

Article



The Interactive Role of Temporal Team Leadership in the Telecom Sector of Pakistan: Utilizing Temporal Diversity for Sustainable Knowledge Sharing

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Received: 14 February 2018; Accepted: 19 April 2018; Published: 24 April 2018



Abstract: Human or social dimensions need to be significantly considered to maintain organizational sustainability. Unfortunately, this aspect has received relatively little attention when compared to other dimensions of sustainability. This study promotes the presence of a leader to manage conflicts, which cause hindrances in achieving sustainability. This is possible by maximizing sustainable knowledge sharing in a team, by effectively utilizing temporal diversity, including time urgency, time perspective, and pacing style diversity under a certain time pressure. This study has examined the effect of temporal diversity on knowledge sharing within teams by taking temporal conflict as a mediator. Moreover, it was also investigated whether the role of team temporal leadership is effective in utilizing the conflicts arising from the temporal diversity. The research design was quantitative in nature. A purposive sampling technique was used to gather data from 100 dyads working in the telecom sector of Pakistan, by distributing questionnaires. The findings suggest that team temporal leadership plays an effective role when a conflict arises rather than after it has arisen because more time and resources will be required to resolve such conflicts arising from temporal diversity. When the temporal diversity is low, the leader can manage the conflicts quite well, but as the diversity increases, the role of the temporal leader become much harder which may cause increased conflicts because of the limited capacity of a leader to manage those conflicts. Furthermore, it was observed that conflicts, if managed properly, may lead to increased knowledge sharing.

1. Introduction

Sustainability requires the development of human capital and the way people interact with each other [1]. In sustainable organizations, the social aspect of sustainable development is a vital issue to be discussed to acquire a competitive advantage [2]. In such organizations, the employees are engaged in innovative efforts that require efficient knowledge sharing [3]. Industries are demanding more knowledge-intensive culture and innovation, which promotes sustainability trends [4]. These trends help to enhance sustainability, in terms of the quality of human resources and competitive improvements, as compared to other firms. The sustainable growth of organizations depends on their knowledge-intensive culture. While dealing with the dynamic environment, an organization must be ahead of its competitors. To do so, organizations must develop a culture of knowledge sharing. Now, knowledge is treated as the most important strategic resource in the organization, and the way the organizational success. Knowledge sharing between individuals is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed, and used by other individuals [5]. The word "temporal" refers to the length of time that something takes [6]. In this study, the notion of the word "temporal" illustrates the time boundary of the tasks given to the

temporarily-made teams. Temporality in institutions is an overlooked phenomenon, which must be addressed in association with the institutional elements [5]. These institutional elements are individuals and teams which were analyzed by considering the temporal diversity which includes time urgency, time perspective, and pacing style diversity. Temporality and time have a close relationship with pacing style, time urgency, and time perspective for all of the individuals of the team, with regards to affecting the individuals' performance [7]. Teams, when interacting with time, may create conflicts due to the intra-group heterogeneity of temporal diversity [8]. These conflicts are termed as "temporal conflicts" because they arise when interacting with time. Similarly, the leadership required to manage such diversity and conflicts within teams in a given time represent "temporal leadership" [9].

Over the last few decades, team leaders have been considered to engage in behaviors favorable for organizational sustainability and progress [8,10]. This progress can only be gained by demonstrating behaviors best for utilizing the individual potential of a team. Different studies have illuminated the benefits of utilizing the team diversity. A study conducted by Kearney and Gebert [11] points out the role of a leader in utilizing the untapped potential of the demographic and cognitive diversity present in teams. Data revealed that 10% to 20% of teams have poor or weak agreement among team members, and it was recommended that the team diversity should be considered with respect to the dynamics of time and the effect of team temporal leadership in reducing temporal conflicts [12].

This study contributes to finding the impact of temporal diversity on knowledge sharing, to enhance sustainability demands. For this, organizations of telecom sector of Pakistan were selected, because that sector lies in the "shake-up" stage, as discussed in the "company development stages and temporal comfort zones" model [13]. In this stage, dramatic events occur in markets, new competitors arise, and technologies are improved. If any organization falls victim to such events, it can face huge losses and can be even wiped out from the market. To prevent this from happening, a capable and diverse team should be formulated. Such teams are often required to do many time-based projects in addition to the daily routine tasks. Ideas and strategies are being developed for effective planning and achieving targets that require more diverse ideas and experiences to be gathered.

The study examines temporal diversity in teams, including the urgency of time, pacing style, and different time perspectives. A leader plays a moderating role in encouraging the diverse and capable team members for an effective knowledge sharing process [14]. The telecom sector has many temporary task assignments under certain time pressures, which require that diverse ideas from the teams are placed on a single table. Under intermediate time pressure, teams can perform better when there are no hurdles in the knowledge-sharing process [15].

In summation, utilizing the untapped potential of the team is the most challenging task when a time limit is present. Our aims are (1) to find out possible conflicts that arise from a team's temporal diversity, which can affect sustainable knowledge sharing, and (2) to find out when the role of team temporal leader is more effective in reducing the conflicts.

Subsequent sections of the article are organized as follows: Section 2 explains the conceptual framework of the study, and the development of hypotheses according to this framework. Section 3 explains the method of conducting this study. Section 4 discusses how the data was analyzed. Section 5 contains the detailed discussion, implications, conclusions, limitations, and prospects of this study.

2. Conceptual Framework and Research Hypothesis Development

2.1. Conceptual Framework

Enhancing and maintaining the efficiency of the social/human capital with the help of a leader will create sustainable organizations [1,14]. Fiedler's contingency theory states that a leader's effectiveness is dependent on factors like situation, leader's personality, and the members of the team being led [16]. The Hersey–Blanchard situational leadership theory also gives us the same idea about leadership style, ability, and maturity level of the team [17]. If the leader is not involved in participating in the knowledge sharing process, then conflicts may arise; however, managing those conflicts properly can

yield positive results. The idea presented in the agency theory, with regards to resolving the problems that can arise due to the misaligned goals of the principal and the agent, leads towards an assumption that conflicts may arise while tackling temporal diversity [18].

This framework postulates a mediating role of temporal conflict in the relationship between temporal diversity and knowledge sharing. It also makes two hypotheses, based on the moderating role of a temporal leader in the relationship between temporal diversity and temporal conflicts, and between temporal conflict and knowledge sharing (see Figure 1). The following explains the relevant rationales for the hypotheses that together comprise the conceptual framework.

2.2. Impact of Temporal Diversity on Temporal Conflicts

Diversity is a double-edged sword that can give both positive and negative outcomes [19]. The cognitive aspect of the interpersonal interaction within the group or team represents temporal diversity. Previously, two concepts were used in understanding diversity. The concepts include surface and deep-level diversity. The heterogeneity in the outer appearance of individual characteristics—such as age, gender, race, etc.—lies in surface-level diversity. On the other hand, deep-level diversity refers to attitudes, values, beliefs, and all other cognitive aspects [20]. The antecedents of temporal diversity deal with the concepts of deep-level diversity. Temporal diversity is comprised of three categories, including time urgency, time perspective, and pacing style diversity.

Time urgency is usually related to an individual's behavioral aspects [20]. A combination of individuals having time-urgent and non-time-urgent styles in a single team may cause conflicts and delays in accomplishing the targets. Time-urgent personnel can show distress, physiologically alertness, awakening, and attentive behavior, when compared to a non-time-urgent personnel [21]. Time-urgent members of the team are faced with anxiety and frustration and are unlikely to accept any delay made by non-time-urgent members of the team. Similarly, non-time-urgent members can experience the demanding nature of chronically hurried personnel, thus creating conflicts that affect the creative process [22]. The time pressure affects information processing and solutions [23]. The hurried nature of personnel can give rapid and positive results in the task-related environment. For complex tasks, time urgency diversity is beneficial. The temporal leader can play a synergistic role between time-urgent and non-time-urgent personnel. Time-urgent behavior may create temporary problems and conflicts for the team. While making task schedules and deadlines for the knowledge sharing process, both the chronically hurried and non-time-urgent individuals may create problems and ambiguities. Based on this evidence, the following hypothesis was formulated.

Hypothesis 1a. Time urgency diversity significantly impacts temporal conflicts.

Time perspective is also denoted as time orientation [24] and sometimes refers to "temporal focus" [25]. The time perspectives are of three types: past, present, and future [26]. In the scope of this study, we focused on two dimensions of time perspectives: present and future. People having present time perspectives are more likely to exert their strength for taking immediate delight, are more risk-taking, and make plans that are of shorter time duration. People focusing on future time perspectives rely more on the future, are more goal-oriented, and make schedules and plans mostly for the future. This signals that conflict may exist in such diversity [9]. The following hypothesis was made based on these arguments.

Hypothesis 1b. Time perspective diversity significantly impacts temporal conflicts.

Pacing style diversity was introduced by Blount and Janicik [27], which shows how personnel exerts their effort with regards to deadlines. Pacing style includes before-time action, steady action, and deadline action [28]. Employees having before-time (or early) style complete their tasks well before a deadline. Conversely, employees having deadline action style start when a deadline reaches near [28]. Then, there are employees who have steady (or stable) action styles [28]. Individuals having

deadline action style are found to be more energized, due to having less time available for doing a certain task. They work hard as the date approaches [20]. This type of diversity also cause conflicts [9]. The following hypothesis was made based on these arguments.

Hypothesis 1c. Pacing style diversity significantly impacts temporal conflicts.

2.3. Impact of Temporal Conflicts on Knowledge Sharing

There should be effective knowledge sharing to improve sustainability and elevate innovation and performance in the telecom sector [14,27]. Sustainable knowledge sharing and its impact on innovation and creativity have been discussed in different studies [2,28]. Teams with productive knowledge sharing often think, plan, and act proactively. Individuals' ability, attitude, and willingness to share knowledge matter a lot while discussing team dynamics [29]. One of the perspectives throws light on the term "functional fixity". In order to avoid it, members of a team need to be flexible enough to consider the importance of difference in knowledge, perspectives, pacing styles, and ways of doing the tasks [9]. Conflicts are created if such differences are not resolved in a flexible manner. These conflicts are the reason for the decline of the knowledge sharing process, particularly when scarcity of time is present [30]. Conflict can restrict idea generation, as some people need to devote their time to exploration. Conflicts create problems for such people, and as a result, team knowledge sharing is significantly affected. Knowledge sharing and performance are maximized by the effective use of temporal diversity, i.e., the urgency of time, pacing style, and time perspective [9]. When heterogeneity in the temporal aspects of a team is present, the teams perform well. The similarity in teams hinders the process of knowledge sharing and a team's overall performance, whereas dissimilar groups perform well. Therefore, it is assumed that temporal diversity creates conflicts in teams, but produces better results regarding creativity, strategic formulation, and other task-related processes [7]. Conflict may arise due to a difference in opinions, working styles, and different perspectives with respect to time [31]. Knowledge sharing is affected by some conflicts, and when these conflicts arise, they function as a hindrance or obstacle for sustainable knowledge sharing. The concept of temporal conflict was discussed by Zhang [29]. Conflicts increase as the amount of diversity in a team increases, which further leads to various problems, like interpersonal conflicts and other disputes [13]. Recent studies support the continued examination of temporal conflict and temporal diversity [32]. On the basis of the mediating effects of temporal conflicts, the model describes that temporal diversities like time urgency and pacing preferences will affect temporal conflicts [22]. Better performance is obtained with the help of an active exchange of information within a diverse workgroup [33]. The theoretical framework is based on the argument that conflicts are not always bad, as they can contribute to increased knowledge sharing [34]. As given in Figure 1, the following hypothesis was formulated.



Figure 1. Research model.

Hypothesis 2. Temporal conflicts significantly impact knowledge sharing.

2.4. The Mediating Effects of Temporal Conflicts between Temporal Diversity and Knowledge Sharing

The theory presented by McGrath [35] discusses time and its impact on performance. He discusses that problems would occur due to diversity, but the idea about how these conflicts is managed and by whom is still a question. When the team consists of temporal diversity like time urgency, pacing style, and time perspective diversity then relevant problems and conflicts arise due to the differences in employees or team members. Every individual has some distinct characteristics, and when such people interact with each other in sharing knowledge then many responses occur, which can be in the form of conflicts, if considered in a pessimistic way; if considered an optimistic way, knowledge sharing synergizes the heterogeneity of the team into better performance and creativity [36]. Having a positive role in the knowledge sharing process can increase innovative behaviors [37]. When teams are managed properly in the presence of conflicts then intermediate conflicts may result in active knowledge sharing [34]. By combining literature and arguments, we have formulated our hypotheses: H3a, H3b, H3c, H4a, H4b, and H4c.

Hypothesis 3a. Time urgency diversity significantly impacts knowledge sharing.

Hypothesis 3b. Time perspective diversity significantly impacts knowledge sharing.

Hypothesis 3c. Pacing style diversity significantly impacts knowledge sharing.

Hypothesis 4a. Temporal conflict mediates the relationship between time urgency and knowledge sharing.

Hypothesis 4b. Temporal conflict mediates the relationship between time perspective and knowledge sharing.

Hypothesis 4c. Temporal conflict mediates the relationship between pacing style and knowledge sharing.

2.5. The Moderating Effects of Temporal Team Leadership

A lot of literature on leadership alone has existed, but over time team-centric leadership emerged, and the interest to observe teams arose, which gave indirect importance to the literature about team-based leadership [38]. Temporal team leadership is all about putting tasks into a structural form, creating a team synergy, understanding pacing styles, and supporting the members of the team in the effective completion of tasks in time [9]. Team members often face difficulties due to the difference in styles of doing interdependent tasks under time pressure. Temporal leadership's job is to enable its team to perform its function under such conditions [39]. Leader-member exchange (LMX) theory says that a leader must give individualized consideration to each of his or her team members, in order to enhance the efficiency and effectiveness of the unit [40]. In urging the development of a knowledge sharing attitude in a team, the leader looks for a diverse set of competencies among the team members, which leads to temporal conflicts. The responsibility of a team temporal leader is to synchronize the temporal diversity in a team and reduce the current and upcoming problems. Temporal diversity concerning conflicts can be tackled by making a realistic schedule of the activities, synchronizing the activities, and making an accurate allocation of resources. Making well-defined and easily understood schedules can reduce the ambiguities within the teams because these schedules are made after considering the temporal diverse personnel [41]. A study done by Myer and Myer [6] redefined and validated a measure of the intersection of leadership, time, and teams, which makes this intersection a good tool for future investigation.

When dealing with temporal diversity, the leader may encounter temporal conflicts because of task style differences. It is evident from the literature that strong team temporal leadership has a remedy for such types of temporal conflicts, whereas weak temporal leadership in the teams results in the lack of managing the conflicts, creating an obstacle in the knowledge sharing process.

One reason why conflicts may arise is that employees may try to satisfy their short-term objectives rather than focusing on the bigger picture of the task. The idea presented in the agency theory is concerned with resolving arising problems, which can be due to the unaligned goals of principal and the agent [18]. The role of the team temporal leader is quite significant, as he or she acts as a problem solver and proactively does some actions which reduce the probability of occurrence of conflicts [42].

The findings of the study done by Mohammed and Nadkarni [9] shows that there exists a moderating role of team temporal leadership while discussing temporal diversity and performance. The following hypotheses were made to check whether team temporal leadership is required before or after the conflicts arise due to the presence of temporal diversity, and to observe the effective involvement of a temporal team leader in reducing such conflicts for the sustainable knowledge sharing process.

Hypothesis 5. Temporal leadership moderates the relationship between temporal diversity and temporal conflicts.

Hypothesis 6. Temporal leadership moderates the relationship between temporal conflicts and knowledge sharing.

3. Method

3.1. Participants and Procedure

A total of 100 teams (319 individuals) were selected based on a purposive sampling method since management had already constituted these temporary teams and assignments were assigned to them. The selected teams were of different categories, i.e., marketing, engineering, management, and mixed teams. Team sizes ranged from 2 to 5 or more. 80% of the teams had more than 5 members. Of the participants, 76.49% were men and 23.51% were women. This leads to the use of the purposive sampling technique [43]. This technique was used because the teams were in the domain of temporary tasks rather they were assigned the routine management functions. The teams were chosen from telecom operators in Pakistan, including Mobilink, Zong, Ufone, Warid, Telenor, and Ptcl. The teams were taken from the telecom offices of the cities Multan and Lahore, selecting 50% of the teams from each city. The self-administered questionnaires were distributed over the period of one month and collected accordingly from the teams. The second month was spent in analyzing the quantitative data.

Primary data collection was done after developing questionnaires both for the leaders and the team members separately. The questionnaires consisted of six main sections containing 45 items, addressing time urgency (6 items), time perspective (12 items), pacing style (9 items), team temporal leadership (7 items), temporal conflict (3 items), and knowledge sharing (8 items), and they were distributed among different teams. In this study, cases were matched in the form of nested data, in which team members are nested within a team headed by a team leader, in the form of dyads. Team leaders provided information about the whole team concerning knowledge sharing. Self-reported measures were used to obtain data from the team related to temporal diversity; however, team members provided information about the conflicts within teams, which is shown in Figure 2.



Figure 2. Nested data collection.

3.2. Measurements

The scale for time urgency was proposed by Landy et al. [21]. Respondents rated six items (1 = strongly disagree, 5 = strongly agree). These items were combined into a single scale and used to observe time urgency diversity. This scale measures if the individual showed hurried or non-hurried behaviors (e.g., "People that know me will agree that I tend to do most things in a hurry"). The scale revealed good reliability ($\alpha = 0.91$).

In addition to the selection of one out of five graphs, representing the pacing style of the team members, a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) was also used to observe nine items about pacing style diversity. The scale was initially proposed by Gevers et al. [28] and was later adapted by Zhang [29]. The scale describes the pattern of effort distribution over the time available to complete a team task, i.e., an individual's style of doing the task which includes early action and deadline action (e.g., "When performing a task or project, I start right away and finish the work long before the deadline" or "I do not get much done on a task or project until the due date is close", etc.). The scale revealed good reliability ($\alpha = 0.93$).

A five-point Likert scale (1 = extremely uncharacteristic, 5 = extremely characteristic) was used to observe 12 items about time perspective diversity. The "Consideration of Future Consequences" scale proposed by Strathman et al. [44] was used in this study. This scale measures whether the individual is present- or future-oriented (e.g.," I consider how things might be in the future and try to influence those things with my day to day behavior"). Responses were collected from individuals of a team. The scale revealed good reliability ($\alpha = 0.90$).

In past studies, Team temporal leadership was only able to capture a small set of a leader's behaviors [45], but the scale used in this study measures a leader's behaviors including temporal planning [46], temporal reminders [28], scheduling, synchronization, and allocation of temporal resources (e.g., "To what extent does your project leader remind members of important deadlines?" and "To what extent does your project leader urge members to finish subtasks on time?", etc). The items used to observe team temporal leadership were coded from 1 ("not at all") to 5 ("a great deal"). This scale was proposed by Mohammed and Nadkarni [9]. The respondents were the team members, excluding the team leader. The scale revealed good reliability ($\alpha = 0.81$).

A seven-point scale (1 = never; 7 = always) was used to observe three items of temporal conflict (e.g., "To what extent is there conflict about how you should pace task activities in your team" and "To what extent are there disagreements about how long to spend on specific tasks in your team?", etc.). This scale was proposed by [8]. Responses were taken from team members. The scale revealed good reliability ($\alpha = 0.73$).

The scale proposed by Bartol et al. [47] was a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree) which was used to observe eight items of knowledge sharing within teams (e.g., "My team willingly passes along information that may be helpful to the work of the team" and "My team actively seeks helpful information to share with the team", etc.). Respondents for the scale were the leaders of the teams. The scale revealed good reliability ($\alpha = 0.81$).

4. Data Analysis

To interpret the components of temporal diversity, the standard deviation of the responses was calculated. This helped in analyzing the causal impact of temporal diversity on other variables like temporal conflicts and knowledge sharing. The statistical tools like IBM SPSS and AMOS (IBM Corp. Armonk, New York) were used for the analysis.

The model was tested in two separate analyses. Firstly, the study analyzed the mediating mechanism of temporal conflict in relation to temporal diversity and knowledge sharing. Second, the moderating influence of team temporal leadership on the relationship between temporal diversity and temporal conflicts, as well as on the relationship between temporal conflict and knowledge sharing were also analyzed.

Table 1 describes the descriptive statistics, which includes the correlation matrix, overall mean, and standard deviation of all the variables. The correlations between different pairs of variable are as follows: between time urgency and temporal conflict, 0.589 (p < 0.01); pacing style and temporal conflict, -0.248 (p < 0.01); time urgency and knowledge sharing, -0.157 (p < 0.01); time perspective and knowledge sharing, 0.141 (p < 0.05); time perspective and temporal conflict, 0.165 (p < 0.05); pacing style and knowledge sharing, -0.170 (p < 0.01); and temporal conflict and knowledge sharing, -0.076 (p < 0.05). These results are consistent with our expectations, and accept hypotheses H1a, H1b, H1c, H2, H3a, H3b, and H3c.

| | Variables | CR | AVE | Μ | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|--------------------------|-------|-------|------|------|----------|----------|-----------|----------|-----------|-----------|----------|
| 1 | Gender of Leader | - | - | 1.16 | 0.37 | | | | | | | |
| 2 | Team Size | - | - | 5.61 | 0.95 | -0.044 | | | | | | |
| 3 | Time Urgency | 0.898 | 0.599 | 3.24 | 0.65 | 0.063 | -0.030 | | | | | |
| 4 | Time Perspective | 0.930 | 0.532 | 3.64 | 0.55 | 0.061 | -0.098 | 0.351 ** | | | | |
| 5 | Pacing Style | 0.899 | 0.504 | 3.43 | 0.70 | 0.186 ** | -0.009 | 0.296 ** | 0.557 ** | | | |
| 6 | Temporal Conflict | 0.750 | 0.501 | 2.60 | 0.73 | -0.120 * | 0.035 | 0.589 ** | 0.165 ** | -0.248 ** | | |
| 7 | Team Temporal Leadership | 0.881 | 0.517 | 3.63 | 0.62 | 0.089 | -0.085 | 0.196 ** | 0.470 ** | 0.442 ** | -0.223 ** | |
| 8 | Knowledge Sharing | 0.911 | 0.565 | 3.38 | .83 | -0.014 | -0.143 * | -0.157 ** | 0.141 * | -0.170 ** | -0.076 * | 0.250 ** |

Table 1. Composite reliability, average variance extracted, means, standard deviation, and inter-correlations.

Note: N = 100 Teams, * *p* < 0.05, ** *p* < 0.01.

The confirmatory factor analysis (CFA), as shown in Table 2, distinguished the constructs, and the model fit was obtained. The model fit obtained was acceptable after using modification indices. After that, the means were imputed for the analysis.

| Construct | CFA Loading |
|--|-------------|
| Full Model fit: CMIN/DF = 2.07, CFI = 0.92, RMSEA = 0.058, GFI = 0.91, SRMR = .01, TLI = 0.957 | |
| Temporal Conflict ($\alpha = 0.71$) | |
| TC1 "To what extent do team members disagree about time allocation in your work team (how much time to spend on tasks)?" | 0.69 |
| TC2 "To what extent is there conflict about how you should pace task activities in your team?" | 0.77 |
| TC3 "To what extent are there disagreements about how long to spend on specific tasks in your team?" | 0.66 |
| Pacing Style Diversity ($\alpha = 0.93$) | |
| PS1 "When performing a task or project, I start right away and finish the work long before the deadline." | 0.72 |
| PS2 "When performing a task or project, I do quite a bit of work at the start so that I can relax a little towards the end." | 0.51 |
| PS3 "I would rather turn work in early than risk being late." | 0.61 |
| PS4 "I do not get much done on a task or project until the due date is close." | 0.84 |
| PS5 "I do most of the work on a task or project in a relatively short time before the deadline." | 0.60 |
| PS6 "I put in more effort towards the end of a project than at the beginning." | 0.89 |
| PS7 "When working on a project, I work steadily on tasks, spreading my work out evenly over time (e.g., 3 h per week until the deadline)." | 0.82 |
| PS8 "The amount of effort I put into a project is fairly consistent over time from start to finish." | 0.71 |
| PS9 "I do small chunks of work over time rather than a large chunk at one time." | 0.60 |
| Team Temporal Leadership ($\alpha = 0.81$) | |
| TTL1 "To what extent does your project leader remind members of important deadlines?" | 0.62 |
| TTL 2 "To what extent does your project leader prioritize tasks and allocate time to each task?" | 0.65 |
| TTL3 "To what extent does your project leader prepare and build in time for contingencies, problems, and emerging issues?" | 0.73 |
| TTL4 "To what extent does your project leader pace the team so that work is finished on time?" | 0.65 |
| TTL5 "To what extent does your project leader urge members to finish subtasks on time?" | 0.75 |
| TTL6 "To what extent does your project leader set milestones to measure progress on the project?" | 0.81 |
| TTL7 "To what extent is your project leader effective in coordinating the team to meet client deadlines?" | 0.80 |
| Time Urgency Diversity ($\alpha = 0.91$) | |
| TU1 "I find myself hurrying to get places even when there is plenty of time." | 0.86 |
| TU2 "I often work slowly and leisurely." | 0.89 |
| TU3 "People that know me will agree that I tend to do most things in a hurry." | 0.75 |
| TU4 "I tend to be quick and energetic at work." | 0.76 |
| TU5 "I often feel very pressured for time." | 0.70 |
| TU6 "My spouse or a close friend would rate me as definitely relaxed and easy going." | 0.66 |
| Time Perspective Diversity ($\alpha = 0.90$) | |
| TP1 "I consider how things might be in the future and try to influence those things with my day to day behavior." | 0.76 |
| TP2 "Often, I engage in a particular behavior in order to achieve outcomes that may not result for many years." | 0.83 |
| TP3 "I only act to satisfy immediate concerns, figuring the future will take care of itself." | 0.6 |

| Table 2. | Results | of con | firmatory | factor | analysis. |
|----------|---------|---------|-----------|--------|-----------|
| | 1000000 | 01 001. | j | incroi | and your |

| Construct | CFA Loading |
|--|-------------|
| TP4 "My behavior is only influenced by the immediate (i.e., a matter of days or weeks) outcomes of my actions." | 0.85 |
| TP5 "My convenience is a big factor in the decisions I make or the actions I take." | 0.72 |
| TP6 "I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes." | 0.69 |
| TP7 "I think it is important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years." | 0.75 |
| TP8 "I think it is more important to perform a behavior with important distant consequences than a behavior with less-important immediate consequences." | 0.81 |
| TP9 "I generally ignore warnings about possible future problems because I think the problems will be resolved before they reach crisis level." | 0.63 |
| TP10 "I think that sacrificing now is usually unnecessary since future outcomes can be dealt with at a later time." | 0.55 |
| TP11 "I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date." | 0.87 |
| TP12 "Since my day to day work has specific outcomes, it is more important to me than behavior that has distant outcomes." | 0.61 |
| Knowledge Sharing ($\alpha = 0.81$) | |
| KS1 "My Team willingly passes along information that may be helpful to the work of the team." | 0.71 |
| KS2 "My Team keeps others in the work group informed of emerging developments that may increase their work effectiveness." | 0.84 |
| KS3 "My Team actively seeks helpful information to share with the team." | 0.63 |
| KS4 "My employees share information that they have when it can be beneficial to others in the work team." | 0.88 |
| KS5 "My employees willingly share their expertise to help resolve work team problems." | 0.65 |
| KS6 "My employees willingly aid others in the team whose work efforts could benefit from their expertise." | 0.78 |
| KS7 "My employees offer innovative ideas in their area of expertise that can benefit the team's work." | 0.84 |
| KS8 "My employees frequently share their expertise by making helpful suggestions that benefit the work team." | 0.64 |

Table 2. Cont.

Note: Cronbach's alpha (α).

Structural equation modeling was conducted to find the mediating effect of temporal conflicts in the relationship between components of temporal diversity and knowledge sharing. Mediation analysis was done by taking 2000 bootstrap samples and 95% confidence intervals. According to Preacher and Hayes [48], a significant value of an indirect effect shows an occurrence of mediation. As shown in Table 3, the indirect effect of time urgency on knowledge sharing is -0.048 (p < 0.05), and that of time perspective on knowledge sharing is -0.106 (p < 0.05), which shows that there exists mediation in these paths; however, the indirect effect of pacing style on knowledge sharing shows an insignificant result with respect to mediation. This accepts the hypotheses H4a and H4b and rejects the hypothesis H4c.

| Table 3. Regression and | lysis, mediation, | direct path, indi | irect path, and | total effect. |
|-------------------------|-------------------|-------------------|-----------------|---------------|
|-------------------------|-------------------|-------------------|-----------------|---------------|

| Path | Total Effects (TE) | <i>p</i> -Value of (TE) | Direct Effects (DE) | <i>p</i> -Value of (DE) | Indirect Effects (IE) | <i>p</i> -Value of (IE) |
|---|-----------------------|----------------------------|------------------------|----------------------------|--------------------------|-------------------------|
| $TU \to TC \to KS$ | -0.144 | 0.046 * | -0.096 | 0.264 | -0.048 | 0.044 * |
| $\text{PS} \rightarrow \text{TC} \rightarrow \text{KS}$ | -0.387 | 0.042 * | -0.358 | 0.048 * | -0.029 | 0.153 |
| $TP \to TC \to KS$ | 0.310 | 0.194 | 0.204 | 0.405 | 0.106 | 0.049 * |

Note: * p < 0.05, ** p < 0.01, Total Effects (TE), Indirect Effects (IE), Direct Effect (DE).

The moderation of temporal team leaders was analyzed to find out whether the role of a temporal leader is effective before or after conflicts arise. First, the standard deviations of all components of temporal diversity were computed. After that, standardized Z-score variables were computed, to generate the interaction variables. The moderation analysis was done by taking temporal conflict (TC) as the dependent variable. The effects of interaction variables were calculated and analyzed to test the occurrence of moderation. Figure 3 represents the moderation charts based on the beta values, which show the moderating effects of temporal team leadership (TTL).

According to Figure 3 and Table 4, temporal team leadership significantly reduces the conflicts that occur when hurried and non-hurried employees are in a team ($\beta_{TUxTTL} = -0.041$, p < 0.05). When team temporal leadership is low, there are slightly greater conflicts as compared to high team temporal leadership. This shows that if the team members are more hurried in nature, then high conflicts occur. Contrary to this, if the nature of the team members is more non-hurried, then conflicts are seen significantly less frequently. Similarly, temporal team leadership significantly reduces the conflicts for both present- and future-oriented employees present in a team ($\beta_{TPxTTL} = -0.057$, p < 0.001). We interpreted this as when task-related behavior of employees in teams is more present-oriented rather than future-oriented, conflicts occur more often. When making teams, more team members should be inducted into the teams whose behaviors and actions are focused on the future goals and concerns, rather than present or short-term concerns. In the presence of weak temporal team leadership, conflicts are high within teams, which can cause delays in milestones and require extra resources to tackle the conflicts.



Figure 3. Moderation, the interaction effect of temporal team leadership in the relationship between temporal diversity and temporal conflicts, time perspective and temporal conflicts, and time urgency and temporal conflicts.

| Variables | В | Sig. | | | | | |
|--|--------|-----------|--|--|--|--|--|
| Moderation 1-IV (Temporal Diversity), Mod (Temporal Team Leadership), DV (Temporal Conflict) | | | | | | | |
| TD | 0.104 | 0.000 *** | | | | | |
| TTL | -0.025 | 0.263 | | | | | |
| $TD \times TTL$ | 0.065 | 0.000 *** | | | | | |
| Moderation 2—IV (Time Urgency), Mod (Temporal Team Leadership), DV (Temporal Conflict) | | | | | | | |
| TU | 0.589 | 0.000 *** | | | | | |
| TTL | -0.602 | 0.000 *** | | | | | |
| TU 	imes TTL | -0.041 | 0.010 * | | | | | |
| Moderation 3—IV (Time Perspective), Mod (Temporal Team Leadership), DV (Temporal Conflict) | | | | | | | |
| TP | 0.165 | 0.003 ** | | | | | |
| TTL | -0.085 | 0.271 | | | | | |
| $TP \times TTL$ | -0.057 | 0.000 *** | | | | | |
| Moderation 4—IV (Temporal Conflict), Mod (Temporal Team Leadership), DV (Knowledge Sharing) | | | | | | | |
| TC | -0.076 | 0.007 * | | | | | |
| TTL | 0.360 | 0.000 *** | | | | | |
| $TC \times TTL$ | -0.045 | 0.303 | | | | | |

Table 4. Regression analysis: Interaction effects.

Note: β is the unstandardized coefficient, *** p < 0.001, ** p < 0.01, * p < 0.05.

Contrary to this, if strong temporal team leadership is present, we can say that conflicts are managed and reduced. As the temporal diversity increases, the conflicts increase as well ($\beta_{TDxTTL} = 0.065$, p < 0.001). Therefore, a temporal team leader is required to play his or her role in reducing the conflicts arising from temporal diversity. When temporal diversity reaches to a certain extent, temporal leadership starts giving negative results because there is a limited capacity of a leader to manage such conflicts. If such conflicts increase, a temporal team leader may play a role in enhancing such conflicts. This proves that temporal team leadership moderates the relationship between temporal diversity and temporal conflict, which was our H5.

While checking the moderating role of the temporal team leadership, we discussed whether it plays a role before the conflicts arise or after. The interaction values in the moderation analysis of temporal team leadership between temporal diversity and temporal conflict shows a significant result, which means that temporal team leadership plays a role before the conflicts arise; however, the significance value of the interaction effect of temporal conflict and temporal team leadership ($\beta_{TCxTTL} = -0.045$, p > 0.01) shows that temporal team leadership doesn't play a moderating role in the relationship between temporal conflicts and knowledge sharing. Therefore, H6 is rejected.

5. Discussion

The primary objective of this study was to find the impact of temporal diversity as a social element of sustainability on sustainable knowledge sharing in the telecom sector of Pakistan. Employees need to share knowledge in order to compete in the market [3]. In order to sustain the knowledge sharing process, knowledge-intensive culture is required [4]. This is possible if the conflicts are managed properly, by understanding the cognitive aspects of the individuals working in the teams. In managing such temporal diversity among individuals, temporal leaders play a significant role.

Previous studies on organizational sustainability only give insights into the importance of knowledge sharing and social capital [1,2,47], but this study contributes toward understanding the cognitive aspects of the social/human capital in enhancing sustainable knowledge sharing. In comparison to previous studies [36], this study contributes to developing a model in which a moderator (temporal team leadership) was inculcated, in order to enhance the literature on team composition.

In the teams working in the telecom sector, apart from the tasks where teamwork is required, every individual was given liberty to work according to their style. If any member wanted to do task early or late, that member was free to do so in that scenario, because the team leader may require a task to get completed in any style the team wanted. Surprisingly, temporal conflicts do not occur in the relationship between future perspective and knowledge sharing. In the telecom industry, many processes are being outsourced, which require client demand to get fulfilled. Certain long-term tasks are already being set by the top hierarchy, so there exists less concern for the future perspective where knowledge sharing is concerned. Most of the members are required to share their short-term perspective to get a competitive edge. As the differences are less, so there exists less of a chance for conflicts to occur. Time urgency has a slightly negative impact on knowledge sharing because temporal conflicts occur but pacing style may not cause conflicts or impact knowledge sharing within teams, because of the nature of the task, which is flexible for the individuals. When discussing time perspective diversity, conflicts may arise; as the firms require their team to follow their long-term goals, team members are required to share knowledge of the short-term perspective to compete with competitors and make planning and strategies accordingly. When both perspectives are kept on a single table, conflicts arise. Such conflicts are the reason for increased knowledge sharing.

5.2. Moderating Role of Team Temporal Leadership

Sustainability is linked to managing human capital [1]. It is now the responsibility of a leader to create corporate sustainability, by formally adopting sustainable practices, such as tackling different mindsets of the individuals [49].

In comparison with the previous studies, this study illustrates two vital results. First, temporal team leadership plays a moderating role in the relationship between temporal diversity and knowledge sharing. Second, the results showed that temporal team leadership positively affects knowledge sharing, as the conflicts are considerably reduced by the involvement of team temporal leader.

Leadership needs a situation in which a leader can show his or her skills and expertise in taking the team in the positive direction [50]. Many factors are taken into consideration, such as leader's personality and the makeup of the team, which is dependent on the structure of the task. If the task requires early actions, the team may have a greater quantity of members who are early action takers, whereas if the task requires quality planning and execution, then the integration of present- and future-oriented members play a vital role.

5.3. Implications of Study

The telecom sector should strive for diversity for knowledge sharing. As the mediation results indicate that with the higher diversity in teams, comes the conflicts, which if catered properly would lead to healthy knowledge sharing. Telecom sector is striving to achieve higher knowledge sharing. They must focus on time perspectives of temporal diversity which leads to higher temporal conflicts but if these conflicts are managed properly with the aid of a team temporal leader, organizations can have sustainable knowledge sharing.

Employees having a hurried nature can be utilized at times when the task must be done urgently because these types of employees are energetic and quick. Team members having a non-hurried nature can be utilized in the knowledge sharing process, and for doing quality-oriented tasks. Future- and present-oriented employees should be managed by the leader in such a way that the decisions made should focus on both the reactive and proactive aspects of the planning and knowledge sharing process.

This study widens temporal research in several ways. The theory presented by McGrath discusses time pressure and its impact on performance [35]. He has addressed the problems which emerge in the teams but did not discuss how these problems arise and who should resolve them. When the team consists of temporal diversities, like time urgency, pacing style, and time perspective diversity, conflicts

arise because of the differences in employees or team members. This research also extends this theory by presenting the role of the team temporal leader, who acts as a problem solver and proactively does some actions that reduce the probability of occurrence of conflicts [42]. With this point, that the leader is responsible for managing the teams in such a way that their utilization of diversity is enhanced, and the conflicts are managed accordingly. We can say that our study integrates McGrath's theory with the literature of leadership. The problems are significantly reduced when strong temporal team leadership is present. A temporal leader can amplify or reduces the benefit, which can be obtained by utilizing the temporal diversity among team members.

Different types of tasks are carried out in firms that require different leadership styles to encounter issues and conflicts among the teams. Where temporal aspects are concerned, the result shows that participating leadership is required more particularly in the knowledge sharing process. In the participating style of temporal leadership, the leader shares decision making with the team by giving them an environment where the team can contribute their information openly for a better knowledge sharing; however, this can only be possible when conflicts are reduced and managed properly. The maturity level of the team members plays a significant role in estimating the frequency of conflicts that can arise during the task. The Hersey–Blanchard situational leadership theory projects the same idea about the leadership style and the ability and maturity level of the team which is being led [17]. The results of this research support the "Hersey-Blanchard Situational Leadership theory" in such a way that if the leader is not involved in participating in the knowledge sharing process, then conflicts may arise. The study also integrates with Fiedler's contingency theory, which states that leader's effectiveness is dependent on factors like situation, leader's personality, and members of the team being led [16].

The reason why conflicts may arise can be due to a conflict of interest and a misalignment of goals and objectives. Employees may try to satisfy their short-term objectives rather than focusing on the bigger picture of the task. In this situation, the leader is focusing on the bigger picture, but the employees may try to get a higher performance rating by doing the task in a hurry, compromising the quality and effect on others. Employees with a short-term orientation can also be a cause of such conflicts. This result converges upon the idea presented in the agency theory, about resolving arising problems possibly due to the unaligned goals of principal and the agent [18].

Structural diversity enhances knowledge sharing in the organization because every individual has different affiliations, skill sets, and experiences, which should be kept on the table during any process that needs knowledge sharing [33]. This study supports the point that structural diversity enhances knowledge, like how temporal diversity (time urgency and time perspective) enhances knowledge sharing in a similar way.

Practically, our study gives more insight into the field of human resource management, in which teams are strategically made to get better knowledge sharing and increasing organizational sustainability. Temporal diversity has an impact on sustainable knowledge sharing when making plans for organizational endeavors. The temporal leader is responsible for managing such diversity in leveraging benefits and reducing or resolving conflicts occurring due to the presence of a difference in spacing styles, perspectives, and urgency of time among team members. This study shows that conflicts can be managed by a team leader who understands and utilizes the temporal diversity of teams. The significance of a leader in making strategies for doing task should be considered. Temporal diversity should be made in a limited context, as our results show that if temporal diversity increases to a certain extent, then the involvement of a leader would not be an appropriate solution to reduce conflicts, because a leader has limitations in tackling those conflicts.

6. Conclusions, Limitations, and Future Research

The temporal leadership of a team may reduce the negative aspects of temporal diversity, maximize the benefits of such diversity, or operate in some combination to allow for more precise details and results. In dynamic, complex, and time-pressed firms, the team leader has a vital role. Diversity in

a team is an important tool for enhancing sustainability, achieving targets, and performing efficiently under strict deadlines. This empirical study illustrates that in the temporal aspects, the behavior of a team leader can reduce temporal conflicts, which saves time and resources for the firm. Further, our findings suggest that proactive measures should be adopted in tackling the conflicts. These conflicts and temporal diversity, if managed properly, can increase knowledge sharing within teams.

Future studies can replicate the method of this study in different sectors and different regions of the world. More literature is needed to investigate how social/human capital can be utilized for organizational sustainability [2]. Cognitive diversities other than the discussed diversities should also be considered. When talking about a pacing style diversity scale, as it measures three styles, it is suggested that other strong validated measures be adopted to get more accurate results. In addition, future studies can explore another potential variable, such as time awareness standards [46], and can explore the impact of team size and other demographic variables on a model similar to this study. There is also a need to explore potential media for links to diversity, performance, and social integration.

Acknowledgments: This research was academically supported by Air University Multan Campus, Pakistan.

Author Contributions: Usama Najam proposed the topic of the study, Aneeq Inam analyzed the data and wrote the paper, Hayat Muhammad Awan reviewed the paper and provided guidance, and Muhammad Abbas collected the data.

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

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