise and skills [17]. Thus, in most organizations, knowledge is a highly valuable asset that is used to enhance competitive advantage and is an important tool to create sustainability and organizational effectiveness [18]. Popa and Stefan [19] argued that knowledge management is essential because of its ability to improve the quality of other organizational processes and because it improves social and financial outcomes.

When knowledge is shared among team members or employees, the team-based approach might boost the influences of sharing and integration of knowledge on enhancing performance and improving organizational outcomes. Gertler [20] pointed out that teams are advantageous because they consolidate the knowledge of individual team members, which facilitates a sense of unity and fosters a desire to attain effective results. Jarvenpaa [21] noted that trust is a key condition for solving problems within teams, evaluating team effectiveness, and assessing success. However, building team-level trust might be difficult, and knowledge sharing might be an important way to build, improve, and increase reliance on trust. Based on the results of previous studies, this study investigated knowledge sharing as a vital aspect of teamwork, particularly for teams that use advanced technologies, based on the hypothesis that knowledge-sharing behavior positively relates to the extent of team-level trust.

2. Theoretical Background and Hypothesis Development

2.1. Knowledge Sharing and Trust within Teams

Knowledge sharing is defined as “the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas, or implement policies and procedures” [21]. The importance of knowledge stems from its role as an important organizational asset for creating and sustaining organizations’ and employees’ competitive advantages. In addition, firms may engage in a knowledge supply arrangement where leading firms engage in outsourcing by assuming a leadership role and providing growing firms with guidance [3]. Appropriate implementation of teams might facilitate knowledge management practice which, according to Cricelli and Grimaldi [3], involves the elements of knowledge creation, knowledge storage, knowledge sharing and distribution, and knowledge application. Knowledge sharing in teams might increase productivity, and knowledge sharing has been found to increase innovative work behaviors, indicating that its importance cannot be underestimated [22]. With the help of experts and experienced persons, knowledge sharing has helped to decrease redundant work, reduced the costs of inventions, and enhanced efficiency [23].

However, Davenport [24] pointed out that no knowledge management initiatives can work without trust. Trust in teams is important for many reasons because trust has consistently been related to team collaboration and innovation. Kanawattanachai and Yoo [25] suggested that the type of trust that develops in technologically mediated teams is cognitive-based trust because there are few personal emotions involved when technology is used by teams to share knowledge, and trust is based on emotion. Another study found that decisions to trust are often based on assessments of team members’ abilities and benevolence, which team members must demonstrate to prove they are trustworthy before gaining their team members’ trust [26].

Riebere [27] argued that, when employees are dissatisfied with the organization’s knowledge management practices, they are less likely to share knowledge, and it is not surprising that knowledge could be unevenly distributed among organizational employees or vary from one team member to another. Knowledge sharing is two-way communication that benefits the knowledge seeker as a learning experience and benefits the knowledge sharer by strengthening her or his skills [28]. Appropriately managed knowledge might greatly improve employees’ work quality, decision-making skills, problem-solving efficiency, and competency [24].

When teams have had no or little previous experience, developing trust among members might be difficult [21]. The desire to be trusted encourages team members to demonstrate special or unique qualities, such as helpfulness and support of teammates, to demonstrate their trustworthiness [21]. Knowledge sharing is a way to make that demonstration and be trusted [28]. In addition, social identification encourages knowledge sharing because identification acts as a driver, influencing the motivation to share knowledge among individuals [29], and, moreover, trust is viewed as an element of social identification in teams. Cricelli and Grimaldi [3] acknowledged that while knowledge is either shared or traded, individuals are generally more willing to share their knowledge with those they consider “partners”. Yet, still, people tend to think of their personal knowledge as a valuable personal asset, and many people are unwilling to share their knowledge with others unless they expect to benefit in some way. Černe et al. [30] developed the idea of a reciprocal distrust loop to explain knowledge hiding and distrustful relationships, and they proposed that knowledge hiding creates distrust, whereas sharing knowledge increases trust among coworkers.

Social exchange theory [31] is a concept based on the notion that the relationship between two people is created through a process of cost–benefit analysis. The assessment of the benefits and costs of a relationship may determine whether someone is putting too much effort into a relationship or not. According to social exchange theory, social interaction reflects the strength of a relationship among individuals, the amount of time spent, and the frequency of communication among members. Social interactions lead to a series of exchanges between involved parties which provide individuals with the opportunity to exchange knowledge with an expectation of future return from colleagues. In most cases, individuals believe in the law of reciprocity in this type of relationship, and they tend to make exchanges based on self-interest by analyzing the costs and gains of an exchange, ultimately exchanging tangible and intangible things with others to maximize their benefits and minimize their costs [32]. Benefits do not need to be immediate, and, sometimes, people give with the expectation of a future return. Regarding knowledge sharing, employees develop exchange relationships with others by sharing their knowledge with the expectation that they are building trust and a reputation as someone who can be relied on in the future. When this trust exists, co-operative teamwork is relatively likely to develop and persist. Cropanzano et al. [33] argued that influencing people is achieved by developing trust, loyalty, and commitment and that exchange relationships at work tend to strengthen the interpersonal relationships between the parties. Kim [34] found that, in a context of trust, coworkers tend to repay work-related favors with good deeds because doing so benefits them by reducing job insecurity. Therefore, exchanges encourage employees to engage in additional positive behaviors.

In this study, investigation of willingness to share and exchange was focused on knowledge sharing. We assumed that team members are willing to share knowledge because they want to be perceived by other team members as productive workers and they want to avoid being excluded by other team members. The perception that knowledge sharing is high was expected to relate to perceptions of high trust because the individual would perceive sharing as a trustworthy and reliable activity. In sum, the perception of knowledge sharing was expected to positively relate to the perception of trust.

Hypothesis 1 (H1): *Knowledge sharing positively relates to team-level trust.*

2.2. The Moderating Role of Collaborative Technology

In this study, collaborative technology is defined as the extent to which tools and systems are perceived to support team processes [35]. An organization’s use of technology might be crucial to its success because media richness has been found to influence team effectiveness, efficiency, communication, commitment, and relational quality. Branscomb [36] urged technology developers to develop user-friendly software products that will ensure acceptance, supportability, and ease of use, which are some of the characteristics of collaborative technology. King [32], on the other hand, emphasized technology systems that can address user needs as one of the more vital factors affecting the success of the technology system.

An increase in the use of technology to facilitate day-to-day team processes gradually influences the team's feelings and attitudes. This may lead to an increased sense of trust and belonging over time. Collaborative technologies encourage greater participation by enhancing the free exchange of communication among team members by facilitating team members' communication and sharing of information despite their disparities [35]. This suggests that technological capabilities may enhance the knowledge sharing to trust relationship. Teams are likely to value a technology that they perceive can help members to socialize, develop healthy relationships, and establish a strong knowledge network where it is possible to freely share knowledge with others [37].

One previous study on telecommunications employees whose work combined advanced technologies with high levels of innovation found that the extent of trust within the technology-reliant workforce determined the amount of team-level cooperation [38]. Training employees to have strong technological skills promoted knowledge enhancement in the performance of tasks related to business in an organization [39]. Yu et al. [40] found that technology enhanced knowledge management in the work environment, which entailed knowledge creation and knowledge sharing and gave the organization a competitive advantage that allowed it to increase its technological innovation.

Further, effective technology reduced the negative influences of diversity within teams, which facilitated trust among team members [41]. Other previous studies have found that using advanced technology decreased the amount of conflict among team members which, in turn, improved interpersonal processes, such as socialization, thus breeding healthy relationships among team members [42]. One study developed a model proposing that the ability to support a team might be assessed by considering the ways that technology might increase transparency and socialization within a team and that collaborative technology encourages participation because these technologies open communication streams among team members and reduce the anonymity that might undermine team-level trust [35]. Although technologies might improve trust within teams, they must be used within the limitations of compliance with regulations, and there is some evidence that collaborative technology undermines trust and makes it difficult to know whether trust exists [43]. Regarding trust and control in technological systems, Gallivan and Depledge [44] found that technological control is negatively related to trust, but when a technology is perceived to support teamwork and team outcomes, its use increases trust among team members. This study's conceptual model is illustrated in Figure 1, and we posited the following hypothesis.

Hypothesis 2 (H2): *Collaborative technology moderates the relationship between knowledge sharing and trust such that the relationship is stronger when the use of collaborative technology is high than when the use of collaborative technology is low.*

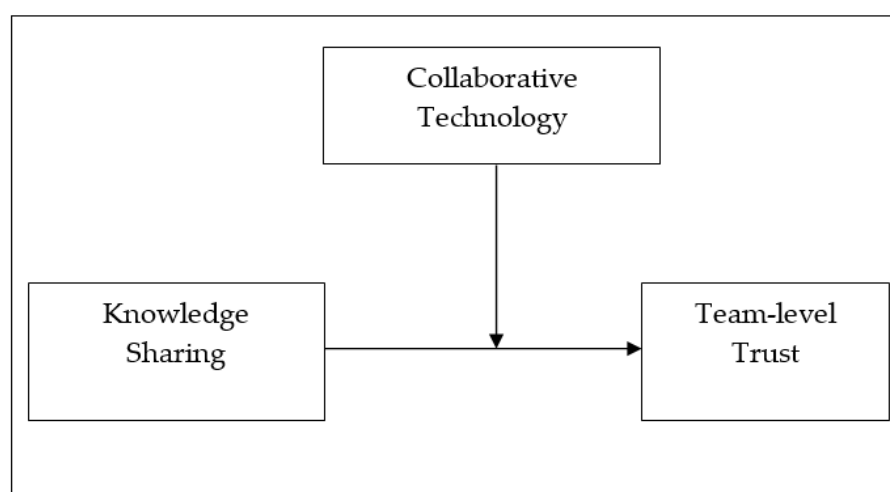


Figure 1. A conceptual model of the knowledge sharing–team-level trust relationship in which collaborative technology is a moderator.

3. Methods

3.1. Sample and Data Collection

Data were collected between February and March of 2019, and all data were collected within about one month. First, letters soliciting participation were mailed to the senior executives of three public organizations in Kenya seeking permission for their employees to be in our study. After approval was obtained, 400 employees were surveyed. Of those, 300 completed questionnaires were returned (response rate: 75%). The 300 respondents were in 75 teams of four respondents on average. The sample consisted of 58% males and 42% females, and the mean age was 33 years. About 5% of the respondents had high school level education, 36% had college degree, 47% had university degrees, 10% had master's degrees, and 2% had doctoral degrees. The questionnaire was self-administered, and the respondents assessed their personal knowledge-sharing behaviors, trust level, and use of collaborative technology.

3.2. Variables

Unless otherwise stated, all of the variables' response options were assessed on a five-point Likert-type scale where 1 = *strongly disagree* through to 5 = *strongly agree*.

3.2.1. Dependent Variable: Trust

Trust was measured using a four-item trust scale developed by Jarvenpaa et al. [21] (Cronbach's reliability coefficient = 0.79): (1) "Overall, the people in my team are very trustworthy"; (2) "We usually are considerate of one another's feelings on this team"; (3) "The people on my team are friendly"; and (4) "I can rely on other members of my team". The four items measuring trust had factor loadings ranging from 0.60 to 0.70.

3.2.2. Knowledge Sharing

Knowledge sharing was measured using a three-item scale developed by Connelly et al. [45] (Cronbach's reliability coefficient = 0.79); the items were as follows: (1) "We share our ideas openly with each other"; (2) "We share critical information about the project with each other"; and (3) "We share our expert knowledge with each other". The three items' factor loading values ranged from 0.63 to 0.72.

3.2.3. Collaborative Technology

Collaborative technology was measured using a six-item scale developed by Sarker et al. [35] (Cronbach's reliability coefficient = 0.77): (1) "Team members are equipped with adequate tools and technologies to perform their tasks"; (2) "Technology enables team members to work on different subtasks simultaneously"; (3) "Technology enables team members to view each other's work whenever mutually desirable"; (4) "Technology enables team members to modify other members' work whenever desirable"; (5) "Technology enables social relationships to develop among team members"; and (6) "Technology enables team members to share knowledge." The factor loading values ranged from 0.59 to 0.70.

3.2.4. Control Variables

We controlled for the effects of age (years), team tenure (months), organizational tenure (months), and functional diversity. Regarding team tenure, the longer a team has existed, the longer its members have had to interact and develop trustful relationships. Functional diversity was included because variations in team composition might influence how team members share knowledge with or trust one another. Functional diversity was measured using the three-item scale developed by Pinjani et al. [46]. The sample items were as follows: (1) "Members of the team are similar in terms of their functional

expertise”; (2) “Members of the team are similar in terms of their educational background”; and (3) “Members of the team are similar in terms of their length of organizational experience.”

3.3. Statistical Analysis

A multiplicative interaction term was constructed between knowledge sharing and collaborative technology. It was mean-centered, and Variance Inflation Factor (VIF) values were generated. All VIF scores were less than 10, indicating that multicollinearity was not a problem [46]. Confirmatory factor analysis (CFA) was performed to determine the distinctiveness of the study variables, and a Chi-squared for contingency test was performed using STATA 14.1. (Data Analysis and Statistical Software, Stata Corp., College Station, TX, USA). The main analysis used to test the hypotheses was a hierarchical multiple regression analysis.

4. Results

4.1. Data Aggregation

To analyze the respondents’ individual-level data at the team level, the within group agreement rWG(J) index [47] was used to aggregate the responses. To further analyze the variation in the data, individual responses were matched to team membership by calculating interclass correlation coefficients (ICC): ICC(1) and ICC(2). Then, the hypotheses were tested using hierarchical multiple regression analysis. The most common indicator used for aggregated individual-level data to group-level data is within-group agreement, which reveals the degree to which respondents’ responses are the same. A rWG(J) index value larger than 0.70 is considered to represent a satisfactory agreement within a group [48], whereas rWG(J) values between 0.51 and 0.70 indicate moderate agreement [49]. ICC(1) was used to measure the inter-respondent reliability, with a range of 0.05–0.30 or statistical significance considered adequate. Finally, ICC(2) assessed the mean reliability of a group; previous literature suggested that values of 0.70 or larger are acceptable, and values between 0.50 and 0.70 are marginally acceptable.

The rWG(J) values were as follows: (1) knowledge sharing = 0.68, (2) collaborative technology = 0.78, and (3) trust = 0.70. Regarding ICC(1), knowledge sharing scored 0.31, collaborative technology scored 0.29, and trust scored 0.23. Regarding ICC(2), knowledge sharing scored 0.65, collaborative technology scored 0.62, and trust scored 0.54. All values were above the acceptable standard cut-off values, suggesting that our aggregation was justified and respondents’ ratings within teams were strongly consistent. These results further indicate that the ICC(1) and ICC(2) values were within the acceptable range [50]. Table 1 presents the descriptive statistics of the main and control variables.

Table 1. Descriptive statistics ($n = 75$ teams).

Variable	Mean	SD	1	2	3	4	5	6	7
1. Age (years)	33.78	5.69							
2. Organizational tenure (months)	82.77	50.83	0.86 ***						
3. Team tenure (months)	60.18	37.81	0.80 ***	0.93 ***					
4. Functional diversity	3.28	0.64	−0.13	−0.08	0.04	(0.72)			
5. Knowledge sharing	3.78	0.58	−0.22	−0.18	−0.24 *	0.08	(0.79)		
6. Mutual trust	3.70	0.51	−0.25*	−0.19	−0.24 *	0.18	0.53 ***	(0.79)	
7. Collaborative technology	3.61	0.43	0.15	0.17	0.16	0.16	0.35 **	0.30 **	(0.77)

* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$. Note: Reliability alpha (α) coefficients are reported in diagonal with parentheses.

4.2. Measurement Model

CFA and Chi-Square Test Results

Table 2 shows the model fit statistics of the measurement model. The model fit indices’ cut-off values were Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) ≥ 0.95 and a root-mean-square

error of approximation (RMSEA) ≤ 0.05 [34]. The baseline three-factor model with the main variables had stronger fit indices ($\chi^2 = 125.49$; $df = 101$; CFI = 0.95; TLI = 0.93; RMSEA = 0.05) that significantly differed from those of the other models (Table 2).

Table 2. Model fit statistics for measurement models ($n = 75$ teams) ^a.

Measurement Model	χ^2	Df	p -Value	$\Delta\chi^2$	ΔDf	TLI	CFI	RMSEA
Hypothesized model	125.49	101	0.05			0.93	0.95	0.05
Two-factor model ^b	137.8	104	0.015	12.31 **	3	0.90	0.93	0.07
One-factor model ^c	145.48	106	0.007	19.99 **	5	0.89	0.91	0.07

** = $p < 0.01$; ^a χ^2 = Chi-squared statistic, df = degrees of freedom, Δ = change, CFI = Comparative Fit Index, TLI = Tucker–Lewis index, RMSEA = root-mean-square error of approximation. ^b Two-factor model with knowledge sharing and trust on the same factor. ^c One-factor model with knowledge sharing, trust, and collaborative technology on the same factor.

4.3. Hypothesis Test Results

Model 2 in Table 3 shows that Hypothesis 1 (“Knowledge sharing positively relates to team-level trust”) was supported ($b = 0.58$, $p < 0.001$), controlling for the effects of the control variables. Hypothesis 2 expected a moderating effect of collaborative technology and that the effect would strengthen the positive relationship between knowledge sharing and trust in teams (“Collaborative technology moderates the relationship between knowledge sharing and trust such that the relationship is stronger when collaborative technology is high than when collaborative technology is low”). Table 3 (Model 3) shows that the interaction term between knowledge sharing and collaborative technology was statistically significant and positive ($b = 0.52$, $p < 0.05$), which supported Hypothesis 2.

Table 3. Hierarchical multiple regression for mutual trust ($n = 75$ teams).

Intercept	Model 1	Model 2	Model 3
	3.93 ***	1.27 *	8.68 **
Control variables			
Age	−0.27	−0.13	−0.01
Team tenure	−0.01 *	0.00	0.00
Organizational tenure	0.00 *	0.03	0.00
Functional diversity	0.19 *	0.11	0.08
Independent variables			
Knowledge sharing		0.58 ***	−1.31
Collaborative technology		0.06	−1.91 *
Interaction term			
Knowledge sharing \times collaborative technology			0.52 **
F	3.22 *	14.88 ***	15.10 ***
R ²	0.15	0.56	0.61
ΔR^2		0.41	0.05
F inc.		32.44 ***	51.78 ***

* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

To further interpret the interaction effect of knowledge sharing and collaborative technology, we performed a simple slopes analysis. Figure 2 shows the moderating role of collaborative technology on the relationship between knowledge sharing and trust. A post hoc simple slopes analysis revealed that knowledge sharing was related to trust when the high collaborative technology condition was present ($b = 0.79$, $SE = 0.10$, $p < 0.001$) and when the low collaborative technology condition was present ($b = 0.34$, $SE = 0.11$, $p < 0.01$). The slope increased by a larger margin from low to high, in other words, from $b = 0.34$ to $b = 0.79$. The statistical significance level was more rigorous at the high level (p

< 0.001) than at the low level ($p < 0.01$) of collaborative technology, demonstrating a moderation effect of collaborative technology that strengthened the influence of knowledge sharing on team-level trust. This interaction is illustrated in Figure 2.

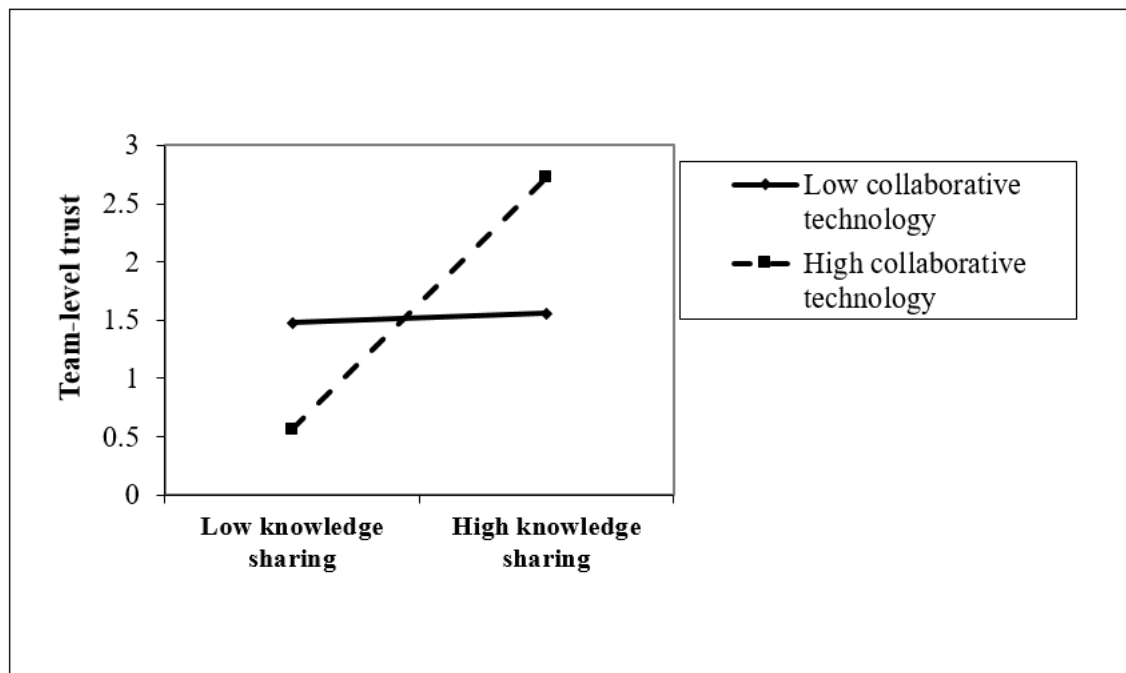


Figure 2. The post hoc simple slopes analysis representation showing the relationship between knowledge sharing and team-level trust under both high and low levels of collaborative technology.

The statistical significance level was stronger at the high level than at the low level of collaborative technology.

5. Discussion

This study contributes to the literature on team dynamics by analyzing the moderating role of collaborative technology on the relationship between knowledge sharing and trust at the team level. Our sample of 300 respondents was restructured using the rWG(J) index to analyze the individual-level data at the team level. The first significant finding was that knowledge sharing positively influenced trust. This finding suggests that team members develop trust in a knowledge-sharing environment, perhaps because knowledge sharing is used as a tool to develop exchange relationships among team members. If team members perceive personal knowledge to be a personal asset under their control, willingness to share it might help to build trust. This result supports Černe et al.'s [30] knowledge hiding and distrust loop hypothesis. The knowledge sharing among team members was strengthened by enhanced trust. This finding supports social learning theory's emphasis on the expectation of reciprocity. In the team context, members share their knowledge with other members expecting to thereby gain their teammates' trust.

This study hypothesized that collaborative technology would positively moderate the positive relationship between knowledge sharing and trust, and the analysis revealed that a high level of collaborative technology strengthened that relationship. Thus, team members' perceptions of the value of technology to their team-based success increased the extent to which perceptions of knowledge sharing influenced perceptions of team-level trust. If team members believe that technology is important and they use knowledge sharing, then it is reasonable to expect that technology will influence trust within the team through its influence on knowledge sharing. Consequently, organizations that rely on teams should implement collaborative technologies, and managers should prioritize those technologies

that promote transparency and socialization in team contexts to encourage knowledge-sharing environments and enhance trust within and across teams.

5.1. Theoretical and Practical Implications

This study theoretically contributes to social exchange theory [31] because the hypotheses were based on theoretical propositions of social exchange. Our hypotheses were supported, suggesting that the expectation of reciprocity among team members is the motive for knowledge sharing, and trust is the desired result. Thus, this paper has developed an extended social exchange model, making a contribution to inconsistent findings in the knowledge-sharing literature. We identified social exchange as an enabler of the effects of knowledge sharing on trust. The results show that knowledge sharing significantly influences trust within the team, which is consistent with the prediction of social exchange theory. This extended model provides a useful theoretical framework for future research in the area.

Our findings suggest that collaborative technology moderates the relationship between knowledge sharing and trust in teams. This suggests that we need to consider other contextual variables, such as technology use in future research, especially when investigating knowledge sharing behavior.

Aggregating the individual-level data at the team level was an effective way to respond to the call to analyze teams instead of individuals [51] to extend our understanding of knowledge sharing to the team and organizational levels. Thus, the knowledge base of research on team outcomes was extended.

The main practical implication of this study is derived from the finding that collaborative technology significantly moderated the relationship between knowledge sharing and team-level trust. This finding guides managers' and organizations' efforts to strengthen teamwork by pointing to collaborative technologies as an indirect way to increase efficiency and production.

We found that knowledge sharing positively influenced trust at the team level, which has the obvious practical implication that, if organizations increase knowledge sharing in teams, they will increase team-level trust. To do that, organizations should invest in ways to strengthen coworker relationships and provide environments that support knowledge exchange. Organizations should recognize the importance of knowledge sharing as a long-term way to develop trust within their teams.

Since our results confirmed that people anticipate returns from knowledge sharing, organizations should provide incentive programs to encourage knowledge distribution. Organizations may focus on programs such as better work assignment and job security to encourage a knowledge sharing climate.

Organizations may want to come up with mechanisms to promote social relationships among employees to build trust in teams and encourage knowledge sharing.

Finally, organizations should consider the characteristics of knowledge that are the most relevant to sharing it. In other words, knowledge as a personal asset is not useful for trust development unless the environment emphasizes transparency and collectivism. Enterprises and organizations increasingly rely on modern technologies, and recognizing their value to team outcomes might not only promote the adoption of emerging technologies but might enhance team productivity and other team outcomes. When these technologies also reduce some of the difficulties of teamwork, other aspects of team processes can be addressed.

5.2. Limitations and Future Directions

This study has several limitations to consider when interpreting the results. First, the sample size might be considered small because even though there were 300 respondents, the aggregation and matching procedure created just 75 teams. Second, the common method bias might have interfered with the accuracy of the results because the data were subjectively provided through one questionnaire. Moreover, the cross-sectional design means that we were unable to draw causal conclusions based on the results. Third, the data from Kenya might not be relevant to other societies because of various cultural and societal differences, and we suggest replication of this study using various national and regional samples. Fourth, we only controlled for functional diversity. However, previous literature suggests that two types of culture (specifically functional and deep-level diversity) may play roles in

relationships involving trust and knowledge sharing [52,53]. Thus, this constitutes a limitation of our study. Finally, since knowledge sharing does not reside within one level of analysis, there is a need for future research to use multi-level studies to advance knowledge sharing research [28].

6. Conclusions

In summary, the purpose of our research was to understand the knowledge sharing to trust relationship among teams while focusing on collaborative technology as the moderator of the relationship. After controlling for functional diversity, the results of the study suggest that when employees perceive the technology they use to facilitate effective functioning of team processes by promoting socialization and transparency, the relationship between knowledge sharing and trust within teams is strengthened. Despite its limitations, this study contributes to the growing literature on team-level phenomena and the knowledge-sharing research domain.

Author Contributions: F.K. was the principal researcher and prepared the first draft of the article under the supervision of S.-W.K. S.B.C. added valuable theoretical and methodological insights based on his knowledge and expertise regarding the topic of this study. S.-W.K. supervised the study and refined the draft into a publishable article. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest: The authors declare no conflicts of interest.

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