

# Impact of Work Cognition Inventory & Team Diversity on Team Performance

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The current investigation is about the influence of work cognition inventory & Team diversity on team satisfaction & team performance. The research was done by using Quantitative method followed by positivist approach. Simple random sampling was done through survey-based questionnaires. Eleven class-A Combined Military Hospitals (CMH) were selected as sample for the research throughout from Pakistan. Mediating effect was measured through Structural equation modeling (SEM) and Preacher & Hayes regression approach. This study helped in exploring the effect of multi-dimensional backgrounds of team members, i.e., learning, practical, task-relevant, opinion and behavioral background on team satisfaction and performance. The research helped in explaining moderating role of individual team member creativity among relationship of work cognition inventory & team diversity with team performance.

**Key words:** *Team Satisfaction, Social capital, Individual team member creativity, Structural Equation Modeling, Preacher & Hayes*

## Introduction

Previous researchers have divided team diversity into task-oriented diversity (TOD) & social relation oriented diversity (SROD). The latter is categorized into age, gender and race (Van Knippenberg, De Dreu, & Homan, 2004). These social structures are linked with a person standing or repute and thus become a reason for conflicts among team members which consequences lead to decline in team performance. While the former is about knowledge, abilities and difference in information level of work force. Therefore it gives an informational edge to the team members due to various opinions for doing the same task (Mannix & Neale, 2005).

Team performance is also influenced by work cognition inventory (WCI), (Nimon et al., 2015), which shows workers attachment & devotion with their workplace. Nimon, Zigarmi, Houson, Witt, and Diehl (2011) developed revised version of work cognition inventory (WCI-R) to assess 12-characteristics related to employees mentality at workplace which enormously affects their performance. These constructs are linked with employee work passion model (Nimon & Zigarmi, 2015) thus effects employees' enthusiasm for the tasks assigned to them and affects their level of satisfaction and performance in the team. In the existing era, health sector staff fell in ethnic, age, race and gender difference issues, (Nishii, 2013), rather than taking advantage of their multiple backgrounds, knowledge, education, and skills. Employees' cognitive features are not satisfied therefore the performance of diversified teams is at stake, they lack coordination in terms of effort and social capital, (Aida Hajro, Cristina B. Gibson, Markus Pudelko, 2017).

This research is done in response to a recent call for better understanding of diverse team dynamics, in line with social categorization process, Kannan Srikanth, Sarah Harvey & Randall Peterson (2016), quantitatively taking data from larger sample and directing measurable mediation models connected through social capital that affects diversified team performance, (Aida Hajro, Cristina B. Gibson, Markus Pudelko, 2017). Little cooperation among hospitals staff, i.e., doctors, nurses, general physicians, surgeons, radiologists and administrative staff results in a decline of health sector performance.

## **Literature Review**

### **2.1. Team Diversity & Team Performance**

Prior researches explained team diversity dual impact on team performance, i.e., at times it becomes positive and another time it gives negative results. Therefore, the surviving writing recommends that diversified team is a dual ended sword which can give both hopeful & critical effects instantaneously (Kannan Srikanth, Sarah Harvey & Randall Peterson, 2016).

A few researchers have contended that team diversity positively affects performance as a result of novel psychological ascribes that individuals convey to group (Cox and Blake, 1991; Hambrick, Cho, and Chen, 1996). At last, intellectual difference between dissimilar individuals advances creativity, innovation, and critical thinking, and along these lines brings about better execution relative than subjectively identical teams. Team performance is a multidimensional construct that envelops a few result measures in terms of tasks given to the team, for example, quantitative creation, subjective team results, and team attachment. Dunphy and Bryant (1996) noticed that group trends to center around processes of organizations' operative and quantifiable goals as team results, for example, the volume of offers/yields and profits for value.

Diversified teams are supposed to take progressive and multi-aspects covering decisions in comparison to similar teams due to their multiple backgrounds, knowledge, opinions, and perspectives (Muir & Hida, 2004). Hence a kind of equality is necessary to have among diversified members and the information. Thus, it can be assumed that;

*H1. Team diversity positively affects team performance.*

## **2.2. Team Satisfaction & Team Diversity**

Though, team diversity has been suggested for greater impact on team satisfaction and performance (Bell, 2007; Harrison, Price, Gavin, & Florey, 2002; Hollenbeck, DeRue, & Guzzo, 2004). Different diverge perspectives exist concerning how diversity in teams may influence team outcome; the first consists of theories, including social categorization theory (SCT) and social identity theory (SIT) (Tajfel & Turner, 1979), which states that teams, whose members differs, may face negative interpersonal relations and minimized team-level coordination. Hence, these theories suggested, diverse teams, to be negatively influencing team satisfaction and performance. The second aspect presents opposite to the first, i.e., informational diversity-cognitive resource perspective (IDCRP; Cox & Blake, 1991; Williams & O'Reilly, 1998) which claims that difference between team members' functions as a knowledge base, to get ideas and opinions for resolving problems and creating novelty, consequently refining the excellence of team's satisfaction and performance.

In this way, when a connection requires innovativeness, which adroitly relates more intently to creativity is prone to give individuals satisfaction and larger number of advantages than impediments (Harrison and Klein, 2007; van Knippenberg et al., 2004). Thus it can be assumed as;

*H2. Team diversity has a positive influence on team satisfaction.*

*H3. There is a link between team satisfaction and performance.*

Currently, not many investigations really measure the go-between that are guessed to trigger the impacts of diversity on performance, (Kannan Srikanth, Sarah Harvey & Randall Peterso, 2016). Studies have incorporated direct link but not much has written about the key reason for good or bad team performance, i.e., team satisfaction. A couple thinks about measure data expansion as the intervening variable for the beneficial outcomes of diversified teams. For instance, Van der Vegt and Bunderson (2005) incorporate learning and Kearney, Gebert, and Voelpel (2009) incorporate data expansion as middle people of the team diversity and performance relationship. At the point when adverse relational gathering results, similar to relationship strife, expanded turnover, or low faith are discovered, they are hypothetically connected to those systems as opposed to expressly measured. Thus highlighting satisfaction to be one of the main mediators behind ideal or adverse outcomes of diversity. In the event that, for example, individuals with less and more knowing style regard each other's contribution as opposed to censuring it, their fulfillment with the work may enhance their

satisfaction and furthermore the nature of their task performance, (Kannan Srikanth, Sarah Harvey & Randall Peterso, 2016). The satisfaction of team members psychologically gives pleasure to employees while working which enhances their productivity at the job. Thus it can be assumed that;

*H3. Team satisfaction mediates the link between team diversity and team performance.*

### **2.3. Team Performance & Work Cognition Inventory**

Work cognition inventory (WCI) characterizes perception of workers regarding their place of work with respect to cognitive appraisal of the workplace (Zigarmi, Nimon, Houson, Witt, & Diehl, 2009). It relies on social cognitive theory, according to which human behavior is “agentic” (Deci & Ryan, 2002), as they can control themselves, their selection and their upcoming expectations.

Team performance is generally determined by the degree to which team achieves its goals (Devine & Philips, 2001). It represents how effectively team members contribute with each other for achieving organizational goals (Amato & Amato, 2005; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Plaut, 2010; Schullery & Schullery, 2006). Team performance is claimed for association with WCI constructs, i.e., (meaningful work, connectedness with colleagues, growth, connectedness with leader, autonomy and collaboration) Nimon et al., (2011) this indicates team performance to be influenced by changes in these constructs between team members. Till now, unity of opinions has not been found regarding the influence of team diversity along with WCI on team performance (Joshi & Roh, 2009; Mannix & Neale, 2005; van Knippenberg & Schippers, 2007). So it may be assumed as;

*H4. There is a positive association among team performance & WCI.*

### **2.4. Social Capital**

Lin (2001) characterizes social capital as an asset derived from the connections among people, associations, groups, or social orders. Researchers have connected social capital with team adequacy, characterized most fundamentally as the degree to which a group achieves its targets (Mathieu, Maynard, Rapp, and Gilson, 2008). Though, some prove recommends that it's not as the "more secure," the better, and gives portrayals of the advantages of evaluative reactions, for example, disregarding thoughts, supporting for one's own thoughts, and presenting interest for others' thoughts (Elsbach and Kramer, 2003; Hargadon and Bechky, 2006; Harvey and Kou, 2013). Moreover, Leana and Van Buren (1999) suggest that social capital is emphatically identified with a team capacity to evoke the dedication of its members, to be adaptable for working with colleagues and leader, to oversee aggregate activities for growth, and to collaborate with each other and enhancing their intellectual capital and

performance, this is in-line with WCI-R constructs presented by Nimon & Zigarmi (2015). Thus it can be assumed that;

*H5. There is an association among work cognition inventory and social capital.*

Associations progressively depend on groups for creating information and quickening advancements (Paruchuri, 2010; Wuchty, Jones, and Uzzi, 2007). With a specific end goal to improve development and understand complex logical issues, colleagues need to reach over information storehouses and build up a common learning base. Doing as such, be that as it may, requires reducing the coordination misfortunes that regularly go with assorted variety in learning, abilities, and skill (Cummings et al., 2013; Kotha et al., 2013). Learning in teams, or community-oriented knowledge, has been connected to enhanced knowledge, greater request considering abilities, greater evaluations and improved performance for the work environment (Horsburgh, Lamdin, and Williamson, 2001; Shimazoe and Aldrich, 2010). Thus it can be assumed as;

*H6.a. There is a association among social capital and team performance.*

Immense writing demonstrates that individuals regularly depend on boisterous signs of mastery in observing whose feelings or abilities warrant regard in achieving group assignments (e.g., Barton and Bunderson, 2014; Joshi, 2014; Thomas-Hunt, Ogden, and Neale, 2003). In distinguishing conceivable wellsprings of yielding, researchers have featured, specifically, that individual statistic characteristics, for example, sex, race and ethnicity, instructive foundation, and residency—work as status markers that flag skill over an assortment of settings (York and Cornwell, 2006) and foresee the yielding that people get from others (Bunderson, 2003), thus linking social capital with constructs of work cognition inventory.

Klein, Knight, Ziegert, Lim, and Saltz (2011) concluded that diversified team has a more constructive outcome on group results with mediators that enhances coordination, instead of arbitrators that lessening adverse relational procedure, for example, low union. The investigations on the enlightening advantages of profound level decent variety have not generally recognized the data coordination issues confronted by different gatherings since regularly they concentrate on errands with no synchronization between a bunch of individuals is needed (Harvey, 2013), thus it can be assumed as;

*H6.b. Social capital mediates the association among work cognition inventory and team performance.*

## **Methodology**

A deductive approach was followed for concluding the rejection or confirmation of the made hypotheses and research questions. The survey-based strategy was used for obtaining rich

statistical data in which the relating theories, i.e., the value in diversity theory and social identity theory were tested and verified.

Health care sector of Pakistan was selected as a major area of research, so to improve the team performance of health-related organizations, i.e., hospitals in Pakistan, as the gap identified by (Hofmarcher, Festl & Bishop-Tarver, 2016). In this examination, the unit of investigation is professionals of Combined Military Hospitals.

Combined Military Hospitals from all over in Pakistan were selected as population of the study, that were 39 in number, as indicated by the official site of CMH-Lahore (2017), with 2739 professionals working in them.

Following the suggestions of Reisinger and Mavondo (2007), Sekaran (2003) and Robert V. Krejcie & Duluth Daryle W. Morgan, (1970), 460 staff members from eleven (class-A) CMHs, were selected as the sample size.

Data was gathered through questionnaires technique, that constitute of 36 items. Suitable scales for all variables were selected and after checking their reliability and validity, compiled in the form of a questionnaire.

### 3.1.Procedure

A sum of 460 questionnaires was distributed, by personal visits into some hospitals; others were floated through email, Google docs and by using social media. A total of 405 questionnaires were returned, though seven staff members didn't fill the questionnaire completely and three were an outlier, as their answers were completely different from rest of the responses received, (as recommended by Hair et al., 2006). So those 10 responses were dropped and 395 responses were selected for statistical tests.

### Analysis

To achieve investigate goals of the present examination, a model of team performance was created and broken down with the assistance of SEM. This investigation comprises of 6 constructs, with 36 items, analyzed on the basis of 395 responses, therefore it was unrealistic to get reliable results with such a huge model.

### 4.2.Structural Equation Modeling Analysis

Table 4.2 Model Fit indices

	<b>Model <math>\chi^2</math></b>	<b>Df</b>	<b><math>\chi^2 / df</math></b>	<b>TLI</b>	<b>CFI</b>	<b>RMSEA</b>
<b>Model</b>	683.45	267	2.55	0.845	0.862	0.063

The results of confirmatory factor analysis (CFA) explained an upright fit for a latent single factor model ( $\chi^2/df$ ) = 2.55, Tucker Lewis index (TLI) = 0.845, comparative fit index (CFI) = 0.862, and root mean square error of approximation [RMSEA] = 0.063). Hair et al. (2010), Forza & Filippini (1998), Greenspoon & Saklofske (1998) & Awang (2012)

**Figure 4.1 Model**

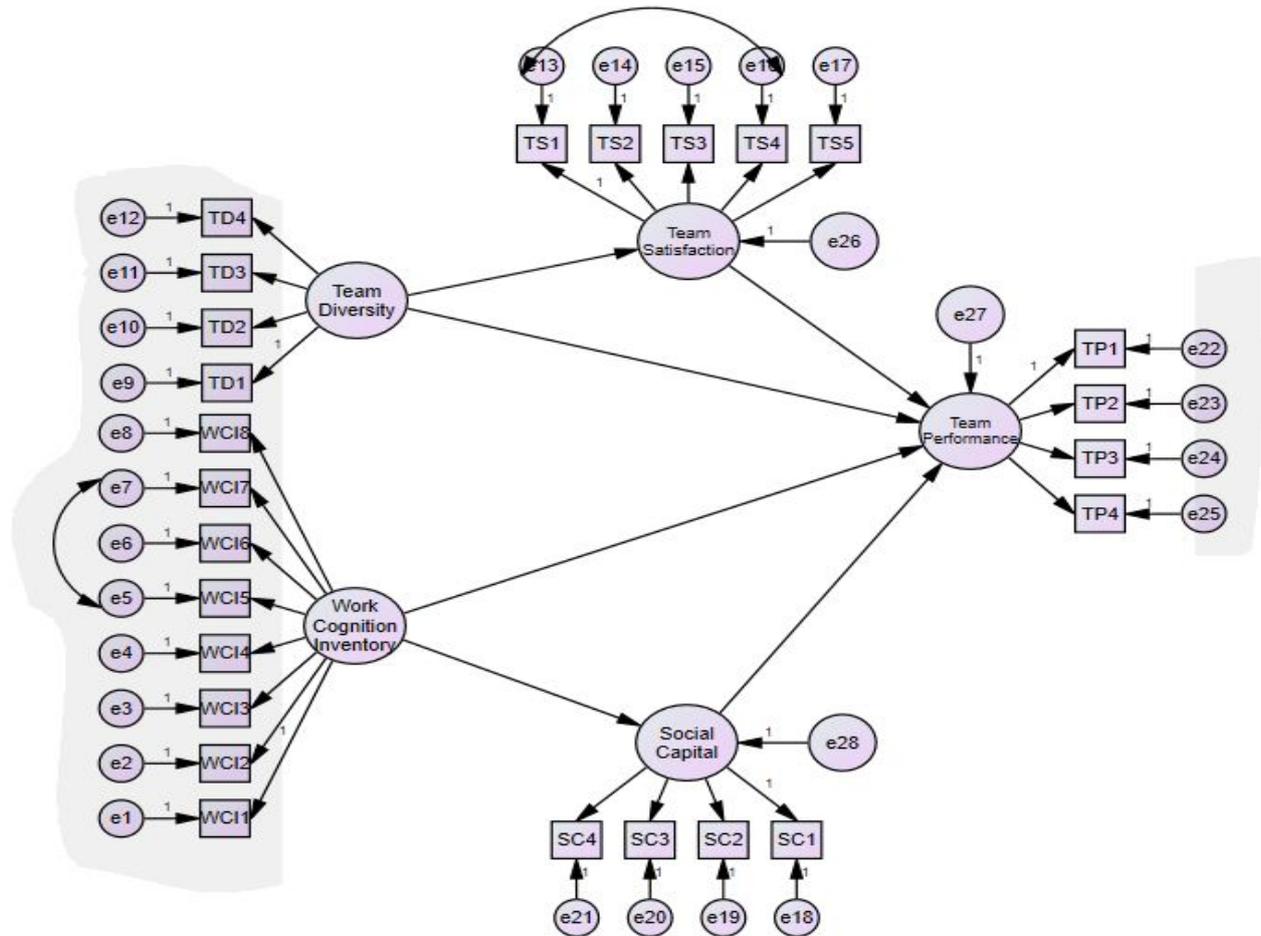


Figure 4.1 shows the theoretic framework of the present research

### 4.3. Mediation Effect

Table 4.3 Model Summary

Outcome	R	R-sq	MSE	F	df1	df2	p
TS	.4629	.2143	.2674	53.4623	2.0000	392.0000	.0000
SC	.4349	.1891	.3845	45.7105	2.0000	392.0000	.0000
TP	.5216	.2721	.1525	36.4379	4.0000	390.0000	.0000

\*TS = Team Satisfaction, SC = Social Capital, TP = Team Performance

Table 4.3 portrays a significant relationship between team satisfaction, social capital, and team performance.

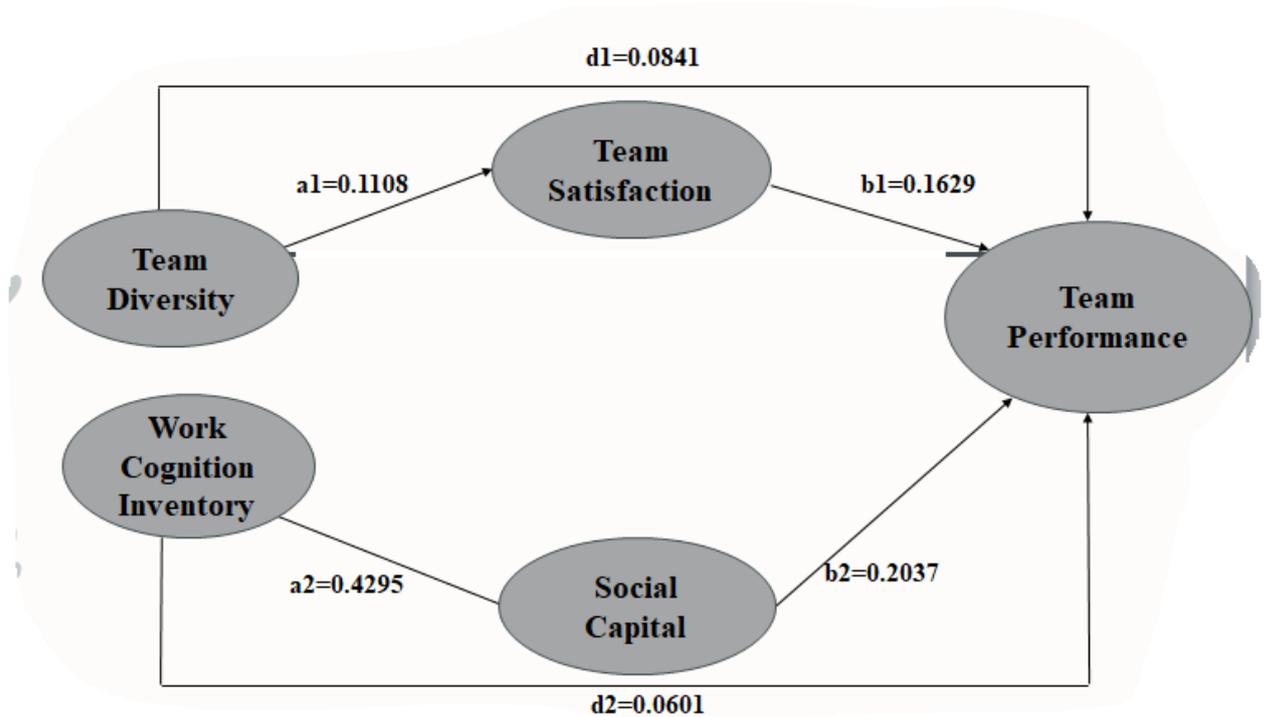


Figure 4.2 shows the coefficient values, Where TD and WCI=X, TP= Y, TS= M1, SC=M2 Indirect effect of X on Y through M1= $a_1 b_1$ , Indirect effect of X on Y through M2=  $a_2 b_2$ , Indirect effect of IC on TP through M3=  $c_1 c_2$ , Direct effect of TD and WCI on TP =  $d_1 d_2$

Table 4.4 Scales Mediation Result

Independent	Dependent				
Variable	Variable	coeff	se	t	p
TD	TS	.1108	.0367	3.0230	.0027
WCI	SC	.4295	.0560	7.6640	.0000
TS	TP	.1629	.0392	4.1575	.0000
SC	TP	.2037	.0327	6.2322	.0000
WCI	TP	.0601	.0405	1.4855	.1382
TD	TP	.0841	.0287	2.9337	.0035

TD = Team Diversity, WCI = Work Cognition Inventory, TS = Team Satisfaction, SC = Social Capital

#### 4.4.Data Analysis

The mediation effect was analysed by Regression-Based Approach of (Hayes, 2013). Table 4.8 represents that team diversity is a significant predictor of team satisfaction, i.e., there is a

significant relationship between team diversity and team satisfaction (coeff= 0.1108, t= 3.02, p= 0.002), thus confirming the acceptance of H2. It further depicts WCI to be a significant predictor of SC, i.e., there is a significant relationship between WCI and SC (coeff= 0.4295, t= 7.66, p= 0.0000), hence confirming the acceptance of H5. Moreover it portrays that TS is a significant predictor of TP, i.e., there is a significant link between TS and TP (coeff= 0.1629, t= 4.1575, p = 0.0000), so endorsing the approval of H3, also the effect shows mediating role of TS on the association between TD and TP, (se= 0.0392), thus confirming the acceptance of H3a as well. Furthermore it explains SC to be a significant predictor of TP, i.e., there is a significant relationship between SC and TP (coeff= 0.2037, t= 6.2322, p= 0.000), consequently confirming the acceptance of H6, similarly the effect shows the positive mediating role of SC in the link between WCI and TP, ( se= 0.327), Hence confirming the acceptance of H6a. However the table represents WCI not to be a significant predictor of TP, i.e., there is no significant relationship between WCI and TP, (coeff= 0.0601, t= 1.4855, p= 0.1382), since all the values are insignificant, therefore, rejecting H4. Nonetheless it shows a positive association between TD and TP, (coeff= 0.0841, t= 2.9337, p= 0.0035), thus accepting H1.

Table 4.5 **Indirect effect of X on Y**

	<b>Effect</b>	<b>SE</b>
TS	.0727	.0171
SC	.0875	.0185
TOTAL	.1602	.0255

Table 4.5 shows the result of indirect effects, i.e., team diversity (TD) effect on team performance (TP) via team satisfaction (TS) was verified. This further provided proof for TS as a mediator between TD and TP. Similarly, the mediation between work cognition inventory (WCI) and team performance (TP) via social capital (SC) was found significant for TP. Effect size at 95% confidence interval indicated good mediation effect of TS, 0.0727 and comparatively larger mediation effect of SC, 0.0875. Significant mediation effects were obtained, indicating acceptance of mediating hypotheses H3a & H 6a.

## Discussion

### 5.1. Summary of Findings

This study was done on employees' cognitive features and collaboration on team members' satisfaction with the team. It's vital to fortify them rationally which can make an influence on singular execution and along these lines better execution of team and the organization. Collaboration is the pith of a work put; consequently, social capital is required at every



movement for achieving team long and short objectives. Social capital enables organizational researchers to take lead in embellishment contemplates on an imaginative thought which still needs more observational examination.

A colleague with a lower authoritative position will acknowledge the suppositions and contributions of a higher ranking colleague. The higher-positioning group part will probably get respect from others in the group as opposed to conceding to other colleagues, i.e., the nurses and lower staff in diversified teams support their seniors without even if they are satisfied with their work style or not but young and old doctors having same ranks were found to be dissatisfied with each other work style and prefer to operate the patient in their own creative way, e.g., manual and laser operations preferences among old and young doctors.

Team members additionally concede to people with whom they feel societal fondness. At the point when a doctor concedes to an accomplice in light of creativity and social fondness, the group might be presented to problematic feelings and viewpoints. While statistic characteristics have essentially been seen as status prompts, in persevering work groups, this research concluded that they likewise work as a reason for proclivity and shared regard. While statistic properties, for example, instructive level, residency, sexual orientation, and ethnicity unquestionably fill in as position signs, they additionally anticipate corresponding social fondness and concession at the dyad level of investigation. Despite the fact that reverence can be a result of different statistic qualities, respect because of convictions about undertaking commitments upgrades, while concession because of social liking brings down, group execution.

## **5.2. Recommendations**

This research recommends that understanding why individuals concede to each other in work teams that is; unloading the basic wellsprings of yielding might resolve equivocalness in the writing in regards to limit circumstances that figure the usefulness of social progressions in diversified teams. The investigation with respect to creative style recommends a comparative execution change when the group is heterogeneous, in light of the fact that each colleague has one of a kind quality that is vital for the group. A conceivable clarification might be seen in the "procedure versus result center" portrayed by Woolley (2009). Individuals with a great total on creativeness, ordinarily have a great level of process center teams, this implies they distinguish particular assignments that should be finished, assets accessible and collaboration of assignments & assets between colleagues (Cools and Van cave Broeck, 2007; Woolley, 2009).

With an end goal to see how to accomplish the exercise in careful control suggested by the double process display, researchers have adopted one of two expansive strategies to settling the obvious exchange off between the educational advantages and attachment challenges



made by diversified teams. Mediators recognized as powerful incorporate group individuals' attitudes toward assorted variety, group norms and standards, task structure & authority (e.g. Bezrukova, Jehn, Zanutto, and Thatcher, 2009; Ely and Thomas, 2001; Gibson and Gibbs, 2006; Homan and Greer, 2013; Jehn and Bezrukova, 2004; Van der Vegt and Bunderson, 2005). The next way to deal with differing group oddity perceives that the advantages and expenses of gathering arrangement are related with various sorts of diversity. Task-oriented diversity (i.e. fundamental contrasts in context) is related to data benefits, while social relations oriented diversity (i.e. contrasts in remarkable attributes) is related to the misfortunes from societal classification forms. Hence, decent variety can be overseen by creating diversified teams on the basis of tasks, as opposed to social relations (Phillips and Loyd, 2006; Shin, Kim, Lee, and Bian, 2012).

### **5.3.Limitations**

This research can't take out the likelihood that, instead of diversity inside groups performing as a twofold edged sword that produces both good and bad impacts at the same time, one of these go between goes before or even foundations the other. Taking the inexorably uncontrolled and vibrant nature of groups (Edmondson and Schein, 2012; Wageman, Gardner, and Mortensen, 2012), this is a vital probability.

One of the basic shortcomings of existing research is cross-sectional nature of data, results might vary if data will be collected after some time interval and compared. The respondents belong to one cultural setting, i.e., Pakistan; outcomes may vary in other contexts. Another limitation is that due to purposive sampling, results cannot be generalized.

### **5.4. Future Research Avenues**

This research added to the diversified teams writing by all the while considering social oriented and task oriented factors in the examination. There absolutely is a requirement for additional investigation on the coordinating or bungling of diversity in terms of psychological styles (van Knippenberg and Schippers, 2007). This examination extends indicated bolster for the additional view for the work style, with respect to arranging style, in any case, concluded that social relations oriented diversity in operating style had no genuine effect on team performance. The examination field of psychological styles is right now completely open with much open deliberation in regards to the distinctive style builds, models and properties, for example, reliability and pliability (Zhang, 2013; Zhang et al., 2012).

Moreover, future research ought to likewise take process factors into account. The connections among assemble assorted variety, team fulfillment, what's more, execution has ended up being extremely intricate. Including process factors, e.g., simplicity of correspondence, clash, or trust into the model may give critical extra bits of knowledge (Roberge and van Dick, 2010). A favorable direction to explore is to work on moderators



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(e.g., group sort, errand multifaceted nature, reflexivity, the recurrence and span of connections) that may impact the connection between assorted variety furthermore, result factors (Horwitz, 2005).



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