Impact of Knowledge Diversity in Projects on Team Creativity and Project Survival: Examining the Mediating Nature of Team Creativity and Moderating Role of Relational Social Capital

by

Farwa Suleman

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in the

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Dedicated to the people I love and admire...My Parents.

CERTIFICATE OF APPROVAL

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Acknowledgements

Then which of the Blessings of your lord will you deny. (Surah Ar-Rehman)

First, to my creator, my life coach, the most gracious, the most beneficial, **AL-LAH S.W.T,** I owe it all to you. Thank you!

There have been many people who walked alongside me, who have guided me through all these efforts. I would like to outstretch gratitude to each of them. I would like to extend special gratitude to my supervisor, **Dr. Lakhi Muhammad**, whose contribution in simulating suggestions and encouragements, helped me to coordinate my thesis work and especially in achieving the results. It was because of your support and guidance from the beginning that I have done it!

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Here I am indebted to my parents and my family for their support and encouragement throughout my educational career. it was your believe in me that brought me here. Words cannot express my gratitude for everything you have done for me. How I can forget you my Abu! Always interested to know what I am doing and how I am proceeding! I am grateful this is because of your faith in me. I hope I have made your proud and I always will InshaALLAH!

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Abstract

The present research aims to investigate the impact of knowledge diversity on project survival. The data was generated from 200 respondents working in different software houses of Rawalpindi and Islamabad of Pakistan. The results depict that knowledge diversity has significant and positive influence on project survival. Moreover, the mediating role of team creativity between knowledge diversity and project survival was also established. The moderating role of relational social capital was also supported by results. The practical and theoretical implications of the current study are also discussed. The study contributes significantly to the area of research specifically in the area of project management. The study also provides significantly implications in the available literature of project Management.

Keywords: Knowledge Diversity, Team Creativity, Project Survival, Relational Social Capital

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Chapter 1

Introduction

1.1 Background of the Study

The degree of passion for gaining knowledge (intensity) in team members affects performance (Mol et al., 2019). Meanwhile diversity make a person more creative and more innovative (Lu, 2019). Provides understanding of diverse knowledge that it has positive trait and valuable resource, ones belief about knowledge diversity reflects their own behavior and views (Civitillo, P.juang, Badra & Schachner, 2019). Knowledge diversity is considered as strength as explained by smith (2019) because knowledge plays an important role in team creativity (Andrevski, Richard, Shaw & Ferrier, 2014). Different ideas come from different knowledge. But at the same time, it is believed that people who have different knowledge and information can misunderstand each other and results in failure of team creativity (Szymanski, Fitzsimmons, Danis, 2019). Organizations need diversification in knowledge, it will increase degree of knowledge validation to process information and results in high performance of the organization but at the same time depth of knowledge of one person can be understandable by others and it should be managed and develop shared understanding of knowledge otherwise it will result in failure (Zhang & Guo, 2019). Knowledge diversity (KD) affects differently on quantity and quality of the creativity (Li & Liu, 2018). Knowledge diversity improves performance stability of the firms (Chow, Chan, Oong,Ng & Liang, 2016). Knowledge diversity

defines as different knowledge of expertise which results in creativity (Li & Liu, 2018). Knowledge diversity is important because it shows how much knowledge one person has and also improves its usefulness. Knowledge diversified individuals can contribute differently towards knowledge topics (Pee & Chua, 2016). Knowledge (Pérez, Elche & Villaverde, 2019) Diversity enhances team creativity of the firms (smallbone, Kitching & Rosemary, 2010).

It is known that team creativity is developed by knowledge researchers in the field of software houses. To fully understand team creativity and the influence of knowledge diversity, this study will further contribute in additional explanations for team creativity measurements and suggestions for how organizations have creative teams and also the role of knowledge diversity in employees may have different affect on quantity and quality of creativity (Li & Liu, 2018) Team creativity is characterized as "the production of novel and useful ideas concerning products, services, processes, and procedures by a team of employees working together" (Shin & Zhou, 2007). Most organizations' aim or use the strategy of workforce diversity to enhance their current available knowledge asset, that's why diversification is an important and useful strategy to get benefits from different knowledge of employees in result improve team creativity (Bogilovic et al., 2017). Knowledge diversity is demanding resource nowadays in modern organizations to strengthen competitive advantage, which results in increase of individual or team creativity (Ambile, 1996). Organizations use innovation factor for being capable of maintaining certain level of performance because mostly innovation is based on creativity and organizations make great effort to achieve/obtain creativity (Bogilovic et al., 2017). As organizations need creative teams, team creativity are taken to improve its market position because firms take a lot of creative actions on daily basis to improve its competitive position which in result firms' better financial performance (Mirabent, 2019). Team creativity refers to "externally directed, specific, and observable creative moves to enhance a firm's competitive position". Team creativity is to develop a new product and market it, find out ways that how to attract and satisfy more customers, also include diverse creative moves (Kim, Kim & Qian, 2015). In this study we show that relational social capital make easy and

smooth transfer of knowledge among diverse employees, basically social capital has two dimensions, structural and relational. Structural dimensions refer to patterns of relationships between members and relational social capital is nature of such relationships with respect to aspects such as intimacy (Moran, 2005; Nahapiet & Goshal, 1998).

We concentrated on role of relational social capital when there is knowledge diversity, relational social capital plays positive role (Akram, Lei, Hussain, Haider & Akram, 2016). Relational social capital helps to receive more benefits from knowledge diverse partners (cabello-Madina & Parez-Luno, 2015). So much studies shows positive role of relational social capital towards knowledge diversity (Steinmo & Rusmussen, 2016). We argue in this paper that Relational Social capital is a component through which knowledge diversity affects team creativity (Han, Han & Brass, 2014). Knowledge diversity has so many disadvantages because so much diverse knowledge in individuals make difficult to learn that knowledge which is beneficial for them. But relational social capital plays important and positive role here by eliminating negative effect of knowledge diversity by providing quality relationship between individuals and support it by its positive influence (Vlaisavljevic, Cabello-Medina & Perez-Luno, 2015). Relational social capital is made by the capability of creating and sharing knowledge of the firm which in result captivating team creativity. Relational social capital also improves knowledge and shared values which improve team creativity and project survival (Lengnick-Halla, Lengnick-Halla & Abdinnour-Helmb, 2004).

Earlier research has uncovered that relational social capital can enable a group to produce leap forward circumstances, Since colleagues will in general comply with customary guidelines and shows shaped through past understanding and connection, the infusion of new thoughts by outside connecting attaches invigorates colleagues to challenge standardized standards, dispose of old critical thinking strategies, and reformulate issues and arrangements (Kaufmann & Tödtling, 2001). In this manner, relational social capital enriches group with the chance to create new and imaginative blends. Despite the fact that spanning social capital is viable in invigorating colleagues' elective reasoning, it additionally represents a

test to the team regarding how to how to absorb and integrate diverse information (Cohen & Levinthal, 1990; Zhou et al., 2009).

If firms grasp the significance and perks of diversity in areas of knowledge, Culture, creativity, recruitment (with so many others) increase projects' success, in other words firms' reputation and chance of survival depends upon advantages of these variables with the effect of social capital (Sequeira, Weeks, Bell & Gibbs, 2018). There is a solid link between team creativity and firm execution so that firms that are related to more innovation related creative team will survive more (Li, Shang & Slaughter, 2010). On the other hand, if we talk about project survival which increases long term performance of the firm and in return constructs project survival (wang, 2013). At the outset, we contend that administrative knowledge diversity enhance a company's capacity to perceive and misuse open doors for creating competitive activities and thus to focus various brief competitive advantages that lead to project survival. Then, we at that point we determine significant limit state of the mediating effect—Team creativity. We contend that the indirect impact of knowledge diversity on project survival through team creativity is more grounded while working on projects (Richard et al., 2007). In spite of the expanding consideration to creativity research has concentrated generally on the forerunners of inventiveness as opposed to its results (Shalley et al., 2004). It is important to learn that creative teams help in project survival or not that's why evidence of positive effects of team creativity on project survival is limited so our study contributes to the relationship of team creativity towards project survival.

1.2   Research Gap Analysis

The Present study makes several contributions, Diversities plays an important role in project survival (Meschi, Ricard & Moore, 2017). Impact of Different kinds of diversities on team creativity is studied e.g ethnic diversity, gender diversity and so many more. (Triana, Richard & Su, 2019). But impact of knowledge diversity in projects on team creativity and project survival are not studied yet. So this study examines and investigates the impact of Knowledge diversity in projects within

relational social capital context (Triana, Richard & Su, 2019). Several studies have been conducted on the impact of different kind of diversities on firm performance (Aggarwal, Jindal & Seth, 2019). The main objective of the study is mediating role of team creativity which explains the relationship between the diversity of knowledge in projects (Triana, Richard & Su, 2019). It suggested that manageable knowledge diversity in projects develops relational social capital; relational social capital is the key synergy which eliminates and moderates the negative impact of knowledge diversity in projects on team creativity. And identify the mediating and moderating variables (Triana, Richard & Su, 2019). And mediating role of team creativity on project survival (Li, S., Shang, J., & Slaughter, 2010).

In this study we consider mediating factor team creativity to mediate the relationship between diversity and project survival and in this study, we will consider moderating factor of Relational social capital (Triana, Richard & Su, 2019).

1.3   Problem Statement

In spite of the undeniable advantages of knowledge diversity in projects, research has not been conclusive about their effects. Indeed, the potential benefits of diversity could be undermined by some problems associated with sharing and transferring very diverse knowledge. In this sense, some studies report a negative relationship between knowledge diversity in projects and performance or survival, reflecting the drawbacks of having diverse partners. This study tries to figure out the solution to this problem more deeply in the presence of team creativity and relational social capital.

Having diverse partners contributes to improving the performance but, beyond a certain level of diversity, its benefits could be difficult to reap, given the hindrances to share and transfer knowledge among firms that have little in common. This curvilinear approach can help to overcome the lack of consistency in the research, not all the firms are likely to benefit equally from having diverse partners. Considering the failure rate of projects in Pakistan due to this, the current study is being conducted to analyze the mediating role of team creativity and moderating

role of relational social capital on the relationship between knowledge diversity and project survival.

1.4 Underpinning Theory

Current model finds theoretical support in institutional theory of diversity management. This theory understands that the behavior of employees in organizations and organization themselves have limiting factors such as legislation, laws, rules and social and professional norms. Because org. is held to similar norms they tend to develop. Laws require organizations to become diverse they must prove to both individuals within the organization and individual outside the organization that they are conforming to these norms and laws. If it is followed it will result in project survival otherwise its operations will be questioned. My model has independent variable, knowledge diversity. Mediator is team creativity. And dependent variable, project survival moderated by relational social capital.

Research model
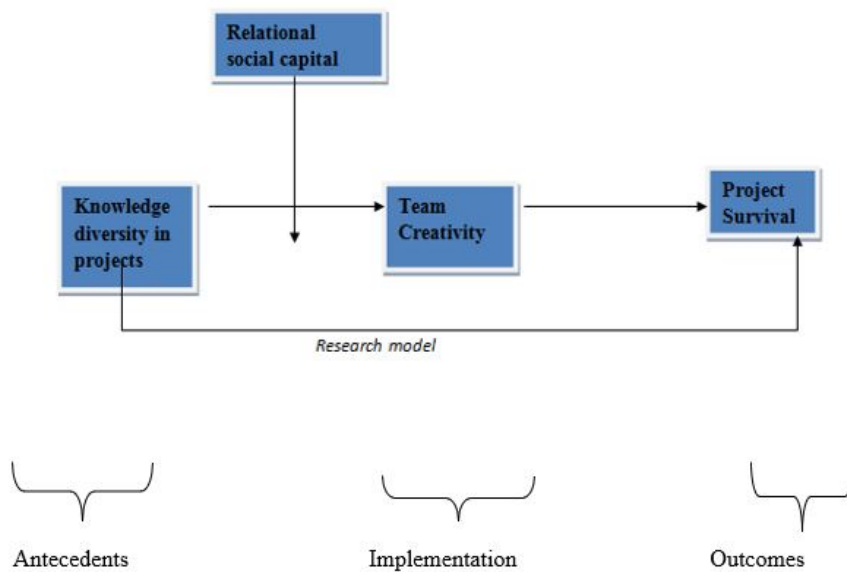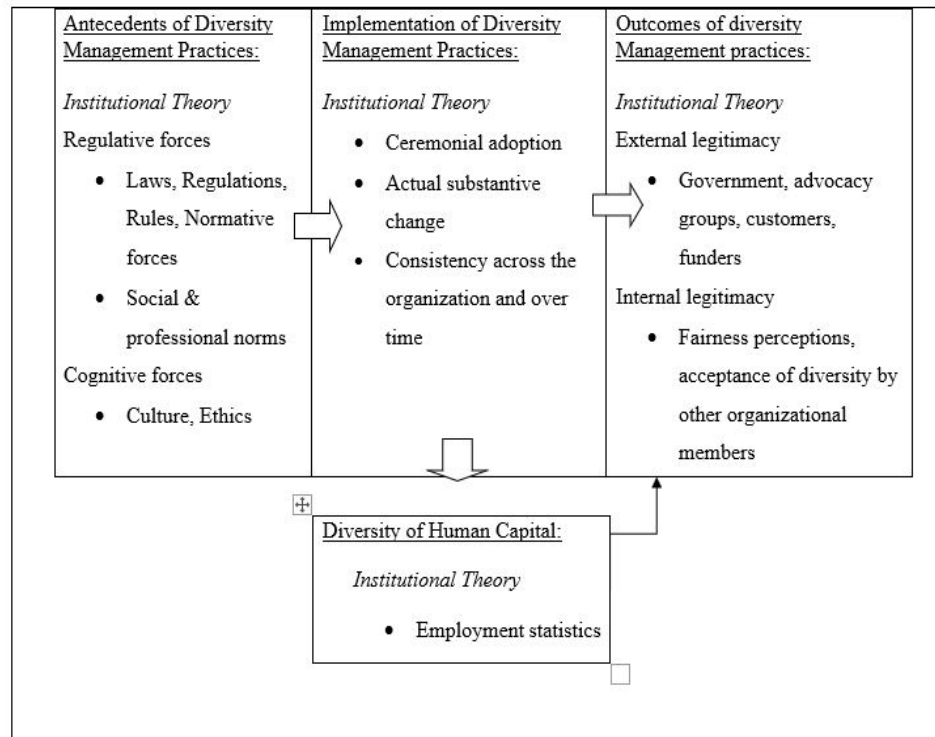
FIGURE 1.1: Antecedents and Outcomes of Institutional Theory

The bottom middle box indicates that the implementation of diversity management practices results in increased diversity of the organization's human capital and lists the types of outcomes predicted by institutional theory. The top right-hand box lists the legitimacy outcomes resulting from both implementation of diversity management practices and greater diversity of human capital, as predicted by institutional theory. Critically, while the nearness of Diversity management practices and institutional theory alone can produce authenticity results for associations (Edelman, 1992). While managing the diversity, Institutional theory suggest that similarities in managers' educational and professional experiences contribute to organizational isomorphism or comparability in plans of action, structures, and practices (DiMaggio & Powell, 1983). Inspecting the attributes of diversity directors and diversity related proficient affiliations can encourage comprehension of the improvement of standards for diversity management and how regularizing pressures impact the appropriation of diversity management the board rehearses. According to institutional theory an organization will in general copy its rivals as an approach to lessen uncertainty.

1.5   Research Question

Considering the project based organizations in Pakistan, We focus on the questions that what will be the impact of knowledge diversity on project survival, as we know that projects are also temporary time bound activities so by keeping in mind this concept to check how much knowledge diversity is affective for a project based organizations. The focal point of this study is to answer the below questions. In perspective on the above communicated issue enunciation.

The present study intends to find out answers of the following questions by keeping in view the abovementioned problem statement:

Research Question 1:

What is the impact of 'Knowledge diversity' on 'project survival?

Research Question 2:

What is the impact of team creativity on project survival?

Research Question 3:

What is the impact of relational social capital on project survival?

Research Question 4:

Does team creativity mediates the relationship between knowledge diversity and project survival?

Research Question 5:

Does relational social capital moderate the relationship between knowledge diversity and team creativity?

1.6   Objective of the Study

The aim of this study is to find the impact of knowledge diversity in projects on project survival with mediation role of team creativity and moderating role of relational social capital. The objectives of the study are:

Research Objective 1:

To find the impact of knowledge diversity on project survival.

Research Objective 2:

To find the mediating impact of team creativity on the relationship between knowledge diversity in projects and project survival.

Research Objective 3:

To find the moderating impact of relational social capital on relationship between knowledge diversity and team creativity.

1.7 Significance of the Study

Defining the field of diversity is, however, still a little bit difficult (Nkomo & Stewart, 2006). Surely, the field is portrayed by ambiguities, logical inconsistencies and unclarities (Cox, 1994). Research shows that, for a project survival, team creativity is an essential ingredient to manage knowledge diversity in projects and reduce uncertainty (Triana, Richard & Su, 2019) Therefore, it is necessary to understand such factors which can support team creativity. Although past investigations have made a significant commitment to expanding our comprehension of team creativity, we emphatically accept that some significant angles are dismissed that keep us from find out about what occurs in the project setting. Therefore, we attempt to propose a progressively appropriate clarification for hidden changes in project management studies and practices. As it is established, that high level of relational social capital can create strong relationship between team creativity and diversity (M. Sequeira, weeks, Bell & Gibbs, 2018). However, the objective of this study is to analyze the impact of relational social capital on knowledge diversity in projects and team creativity which increases or ensure the probability of a project survival. As it is examined, that managed diversity and team creativity are associated with the project survival (Hearn & Louvrier, 2016).That is why it is important to understand the link between team creativity, knowledge diversity and relational social capital with project survival.

Chapter 2

Literature Review

Literature highlights the implication and relation of knowledge diversity, project survival, team creativity and relational social capital. How project survival can be influenced by different factors. Among these influencing factors how knowledge diversity and team creativity effect the project survival.

2.1 Relationship between Knowledge Diversity in Projects and Project Survival

Project survival is generally perceived as a significant marker of business execution since exit from a remote market for the most part shows a disappointment of the management's unique objective for the business, however firm exit may also be because of key reasons (e.g., looking for new open doors in different markets). It is contended that greater and socially diverse urban areas draw in people with more human capital and abilities and this effects firm survival, (Cabello-Medina & Perez-Luno, 2015).

Project success is one of the most and frequently studied topic in project management domain but the survival criteria is very organization to organization according to the market position (Ranawat, Bhadoriya, & Trivedi, 2018). For maintaining survival of any kind of project the manager need some appropriate and different kinds of knowledge and skills, thus research shows that if knowledge diversity is

managed will result in survival of the project (Li & Liu, 2018). Different kind of diversities plays a essential role in the survival of any project (Cabello-Medina & Perez-Luno, 2015).

Project resource bond idea is a significant territory for concern however a large portion of the specialists have ignored this significant issue yet for the project desire outcomes plan is likewise most significant pillar of purposed project survival in the project management literature.

Having diverse partners contributes to improving the performance but, beyond a certain level of diversity, its benefits could be difficult to reap, given the hindrances to share and transfer knowledge among firms that have little in common (Kog gut & Zander, 1992; Lane & Lubatkin, 1998). Although this curvilinear approach can help to overcome the lack of consistency in the research, not all the firms are likely to benefit equally from having diverse partners (Wuyts & Dutta, 2014). Considering the failure rate of projects in Pakistan due to this, the current study is being conducted to analyze the mediating role of team creativity and moderating role of relational social capital on the relationship between knowledge diversity and project survival.

Project should be regulated appropriately to accomplish the results of the projects. Different kinds of diversities present in the organization plays an important role. Optimistic behavior in the form of knowledge diversity has been focus more and more in the last few decades (Cabello-Medina & Perez-Luno, 2015).

Project is the systematic mix of different exercises which join together to accomplish the predefined target and result as a unique product (Tonchia, Tonchia, & Mahagaonkar, 2018). However, knowledge diversity in the teams is expanding as their associations require diversification in the knowledge economy, and it is difficult to guarantee group adequacy because, as research suggests, knowledge diversity has a "double-edged" nature. Diversified knowledge resources improve the epistemic and learning inspiration to process data, such motivation leads to project survival. Taking the case of the psychological procedure in programming development projects, contrasts in knowledge depth and domain lead progressively to knowledge limits among IT experts. Planners may not build up a mutual

comprehension of their skill in view of inconsistencies in programming language, structure approach, and so on. Accommodating clashes typically requires support from project managers or proficient colleagues. For maintaining survival of any kind of project the manager need some appropriate). and different kinds of knowledge and skills, thus research shows that if knowledge diversity is managed will result in survival of the project (Li & Liu, 2018). Different kind of diversities plays a essential role in the survival of any project (Cabello-Medina & Perez-Luno, 2015).

Knowledge diversity represents positive relationship with project survival. Groups with heterogeneous information are progressively able to create a more extensive scope of undertaking applicable intellectual assets for deciding, advancing advancement capacity and taking care of issues than groups with homogeneous information. Additionally, heterogeneous groups are better outfitted to adapting to changes and investigating new chances, particularly in a powerful domain. Having diverse partners contributes to improving the performance but, beyond a certain level of diversity, its benefits could be difficult to reap, given the hindrances to share and transfer knowledge among firms that have little in common (Kog gut & Zander, 1992; Lane & Lubatkin, 1998). Although this curvilinear approach can help to overcome the lack of consistency in the research, not all the firms are likely to benefit equally from having diverse partners (Wuyts & Dutta, 2014). Considering the failure rate of projects in Pakistan due to this, the current study is being conducted to analyze the mediating role of team creativity and moderating role of relational social capital on the relationship between knowledge diversity and project survival.

Due to diverse knowledge there is a consistent stream and trade of thoughts, so when they have likely to display higher presence of skilled and profoundly qualified people, encouraging pioneer section and new pursuit development. The capacity of urban areas as agglomerated areas to cultivate new thoughts is one potential motivation behind why they become focuses of business enterprise (Szymanski,

Fitzsimmons & Danis, 2019). Exchange of ideas both within and across industries in cities may generate horizontal and vertical spillovers and facilitates inter-organizational knowledge transfer of new ideas (Van Wijk et al., 2008). This can further create and sustain businesses. The externalities attempt to determine that diversified knowledge and industries are more conducive to knowledge generation and exchange (Akram, Lei, Hussain, Haider & Akram, 2016). One of the few areas of common agreement within diversity research is that the effects of knowledge diversity on project survival can be both positive and negative because of different knowledge and different sources of information.

Knowledge diversity is one of the factors which create a network and provide all the essential data to the project members and results in firm survival (Pinto, amp & Prescott, 1988). Knowledge diversity is a key factory while measuring and understanding firm survival (Davis, 2017). A strong relation will develop through knowledge diversity which provides help in decision making and also establish a sense of commitment. Knowledge diversity (among the all the influencing factors) is an important factor in the project survival which effect the entire project from its start to till end (Park et al., 2012).

Provides understanding of diverse knowledge that it has positive trait and valuable resource, and increase project survival. (Civitillo, P.juang, Badra & Schachner, 2019).

Diversity ensures understanding among project team members which leads to accomplishment of the objectives of project on time and in effective way by also increases the project performance which shows diversity has a positive influence on the rate of new firm formation as well as on the survival of new projects. (smallbone, Kitching & Rosemary, 2010). This paper looks at information partaking in a different workforce condition, which is a generally new idea in the field of information the board. Right now, is accepted that information partaking in a various workforce condition can yield preferable information results over it can in a less differing workforce situation. Research on workforce decent variety proposes that a socially different workforce may give more noteworthy information assets to representatives (Pelled et al., 1999; Williams & O'Reilly, 1998) which can increase

team creativity (Amabile, 1996). Studies also suggest that knowledge diversity is positively related to team creativity (Sigala & Chalkiti, 2015). Similarly, report that knowledge diversity plays an important role in increasing team creativity. In this manner, we anticipate that person and team creativity increases when exile representatives share their insight with nearby workers. As examined above, workforce diversity builds the difficulties that representatives face to impart knowledge assets to nearby workers due to knowledge differences, which may likewise influence their creative execution (Bogilovic et al., 2017).

This paper will contribute the impact of knowledge diversity on project survival by discussing their positive relationship that project survival is depended on knowledge diversity which reflects that if the knowledge diversity will increase the survival of the project will also increase. On the basis of these points we concluded that:

H1: Knowledge diversity in projects is positively linked with project survival.

2.2 Team Creativity and Project Survival

Creativity is perceived as a formation of novel thoughts, procedures, systems and compelling aptitudes and is viewed as one of the most pivotal factor for hierarchical presence and adequacy (Dong, Bartol, Zhang & Li, 2017). Creativity includes the colleagues of with diverse knowledge styles and worth frameworks to expend their range of information, capacities, abilities and contemplation to reap all the more new decisions, methodologies, and items which causes the group to explore issues utilizing different edges and think about a few potential other options (Wang & Zheng, 2016).

In the present period creativity is one of the exceptionally requested sources through which an association can undoubtedly get numerous points of interest over their rivals and can upgrade profitable thoughts, sentiments and business condition (Ghosh, 2015). Anderson, Potocnik, & Zhou (2014) shows that in developing organizations creativity results more, when the individuals contribute as a team instead of performing separately. In creating part picking up creativity requires extra effort, inspiration and risk taking fearlessness (Hon & Lu, 2015), it makes exceptionally demanding.

It is significant to consider the impact of knowledge diversity because it impact significantly on significant zones like project management, organizational culture and worker associations among themselves and with the manager (Chroneer & Backlund, 2015). Knowledge diversity in project based organizations is considered as another element of strength and back end support of project team. Knowledge diversity produces a creative strength for project team resulting in innovativeness and improved creativity in project-based organizations.

Creativity in project teams plays important role in combining individual creativity ant organization creativity create new and innovative thoughts, and transmit and molded thoughts into advantageous innovation, products or services (Iansiti, West & Horii, 1997; Chen, 2006). Team creativity in projects is defined as, the creation of novel and valuable thoughts concerns items, administrations, procedures, and systems by a group of representatives cooperating working together (Shin & Zhou, 2007). Projects are unmistakable and transient achievements with the fluctuating workforce. Moreover, Projects are, commonly of a minor period, absorbing inside, outside masters, just as information. Creativity is for the most part isolated into individual, group and authoritative levels and includes in the novel and helpful thoughts. "Group innovativeness can be seen as the fuse of individual capability and motivation (Taggar, 2002). Creativity increases by enhancing team knowledge and knowledge diversity provides different and more knowledge and results in project survival and project goal is achieved in very fine manner (Stashevsky, Burke & Koslowsky, 2006). Knowledge diversity is one of the exploratory

methodologies (Glavic, Lukman & Lozano, 2009), which make the project to survive through creative actions, communication, problem solving (Tan, 2009). These procedures are accentuated for the joint effort of project team creatively (Liu & Schonwetter, 2004).

Team creativity fundamentally influences project survival (Bain, Mann & PiroraMerlo, 2001). Various sorts of enterprises and associations may call for various ranges of abilities and capabilities for survival of the project (Geroski & Constantinos, 2005; McGahan, 2004). But an organization ability to make and improve esteem chains through representatives continues as the fundamental source of competitiveness. Creativity behavior in team is affected by durable group attributes that help open associations, various perspectives, and lively environment (Amabile, 1998). For Software houses Team creativity intensely emphasized, as it is the main source of innovation. The positive and negative character qualities of any representative are those human aptitudes that impact survival (Sun, wang & kong, 2014) and project performance. Teams have created as an eye getting structure for sorting out project work as basically as entire project work since they process data and exercises at better level as contrast with people, they put exertion to help the executives of relationship much under complex project undertakings fulfillment, and groups present their assignment level at all the more introducing approach to coordinate various source of ability by investing join energy (de Carvalho, patah, & de souza Bido, 2015). Teams are expected to work various assignments to be perform at the same time, sequentially or commonly (culp & smith) thus teams work as backbone of project survival under compelling direction and can assist pioneer with producing desire results. Anyway in world loaded with seriousness associations, pioneers and teams are regularly constrained to carry new plan to attract clients, in such conditions groups ought to be chosen under various sticking criteria and associations should prepare their teams to be serious to snatch the present market request (Forgues & Koskela, 2009). that's why by putting more focus on team creativity helps increase chance of project survival (Bonner, Ruekert & walker Jr., 2002).

Understanding of diverse knowledge that it has positive trait and valuable resource,

ones belief about knowledge diversity reflects their own behavior and views (Civitillo, P.juang, Badra&Schachner, 2019). Knowledge diversity is considered as strength (smith, 2019) because knowledge plays an important role in team creativity (Andrevski,Richard,Shaw& Ferrier, 2011).

Different ideas come from different knowledge. But at the same time, it is believed that people who have different knowledge and information can misunderstand each other and results in failure of team creativity (Szymanski, Fitzsimmons, Danis, 2019). Organizations need diversification in knowledge, it will increase degree of knowledge validation to process information and results in high performance of the organization but at the same time depth of knowledge of one person can be understandable by others and it should be managed and develop shared understanding of knowledge otherwise it will result in failure (Zhang & Guo, 2019).

Knowledge diversity (KD) affects differently on quantity and quality of the creativity (Li & Liu, 2018). Knowledge diversity improves performance stability of the firms (Chan & Liang, 2016). Knowledge diversity defines as different knowledge of expertise which results in creativity (Li & Liu, 2018). Knowledge diversity is important because it shows how much knowledge one person has and also improves its usefulness. Knowledge diversified individuals can contribute differently towards knowledge topics (Pee & Chua, 2016). Knowledge (Pérez, Elche &Villaverde, 2019) Diversity enhances team creativity of the firms (smallbone, Kitching& Rosemary, 2010).

It is known that team creativity is developed by knowledge researchers in the field of software houses. To fully understand team creativity and the influence of knowledge diversity, this study will further contribute in additional explanations for team creativity measurements and suggestions for how organizations have creative teams and also the role of knowledge diversity in employees may have different affect on quantity and quality of creativity (Li & Liu, 2018) Team creativity is characterized as "the production of novel and useful ideas concerning products, services, processes, and procedures by a team of employees working together" (Shin & Zhou, 2007).

Most organizations' aim or use the strategy of workforce diversity to enhance their

current available knowledge asset, that's why diversification is an important and useful strategy to get benefits from different knowledge of employees in result improve team creativity (Bogilovic et al., 2017) Knowledge diversity is demanding resource nowadays in modern organizations to strengthen competitive advantage, which results in increase of individual or team creativity (Ambile, 1996). Organizations use innovation factor for being capable of maintaining certain level of performance because mostly innovation is based on creativity and organizations make great effort to achieve/obtain creativity (Bogilovic et al., 2017).

As organizations need creative teams, team creativity are taken to improve its market position because firms take a lot of creative actions on daily basis to improve its competitive position which in result firms' better financial performance (Mirabent, 2019). Team creativity refers to "externally directed, specific, and observable creative moves to enhance a firm's competitive position". Team creativity is to develop a new product and market it, find out ways that how to attract and satisfy more customers, also include diverse creative moves (Kim, Kim & Qian, 2015). If firms grasp the significance and perks of diversity in areas of knowledge, Culture, creativity, recruitment (with so many others) increase projects' success, in other words firms' reputation and chance of survival depends upon advantages of these variables with the effect of social capital (M. Sequeira, P. Weeks, P. Bell & R. Gibbs, 2018). There is a solid link between team creativity and firm execution so that firms that are related to more innovation related creative team will survive more (Li, Shang & Slaughter, 2010).

On the other hand, if we talk about project survival which increases long term performance of the firm and in return constructs project survival (wang, 2013). At the outset, we contend that administrative knowledge diversity enhance a company's capacity to perceive and misuse open doors for creating competitive activities and thus to focus various brief competitive advantages that lead to project survival. Then, we at that point we determine significant limit state of the mediating effect—Team creativity. We contend that the indirect impact of knowledge diversity on project survival through team creativity is more grounded while working on

projects (Richard et al., 2007). In spite of the expanding consideration to creativity research has concentrated generally on the forerunners of inventiveness as opposed to its results (Shalley et al., 2004). It is important to learn that creative teams help in project survival or not that's why evidence of positive effects of knowledge diversity on team creativity is limited so our study contributes to the relationship of team creativity towards Knowledge diversiy.

H2: Team creativity has positive correlation with project survival

2.3 Mediating Role of Team Creativity between Knowledge Diversity in Projects and Project Survival

Knowledge and creativity have gotten significant for organizations to stay competitive in the present quickly changing and dynamic business condition (Bogilovic, Cerne, & Skerlavaj, 2017; George, 2007; Lopez-Cabrales, Pérez-Luño & Cabrera, 2009; Ogbeibu, Senadjki, & Gaskin, 2018). Creative teams improve its market position because firms take a lot of decisions on daily basis to improve its position which in result firms' better financial performance (Mirabent, 2019). As organizations turn to groups to be innovative, researchers have inspected the group qualities and procedures that help innovativeness. Be that as it may, in spite of the basic job influence plays in singular inventiveness, examinations of how individual compelling states impact team creativity is rare and to a great extent uncertain (Barsade & Knight, 2015).. Creativity refers to the generation of novel

and helpful thoughts (Amabile, 1983; Ogbeibu et al., 2018; Shalley, 1991), and organizations endeavor to advance creativity at both individual (worker) and team levels (Pirola-Merlo & Mann, 2004). Researchers have distinguished diverse individual and logical components that impact worker creativity (Bogilovic et al., 2017; Shalley, Zhou & Oldham, 2004; Tierney & Farmer, 2002).

Team creativity is based on knowledge diversity and also increase through diversity management. Team creativity will develop rapidly when knowledge diversity is managed, understood, expected and as well as shared in teams. In other words diversity is essential for team creativity and it will lead to increase the performance. Diversity and team creativity are interlinked and collectively both will influence the performance (Henderson, Stackman & amp; Lindekilde, 2016).

Research on workforce diversity proposes that diverse workforce may give more noteworthy knowledge assets to representatives (Pelled et al., 1999; Williams & O'Reilly, 1998), which can increase individual and team creativity (Amabile, 1996). Impact of team creativity is depending upon the team and the environment. With the appliance of team creativity, exchange of information and knowledge and many others which positively contributes toward project survival (Buvik & amp; Rolfsen, 2015). In the previous researches it is documented that team creativity is vital in success. There were several ways to attain elevated level of project performance; team creativity is one of the approaches to achieve high level of project performance and outcomes. This study will contribute that how team creativity along with knowledge diversity will assist the project survival.

Literature emerge that good team creativity will increase the probability of project survival; stronger relationship had positive impact on project survival. Project survival involves number of factors; team creativity and diversity are one of them. Studies also suggest that knowledge diversity is positively related to team creativity. For example, Sigala & Chalkiti,, (2015) found a positive association between knowledge diversity and team creativity. Similarly, (Liao & Chen, 2018; Ma,Cheng, Ribbens & Zhou, 2013). Report that knowledge diversity plays an important role in increasing team creativity. In this manner, we anticipate that

individual and team creativity increments when ostracize workers share their insight with local representatives. In light of the above hypothetical thinking we propose the accompanying hypotheses:

H3: Team Creativity mediate the relationship between Knowledge diversity and project survival
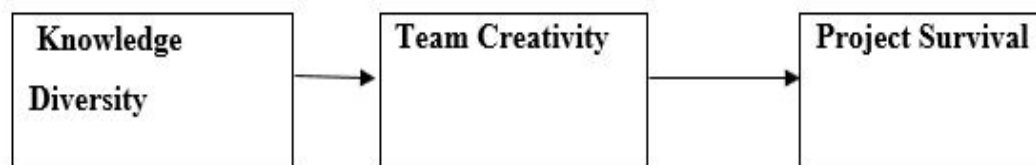
2.4 Moderating Role of Relational Social Capital between Knowledge Diversity in Projects and Project Survival

Literature defines relational social capital is created by the capability of creating and sharing knowledge of the firm which in result team creativity. Relational social capital also improves knowledge and shared values which improve project survival (Nkomo & Stewart 2006).

Relational social capital is surrounded the positive abilities Moreover, that many other features are associated with relational social capital. Relational social capital is a dimension of social capital that identifies with the attributes and characteristics of individual relationships, for example, trust, commitments, regard and even friendship (Nkomo & Stewart 2006).

In this study we show that relational social capital make easy and smooth transfer of knowledge among diverse employees, basically social capital has two dimensions, structural and relational. Structural dimensions refers to patterns of relationships between members and relational social capital is nature of such relationships regarding aspects such as trust and intimacy (Moran, 2005; Nahapiet & Goshal, 1998). We focused on role of relational social capital When there is knowledge diversity, relational social capital plays positive role (Akram, Lei, Hussain, Haider

& Akram, 2016). Relational social capital helps to receive more benefits from knowledge diverse partners (vlaisavljevic, cabello-Madina & Parez-Luno, 2015). So much studies shows positive role of relational social capital towards knowledge diversity (Steinmo & Rusmussen). We argue in this paper that Relational Social capital is a mechanism through which knowledge diversity affects team creativity (Han, Han & Brass, 2013). Knowledge diversity has so many disadvantages because so much diverse knowledge in individuals make difficult to learn that knowledge which is beneficial for them. But relational social capital plays important and positive role here by eliminating negative effect of knowledge diversity by providing quality relationship between individuals and support it by its positive influence (Vlaisavljevic, Cabello-Medina & Perez-Luno, 2015). Relational social capital is created by the capability of creating and sharing knowledge of the firm which in result captivating team creativity. Relational social capital also improves knowledge and shared values which improve team creativity and project survival (Lengnick-Halla, Lengnick-Halla & Abdinnour-Helmb, 2004). Earlier research has uncovered that relational social capital can enable a group to produce "leap forward circumstances", Since colleagues will in general comply with customary guidelines and shows shaped through past understanding and connection, the infusion of new thoughts by outside connecting attaches invigorates colleagues to challenge standardized standards, dispose of old critical thinking strategies, and reformulate issues and arrangements (Kaufmann & Tödtling, 2001). In this manner, relational social capital enriches the group with the chance to create new and imaginative combinations. Despite the fact that spanning social capital is viable in invigorating colleagues' elective reasoning, it additionally represents a challenge to the team regarding how to how to absorb and integrate diverse information (Cohen & Levinthal, 1990; Zhou et al., 2009).

Pervious findings demonstrate the link between relational social capital and firm survival. It is reported that social capital has experimentally connected to positive results in a variety of domains, for example, firm survival. Social capital became increasingly popular. All these points comprise that in the presences of

relational social capital the relation between knowledge diversity and team creativity is strengthen which ultimately increase the chance of the project survival So it is hypothesized that:

H4: Relational social capital moderates the relationship between knowledge diversity and team creativity such that it strengthens the relationship between knowledge diversity and team creativity.
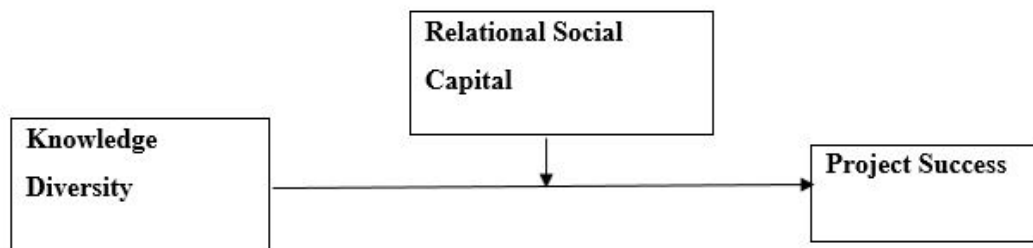
2.5   Research Model

The object of this study is to examine the direct impact of knowledge diversity and project success, with considering the moderating influence of relational social capital and mediating role of team creativity. In this model of research knowledge diversity is independent variable, dependent variable will be project survival, team creativity is mediator and moderator will be relational social capital.
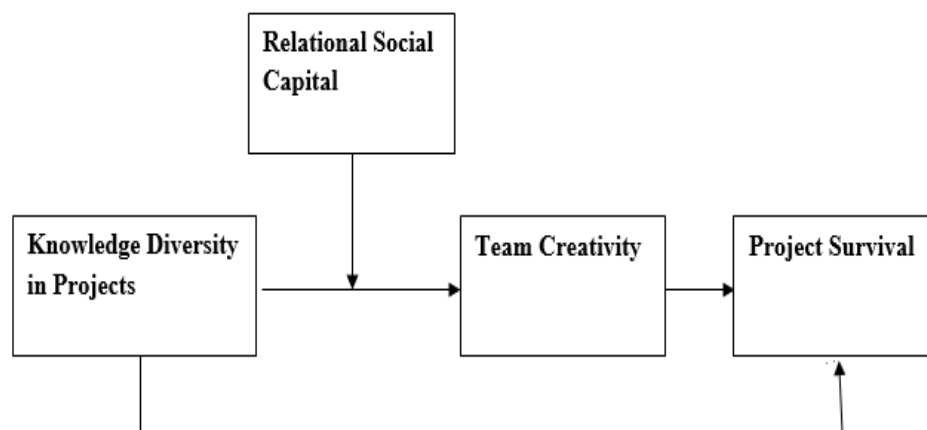
FIGURE 2.1: Research Model

Chapter 3

Research Methodology

The following chapter is associated with determining the data collection methods and techniques to achieve the aim of the study. This will help in examining the relationship between Knowledge diversity and project survival with mediating role of project creativity and moderating role of relational social capital. There are multiple sections that are covered in this chapter including the research design, Population and sample, sample and sampling technique, sample characteristics, instrumentation, reliability analysis, statistical tool, and data analysis techniques measurements of the study, pilot testing and other elements in more detailed.

3.1   Research Design

The methodology is utilized for gathering, social occasion, data and information of the exploration question however; research questionnaire is known to help to accumulate required data. A group of methodology that is utilized for investigating data of different variables used in the research model is called research design (Groenewald, 2004). Moreover, survey procedure was executed to gather information that includes the use of questionnaire.

For dealing with the procedure of the examination, it is definite procedure and

incorporated the study detail concerning type of study, study settings, unit analysis and time horizon explained in detail below. A phenomenal research configuration encourages specialists to get astonishing outcomes; similarly it helps in raising estimation of the appraisal. Research design is basically divided into three segments: qualitative, quantitative and mixed study (Creswell & Creswell, 2017). Overwhelming bit of specialists hold conviction that quantitative research is continuously reliable and successful when stood apart from conceptual research structure (de Vaus, 2001).

Research arrangement is depicted as the exhibit of conditions for information get-together and appraisal in such a way, that goal is to mix congruity to the examination point with economy in framework (Selltiz et al., 1960). For this study, the researcher had selected quantitative method in order to determine the impact of knowledge diversity in projects on team creativity and project survival. The researcher has designed questionnaire for obtaining data from employees working in software companies.

3.1.1 Types of Study

Type of study includes determines whether a study is causal, exploratory or explanatory in nature. Since in the following study the researcher examines the impact of knowledge diversity has been checked over the creativity of teams working over any project has been checked along with the mediating role of nature of team creativity as well as the moderating role of relational social capital therefore, causal study was conducted. In a causal study, the relationship between variables is determined and their cause and effect on each other. Target population for this research is software houses.

3.1.2 Study Setting

In this study, data has been collected from the real working environment and the researcher has contacted the employees of software companies so that they can be easily approached.

3.1.3   Time Horizon

The data was collected in one and a half month and this study can be termed as a cross-sectional study. The reason for adopting cross sectional is method is due to shortage of time. Because in thesis the time is short and one must complete the thesis in required time.

3.1.4   Unit of Analysis

Unit of analysis for any study can be any individual, group of people, organization or industry (Dana & Dumez, 2015). Each and every member working in an organization is considered as an individual unit. The units of analysis are individuals, groups and organization. In this study, unit of analysis are the people/individuals working in the teams of software companies.

3.1.5   Population and Sample

Population of the study is the employees of all the software companies in Rawalpindi and Islamabad. To make sure that the study represents variety of projects, the data has been collected from multiple software houses. For this research data was collected from subordinates and supervisors/leaders/managers working in different projects in software houses of Rawalpindi and Islamabad.

TABLE 3.1: List of Software Houses

Organizations	Location
Online yourself	Islamabad
ByteRace Technologies	Rawalpindi
Eziline software house	Rawalpindi
MASIA software house	Rawalpindi
Retechnic	Islamabad
Web Matrix	Islamabad
Beyond solutions	Rawalpindi
F3 Technologies	Rawalpindi
Xerosector Technologies	Islamabad
Idea Tech	Rawalpindi

3.2   Sampling Technique

It is not possible to collect data from whole population that's why proper sampling technique is used for collection of data and analysis. This research paper adopted a quantitative approach which involves the use of questionnaire which is well organized and formal process. Required questionnaire were distributed in the month of November 2019 and it took 1 month to complete data collection process. A small subset from total population can be drawn by probability or non probability technique which is known as sample. Employees working in project based organizations (Software houses) were contacted for analyzing data by convenience sampling technique. And 250 questionnaire were distributed Sample that has been selected for the study is 180 respondents assuming that these are the true representation of the population of the study. For data collection I visited different software houses and told them the reason of collecting data and ensured them that the data will be kept confidential and will only be used for research.

3.3   Sample Characteristics

Characteristics used in this research are managers and site supervisor's age, gender, qualification and experience. Following are the characteristics of the sample:

3.3.1   Age

TABLE 3.2: Age Distribution

Age	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	106	43.3	43.3	43.3
26-33	97	39.6	39.6	82.9
34-41	33	13.5	13.5	96.3
42-49	9	3.7	3.7	100
Total	245	100	100	

Age of the respondents of the study is from 20 and above. **Table 3.2**, represents age distribution of the sample. 43.3% respondents were having age between 18-25

years. 39.6 respondents were having age between 26-33 years. 13.55 respondents were having age ranging between 34-41 years and only 3.7% respondents were having age ranging between 42-49 years. In this research, majority of respondents had their age ranging between 18-25 years.

3.3.2 Qualification

When it comes to qualification of the respondents, there were five options such as inter, bachelor, master, MS and PhD. All the employees were intermediate or above so that they are able to understand the questionnaire easily.

TABLE 3.3: Qualification Distribution

Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
Inter	68	27.8	27.8	27.8
Bachelor	56	22.9	22.9	50.6
Master	100	40.8	40.8	91.4
MS/PHD	21	8.6	8.6	100
Total	245	100	100	

3.3.3 Work Experience

Only those employees were approached who had experience of 5 and more years in the industry.

TABLE 3.4: Experience Distribution

Experience	Frequency	Percent	Valid Percent	Cumulative Percent
1-5 years	148	60.4	60.4	60.4
6-10 years	64	26.1	26.1	86.5
11-15 years	25	10.2	10.2	96.7
16-20 years	8	3.3	3.3	100
Total	245	100	100	

3.3.4 Gender

Demographics consist of an essential element which is gender. It underlines the significance of sex uniformity just as separates the degree of male and female in referenced population test. In our investigation, we very much attempted to support the degree of sex correspondence, in any case however it was seen that the proportion of male members was more than the proportion of female members.

TABLE 3.5: Gender Distribution

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	140	57.1	57.1	57.1
Female	105	42.9	42.9	100
Total	245	100	100	

Table 3.5, demonstrates the gender distribution of the given sample. According to this distribution 57.1% were male whereas 42.9% were female. This shows that the ratio of male respondents was higher than females.

3.4 Measurements

This section describes the kind of questionnaire that has been used for the data collection. Therefore, in this study, close ended questions were included in the survey questionnaire. Adopted questionnaire were used to collect data. In response of the questions, respondents were provided five options to provide their responses over Likert scale.

In this questionnaire, 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree. Questionnaire also contains the few demographic variables which include information about the respondents. Those demographic variables contain respondents Age, experience, gender and qualification. Responses of the respondents were assigned these values over the instrument of data analysis

later. Moreover, there are four variables in this study which are further described below.

3.4.1 Knowledge Diversity in Projects

Knowledge diversity is a terminology that is used for the people who have the knowledge of various fields no matter fields of business or science (Ihl, & Graf, 2019). This terminology is specifically used for those who possess command over various topics and sections or departments of any organization. As it helps them to understand the overall functions and remove the communication gap among the people working in various sectors of any project.

Knowledge diversity is a topic that is frequently discussed and yet rarely agreed upon. The concept of knowledge diversity has remained ambiguously defined. Organizations need diversification in knowledge, it will increase degree of knowledge validation to process information and results in high performance of the organization but at the same time depth of knowledge of one person can be misunderstand able by others and it should be managed and develop shared understanding of knowledge otherwise it will result in failure (Zhang & Guo, 2019). For measuring knowledge diversity 3 item scale is used.

The scale is adopted from Luo, Jessica, Lyytinen & Rose (2012). The sample item is "organization has strong relationship with leading technology vendors", "org. has strong relationship with the clients who are the leaders in applying cutting edges technology in their industries", "org. has a strong relationship with leading research universities".

3.4.2 Project Survival

Project Survival is also a variable of the study and it refers to the condition when project execution and implementation becomes a challenging task and it becomes different for the organization to achieve their project deliverables timely (Grund, et al., 2019). During an ongoing timeframe, the subject of firm endurance has gotten expanding scholastic consideration and a large number of the investigations have

concentrated on its determinants.

To measure this variable 5 Likert scale of 4 items is used. This scale is adopted from Sinha & Noble, (2008). E.g. "firm will survive the current economic crises", Sales volume have decreased in the last three months as a result of the economic crises but sales will rebound back to pre-crises level.

3.4.3 Relational Social Capital

Relational social capital is a concept of interpersonal skills; it refers to the condition in which the person has to communicate with other people working over the same project or the connected activities of the project (Read & Laschinger, 2015). It was found that this is one of the necessary aspects for any project as it makes it easier for the people working over any project to execute it in an efficient manner. Relational social capital is created by the capability of creating and sharing knowledge of the firm which in result captivating team creativity. Relational social capital also improves knowledge and shared values which improve team creativity and project survival (Lengnick-Halla, Lengnick-Halla & Abdinnour-Helmb, 2004). to measure this variable 5 Likert scale of 4 items is used. This scale is adopted from Sun, yongqiang, Fang & Lim, (2012).

3.4.4 Team Creativity

It is known that team creativity is developed by knowledge researchers in the field of software houses. To fully understand team creativity and the influence of knowledge diversity, this study will further contribute in additional explanations for team creativity measurements and suggestions for how organizations have creative teams and also the role of knowledge diversity in employees may have different affect on quantity and quality of creativity (Li & Liu, 2018).

Team creativity is characterized as "the production of novel and useful ideas concerning products, services, processes, and procedures by a team of employees working together" (Shin & Zhou, 2007). Most organizations' aim or use the strategy of workforce diversity to enhance their current available knowledge asset, that's why

diversification is an important and useful strategy to get benefits from different knowledge of employees in result improve team creativity (Bogilovic et al., 2017) Knowledge diversity is demanding resource nowadays in modern organizations to strengthen competitive advantage, which results in increase of individual or team creativity (Ambile, 1996).

Organizations use innovation factor for being capable of maintaining certain level of performance because mostly innovation is based on creativity and organizations make great effort to achieve/obtain creativity (Bogilovic et al., 2017). As organizations need creative teams, team creativity are taken to improve its market position because firms take a lot of creative actions on daily basis to improve its competitive position which in result firms' better financial performance.

Team creativity is the dependent variable of the study as it was determined that this can only be achieved by the successful incorporation of various methods and techniques which enables the people working over any project to remove the communication barrier (Coyle-Shapiro, et al., 2017).

Reason behind focusing on the elimination of the communication barriers is because these are the elements which make the organization to lose their objectives even when they have implemented the right strategy but if their employees are reluctant to communicate each other there are the chances that they would lose the aims of the organization or the project.

TABLE 3.6: Instruments

No	Variables	Source	Items
1	Knowledge diversity	Luo, Jessica, Lyytinen & Rose (2012).	3
2	Project Survival	Sinha & Noble, (2008).	4
3	Team creativity	Rego, A., Sousa, F., e cunha, M., P., correia, A., & saur-Amarl, I. (2007)	8
4	Relational social capital	Sun, yongqiang, Fang & Lim, (2012).	4

3.5   Pilot Testing

According to the study conducted by (Dikko, 2016), it was found that pilot testing possesses a great importance in any research, reason behind its importance is that it is necessary to test the instruments and the tools of the study before executing the results. Therefore, the questionnaire was first distributed to 20 respondents in order to observe that whether the questions are easily answered and interpreted and people are able to understand what has been asked from them or not.

3.6   Statistical Tool

The link between independent and dependent variable which is knowledge diversity and project survival was checked using linear regression. It clarifies the acceptance and rejection of hypothesis. Similarly both the links between knowledge diversity (IV) and team creativity (Mediator) and the link between team creativity (Mediator) and Project survival (DV) was also tested with the help of linear regression. For mediation and moderation analysis, Preacher and Hayes methods were used. For mediation analysis model 4 is used and for moderation analysis model 7 was used. In Both the cases, the independent variable (knowledge diversity) is placed in the IV column, the dependent variable (project survival) is placed in the outcome variable box for mediation whereas for moderation team creativity is placed in the outcome variable box, Demographics are placed in covariate box and mediator and moderator is then placed in the M Variable box.

3.7   Data Collection Technique

For guaranteeing classification information provided by respondents a cover latter was attached to the questionnaire. The cover latter almost certainly displayed that the investigation is being done for academic purposes. Respondents were pledged of the privacy of their names and responses in order that the respondents do not feel hesitation to fill the questionnaire.

The software Smart PLS 3 is is used to evaluate the data that has been collected through close ended questionnaire the data has been tested for correlation analysis and regression analysis.

Chapter 4

Results

Table I shows the demographic characteristics of the respondents. According to Hair et al (2018) PLS-SEM first evaluates measurement model and then structural model.

TABLE 4.1: Demographic Characteristics of Respondents

Demographic Characteristics	Frequency	Percent	Cumulative Percent
Gender			
Male	109	59.9	59.9
Female	73	40.1	100
Age			
20-30	114	62.6	62.6
31-40	45	24.7	87.4
41-50	22	12.1	99.5
51 and above	1	0.5	100
Qualification			
Inter	7	3.8	3.8
Bachelor	65	35.7	39.6
Master	72	39.6	79.1
MS/PHD	38	20.9	100
Experience			
No experience	3	1.6	1.6
1-5	104	57.1	58.8
5-10	47	25.8	84.6
11-15	19	10.4	95.1
16-20	2	1.1	96.2
20 and above	7	3.8	100

TABLE 4.2: Reliability and Validity for Measures in the Study

Measures		OL	CR	AVE
Knowledge Diversity in projects			0.858	0.669
KD1	Our organization has strong relationship with leading technology vendors	0.856		
KD2	Our organization has strong relationship with the clients who are the leaders in applying cutting edge technology in their industries	0.852		
KD3	Our organization has strong relationship with leading research universities	0.741		
Project Survival			0.824	0.543
PS1	Our firm will survive the current economic crises	0.749		
PS2	Our firm possesses the ability to withstand the challenges of the current economic crises	0.854		
PS3	Our firm is in a good position to address the slowdown in business activity currently being experienced as a result of the economic crises	0.73		
PS4	Sales volume have decreased in the last three months as a result of the economic crises but sales will rebound back to pre-crisis level	0.592		
Relational Social Capital			0.788	0.555
RS1	The relationship is characterized by mutual respect between employees in my department and those in the IS department	0.754		

Continued Table 4.2: Reliability and Validity for Measures in the Study

RS2	The relationship is characterized by personal friendship between employees in my department and those in the IS department	0.66		
RS3	The relationship is characterized by mutual trust between employees in my department and those in the IS department	0.813		
Team Creativity			0.863	0.515
TC1	My subordinates promote and champion ideas to others	0.749		
TC2	My subordinates exhibit creativity on the job when given the opportunity to	0.792		
TC3	My subordinates develop adequate plans and schedule for the implementation of new ideas	0.802		
TC4	My subordinates have new and innovative ideas	0.64		
TC5	My subordinates come up with creative solutions to problems	0.606		
TC6	My subordinates suggest new ways to achieve goals or objectives	0.645		
TC7	My subordinates come up with new and practical ideas to improve performance	0.608		
TC8	My subordinates suggest new ways to increase quality	0.694		

Notes: OL = Outer Loadings, CR = Composite Reliability, AVE = Average variance extracted.

4.1 Measurement Model

Measurement model is used to access the reliability and validity of the scales used. To calculate the reliability and validity of the measures used in the study, composite reliability (CR) was calculated. Results show that the value of composite reliability was greater than 0.70 which is considered as the minimum requirement (Nunally, 1978). Construct validity consists of two things: Discriminant validity and convergent validity (Hair et al, 2014).

For convergent validity outer loadings (OL) and average variance extracted (AVE) were accessed. AVE has a minimum threshold of 0.50 which was achieved as all the values of AVE were above 0.50. The threshold values for OL was 0.707 but still the values of outer loadings of certain items were a little lower than 0.70. Rather than deleting the items it was better to keep them since the value of AVE was greater than 0.50 (Hair et al, 2018).

For calculating the discriminant validity Heterotrait-Monotrait (HTMT) Ratio Method and Fornell and larcker criterion method was used. For Fornell and Larcker Criterion of discriminant validity, the squareroot of AVE of the latent construct is compared with its correlation with other constructs. According to Fornell and Larcker (1981) square root of AVE of every construct must be greater than the correlation of other constructs. In the below mentioned Table III, the diagonals italicized are the square root of AVE of latent construct, while the off-diagonals were correlations. Thus to prove discriminate validity it was shown through the results that the AVE of each construct was greater than its correlation.

TABLE 4.3: Discriminant Validity (Fornell-Larcker Criterion)

Constructs	KD	PS	RS	TC
KD	*0.818*			
PS	0.391	*0.737*		
RS	0.471	0.484	*0.745*	
TC	0.465	0.526	0.556	*0.718*

Notes: KD = knowledge diversity in projects, PS = project Survival, RS = Relational Social Capital, TC = Team Creativity. Diagonals italicized are the square root of AVE of the respective latent constructs, while the off-diagonals are correlations.

Another approach is the heterotrait-monotrait ratio of correlations. This approach is considered better in performance as compared to the fornell-Larcker criterion. The results of this method are shown in Table IV. According to Gold et al. (2001) if the HTMT value is greater than 0.90 then there would be issue of discriminate validity. Therefore the values presented in Table IV show that all the values are below 0.90 which shows the presence of discriminate validity.

TABLE 4.4: Discriminate Validity of Measurement Model- Hetrotrait-Monotrait Ratio

Constructs	KD	PS	RS	TC
KD				
PS	0.525			
RS	0.674	0.736		
TC	0.567	0.683	0.722	

Notes: KD = knowledge diversity in projects, PS = project Survival, RS =Relational Social Capital, TC = Team Creativity.

For the structural model, β, SE, t-values, p-values, coefficient of determination (R^2), Predictive Relevance (Q^2) and effect size (f^2) was accessed. Bootstrapping procedure with 5000 re-samples was used in order to calculate t-values. Figure 2 shows the t-values respectively. The results presented in Table V show that knowledge diversity (β= 0.262, p 0.000) has a strong impact on team creativity which leads to the acceptance of hypothesis 1. Furthermore, Relational Social Capital has a β value of 0.433 when p 0.000. This shows that relational social capital has a strong impact on team creativity. Moreover, it was found that Team Creativity has a strong positive relationship with project survival with a β, value of 0.526 at p 0.000. and knowledge diversity has a strong relationship with team creativity with β, value 0.262 at p<0.000. This leads to the acceptance of H1, H2 and H3 respectively. Furthermore, validity was also accessed with effect size (f^2). Relational social capital brings about 36.2% variations in Team Creativity. Moreover, Team Creativity brings about 27.6% variations in project survival. This shows that the model has predictive relevance. The maximum value of f^2 was 0.382 whereas the other values 0.084 and 0.229 were considered as small and medium. In Table VI mediation results are shown. To calculate the indirect effects, bootstrapping with 5000 re-samples with 95% confidence interval was used.

TABLE 4.5: Results of Structural Model Analysis (Hypothesis Testing)

Hypotheses	Relationships	β	SE	t-values	P-values	Decision	R^2	Q^2	f^2
H1	KD 11 TC	0.262	0.07	3.759	0.000	Accepted			0.084
H2	RS 11 TC	0.433	0.086	5.056	0.000	Accepted	0.362	0.176	0.229
H3	TC 11 PS	0.526	0.066	7.928	0.000	Accepted	0.276	0.139	0.382
H4	KD 11 PS	0.363	0.033	3.459	0.000	Accepted			0.094

Notes: KD, knowledge diversity; TC, team creativity; RS, Relational social capital; PS, project success p<0.001.

TABLE 4.6: Indirect Effects Bootstrapping Results

Specific Indirect Effects	Hyp. No	β	Std.Deviation	t-statistics	p-values	Confidence interval		Decision
						2.50%	97.50%	
KD $\Rightarrow$ TC $\Rightarrow$ PS	H2	0.23	0.04	2.985	0.003	0.049	0.202	Accepted
RS $\Rightarrow$ TC $\Rightarrow$ PS	H3	0.409	0.05	4.325	0	0.12	0.313	Accepted
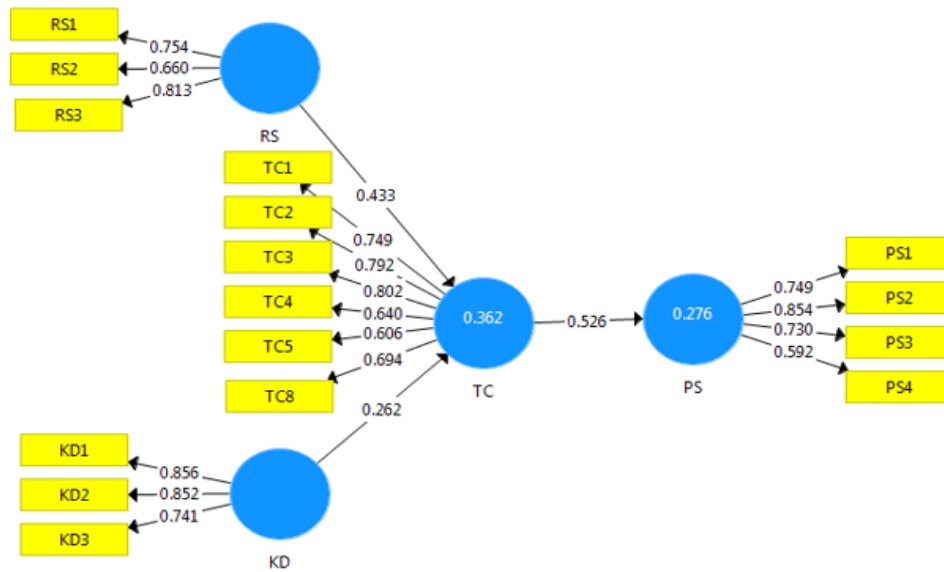
FIGURE 4.1: PLS-SEM with t-Values

4.2 Summary of Accepted/ Rejected Hypotheses

TABLE 4.7: Summary of Accepted/ Rejected Hypotheses

Hypothesis	Statements	Results
H1	Knowledge diversity in projects is positively linked with project survival	Accepted
H2	Team Creativity mediate the relationship between Knowledge diversity and project survival	Accepted
H3	Relational social capital moderates the relationship between knowledge diversity and team creativity such that it strengthens the relationship between knowledge diversity and team creativity	Accepted
H4	Knowledge diversity in projects positively linked with team creativity.	Accepted

Chapter 5

Discussion and Conclusion

Following chapter includes details of each hypothesis also the reason behind its acceptance, theoretical implications, practical implications, limitations, future work directions and conclusion.

5.1 Discussion

The main objective of this research was to identify the impact of knowledge diversity in projects on project survival in software companies. This research also covers the mediating role of team creativity between knowledge diversity in projects and project survival. This research also includes the moderating role of Relational social capital between knowledge diversity in projects and team creativity. This research was conducted with employees working in software companies.

The outcomes of this research show that knowledge diversity in projects has a favorably significant and positive impact on project survival. This shows that when knowledge diversity in projects increases, project survival also increases. Furthermore, it was shown that team creativity mediates the relationship between knowledge diversity in projects and project survival. Moreover, this study includes Relational social capital as a moderator which leads to the acceptance of H1, H2 and H3.

This shows that team creativity mediates the relationship between knowledge diversity in projects and project survival. On the other hand relational social capital is taken as a moderator between knowledge diversity in projects and team creativity such that it strengthens the connection between knowledge diversity in projects and team creativity. Through the results it was found that in the presence of moderator the relation between knowledge diversity in projects and team creativity changes.

Following is the detailed discussion on each hypothesis:

5.1.1 Hypothesis H1: Knowledge Diversity in Projects is positively Linked with Project Survival

Hypothesis H1 states that knowledge diversity in projects is positively linked with project survival. The results calculated above are also in line with the past literature and also support this hypothesis strongly. The value of β coefficient is 0.262 which means that 1 unit change in knowledge diversity in projects brings about 26.2% variations in project survival. The value of t is equal to 3.759 which is greater than 2. This shows strong significantly positive relation between knowledge diversity in projects and project survival.

Past literature is also in line with the existing study. According to Davis (2017) knowledge diversity is considered as a key factor while measuring and understanding project survival. It is considered as one of the key main factors that links all the members together. This results in transferring of essential knowledge to all the project members which will in turn help in the survival of the firm and project. It is thought that the role of knowledge diversity in projects can both be positive and negative because of different sources of knowledge but in this case knowledge diversity plays a positive and significant role on project survival.

According to Park et al (2012) knowledge diversity in projects impact the complete project from start till end and is considered as an important factor in project survival. Through knowledge diversity understanding between team members is created which leads to the accomplishment of goals and objectives on time and in an effective way that can also increase performance. This shows that knowledge

diversity has a strong impact on project survival. Knowledge diversity is a positive trait and it consists of valuable resources and it increases project survival of the firm (Civitillo, juang, Badra & Schachner, 2019).

This leads to the acceptance of first hypothesis. It was proved that knowledge diversity in projects positively impacts the project survival.

5.1.2 Hypothesis H2: Team Creativity Mediate the Relationship between Knowledge Diversity and Project Survival

Hypothesis H2 states that Team creativity mediates the relationship between knowledge diversity and project survival. Results of the study also support this hypothesis strongly. The results also show that team creativity acts as a mediator between the relationship of knowledge diversity and project survival such that it creates a link between knowledge diversity in projects and project survival. It was concluded that team creativity mediates the relationship between knowledge diversity in projects and project survival.

With the help of past literature it was found that team creativity increases through knowledge diversity management. Team creativity will develop and expand rapidly when knowledge diversity in projects will be managed, understood and shared among the team members. According to Handerson, Stackman and Lindekilde (2016) knowledge diversity and team creativity are interlinked and both will increase the survival of the project. Knowledge diversity in projects is essential for team creativity and it will in turn lead to increase in the performance.

According to Buvik and Rolfsen (2015) with the help of team creativity, exchange of information among team members become easy which in turn leads to increase in the survival of the project. Team creativity plays a vital role in the relationship between project survival and knowledge diversity in projects. This research supports the literature in finding out how team creativity along with knowledge diversity will help in project survival.

Past literature states that good team creativity will increase the chances of project

survival. Sigala and Chalkiti (2015) found a appositive relationship between knowledge diversity and team creativity. Knowledge diversity plays a vital role in team creativity. Team creativity increases when employees share their knowledge with other team members this in turn increases the project survival.

5.1.3 Hypothesis H3: Relational Social Capital Moderates Relationship between Knowledge Diversity and Team Creativity such that it Strengthens the Relationship between Knowledge Diversity and Team Creativity

Hypothesis 3 states that Relational social capital moderates the relationship between knowledge diversity and team creativity such that it strengthens the relationship between knowledge diversity and team creativity. The findings of this research are in line with the past literature. Past literature also supports this hypothesis and the results of this study also support the relationship. The relationship between knowledge diversity and team creativity strengthens in the presence of relational social capital.

Nkomo & Stewart (2006) state in their research that relational social capital improves knowledge and shared values which increase project survival of the firm. Relational social capital basically links to the values regarding personal relationships such as trust, respect and friendship. Past research links the relational social capital with project survival. Relational social capital increases personal relationships which positively impact the knowledge diversity in projects which leads to team creativity. When there will be strong personal relationships then knowledge will transfer between team members which will lead to team creativity.

According to Akram, Lei, Hussain, Haider & Akram (2016) relational social capital plays a positive role when there is knowledge diversity. Relational social capital improves knowledge diversity in project and shared values which in turn improve team creativity and project survival (Lengnick-Halla, Lengnick-Halla & Abdinnour-Helmb, 2004). Thus it was found out that relational social capital moderates the relationship between project survival and knowledge diversity in

projects such that it strengthens the relationship between knowledge diversity in projects and project survival.

5.2 Research Implications

This research includes theoretical as well as practical implications with respect to employees working in software companies.

5.2.1 Theoretical Implications

This research includes theoretical implications as the past researchers have not investigated the impact of knowledge diversity in projects on project survival in software companies. The results show that knowledge diversity in projects helps to increase project survival. Knowledge diversity in projects is considered as a very important factor as it increases the survival of the project. The results show that if knowledge diversity in projects increases, project survival will in turn also increase.

Theoretically, the role of team creativity as a mediator between the relationship of knowledge diversity in projects and project survival was not studied before. The results of this research show that team creativity adds more value to the relationship between knowledge diversity in projects and project survival. Therefore, team creativity mediates the relationship between knowledge diversity in projects and project survival. A positive and significant relationship was found between knowledge diversity in projects and project survival along with team creativity as a mediator.

Furthermore, relational social capital was taken as a moderator between knowledge diversity in projects and team creativity. This relationship was also not studied before. It is considered as an important theoretical contribution as it adds to the relationship between knowledge diversity in projects and team creativity such that it strengthens the relationship between team creativity and knowledge diversity in projects.

This research has contributed theoretically to the literature as past researchers have not studied the impact of knowledge diversity in projects on project survival with mediating role of team creativity and moderating role of relational social capital.

5.2.2 Practical Contribution

Past research has not studied the role of team creativity as a mediator between knowledge diversity in projects and project survival. This research has introduced this relationship in a way that the presence of team creativity positively affects the link between project survival and knowledge diversity in projects. This research also plays an important role in the practical world. Knowledge diversity in projects plays an important role in project survival as when the team members will communicate with one another, knowledge among teams will transfer which will increase project survival. Team creativity will enhance the relationship between project survival and knowledge diversity in projects.

Relational social capital is also a new variable among the relationship between knowledge diversity in projects and team creativity. This variable is also a contribution to the literature as it will strengthen the relationship between knowledge diversity in projects and team creativity. This variable is important in organizations as it introduces trust, friendship among members. This research will be beneficial in software companies in order to analyze the basic reason that assumes a significant job in project survival.

With the help of this study the organization should conduct meetings or work sessions in order to discuss ways to increase the knowledge diversity among members of the team. They should also monitor the progress after each meeting. This research will be important for employees working in different software companies as it will increase awareness among members and it will encourage members to interact with one another in order to increase the project survival.

5.3   Limitations of Research

During this research it was tried to eliminate all the flaws of the research but still there are certain limitations in this research as it was not possible to cover all the aspects. Due to time and resource constraints this study was only limited to software companies and the results are not applicable to the other sectors. Due to shortage of time only one mediator and moderator was tested. Another limitation of this study was regarding the sample size. The sample size taken in this study was small due to shortage of time.

Convenience sampling method was used and the sample that was easily available was used for research. Due to this, the results of the study are not applicable on the entire population. Another limitation was that the data was only collected from employees working in software companies. However, the results could have been different if the data was collected from the managers or supervisors. Every employee was not willing to provide the information so this was a difficult task.

Another limitation is that the data collected through research is cross-sectional and not longitudinal due to shortage of time and resource limitation. Data was collected through questionnaires and not detailed interviews. However detailed interviews could have been beneficial as they are open ended and they provide additional information which could have been beneficial.

5.4   Future Work Directions

This research opens up further several paths for future work. In this research the impact of knowledge diversity in projects on project survival was studied whereas it could be studied with some other variable also. Furthermore, this study was conducted with employees working in software companies whereas this research could also be conducted in other sectors like telecom, health etc. The data could also be collected from managers and supervisors along with employees. Furthermore, the impact of knowledge diversity in projects on project survival was studied along with the mediating role of team creativity between knowledge diversity in projects

and project survival and moderating role of relational social capital was studied between the relationship of knowledge diversity in projects and team creativity. Whereas, some other mediator and moderator could also be used other than team creativity and relational social capital to test the relationship between knowledge diversity in projects and project survival. More than one mediator and moderator could also be used to test the relationship between knowledge diversity in projects and project survival.

Future researchers should focus on data collection procedures. Detailed interviews can also be conducted instead of questionnaires as detailed interviews provide detailed information and understanding regarding the subject. A larger sample size should be studied as the sample size taken in this research was comparatively smaller. Moreover, this study was cross-sectional whereas longitudinal design could also be studied. The results of this study will help the software companies to analyze the main reason that plays an important part in project survival.

5.5 Conclusion

The current research has studied the impact of knowledge diversity in projects on project survival in software companies. Questionnaires were distributed among the employees working in software companies to collect data regarding the impact of knowledge diversity in projects on project survival with team creativity working as a mediator between knowledge diversity in projects and project survival and relational social capital working as a moderator between knowledge diversity in projects and team creativity.

A total of 250 questionnaires were distributed to study the impact of knowledge diversity in projects on project survival with mediating role of team creativity and moderating role of relational social capital but only 184 responses came back and were used for data analysis. This research was theoretically supported with the help of institutional theory of diversity management. For analysis of data PLS-SEM software was used. The results of this analysis show that the data was significant and the model was fit and the relationship between knowledge diversity

in projects on project survival with mediating role of team creativity and moderating role of relational social capital was positively significant.

The proposed hypothesis H1, H2 and H3 were also accepted. This research contributes to the existing literature in a way that it will help the organizations to understand the need for knowledge diversity in projects. Furthermore this study contributes to the existing literature in a way that it includes different mediator team creativity between knowledge diversity in projects and project survival and it also introduces a different moderator between the relationship of knowledge diversity in projects and team creativity. This study links all the presented variables together in order to identify the important of knowledge diversity on project survival.

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Appendix-A

Questionnaire

Dear Respondent

I am student of MS/M.Phil Project Management at Capital University of Science and Technology Islamabad. I am conducting a research on a topic titled **"Impact of Knowledge Diversity in Projects on Team Creativity and Project Survival: Examining the Mediating nature of Team Creativity and Moderating Role of Relational Social Capital"**. You can help me by completing the attached questionnaire, you will find it quite interesting. I appreciate your participation in my study and I assure that your responses will be held confidential and will only be used for education purposes.

Sincerely,

Farwa Suleman,

MS (MPM) Research Scholar,

Faculty of Management and Social Sciences,

Capital University Science and Technology, Islamabad.

Section 1: Demographics

Gender	1- Female 2- Male
Age(years)	1 (20-30), 2 (31-40), 3 (41-50), 4 (51 and above)
Qualification	1 (Intermediate), 2 (Bachelor), 3 (Master), 4 (MS), 5 (PhD)
Experience(years)	1 (05–10), 2 (11–15), 3 (16-20), 4 (21-25), 5 (26 and above)

Section 2: Knowledge Diversity in Projects

Please tick the relevant choices: 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

KD1	Our organization has strong relationship with leading technology vendors.	1	2	3	4	5
KD2	Our organization has strong relationship with the clients who are the leaders in applying cutting edge technology in their industries.	1	2	3	4	5
KD3	Our organization has strong relationship with leading research universities.	1	2	3	4	5

Section 3: Project Survival

Please tick the relevant choices: 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

PS1	Our firm will survive the current economic crises.	1	2	3	4	5
PS2	Our firm possesses the ability to withstand the challenges of the current economic crises.	1	2	3	4	5

PS3	Our firm is in a good position to address the slowdown in business activity currently being experienced as a result of the economic crises.	1	2	3	4	5
PS4	Sales volume have decreased in the last three months as a result of the economic crises but sales will rebound back to pre-crisis level.	1	2	3	4	5

Section 4: Relational Social Capital

Please tick the relevant choices: 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

RS1	The relationship is characterized by mutual respect between employees in my department and those in the IS department.	1	2	3	4	5
RS2	The relationship is characterized by personal friendship between employees in my department and those in the IS department.	1	2	3	4	5
RS3	The relationship is characterized by mutual trust between employees in my department and those in the IS department.	1	2	3	4	5

Section 5: Team Creativity

Please tick the relevant choices: 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

Factor 1: Creative ideas

TC1	My subordinates promote and champion ideas to others.	1	2	3	4	5

TC2	My subordinates exhibit creativity on the job when given the opportunity to.	1	2	3	4	5
TC3	My subordinates develop adequate plans and schedule for the implementation of new ideas.	1	2	3	4	5
TC4	My subordinates have new and innovative ideas.	1	2	3	4	5
TC5	My subordinates come up with creative solutions to problems.	1	2	3	4	5

Factor 2: Useful ideas

1	My subordinates suggest new ways to achieve goals or objectives.	1	2	3	4	5
2	My subordinates come up with new and practical ideas to improve performance.	1	2	3	4	5
3	My subordinates suggest new ways to increase quality.	1	2	3	4	5