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# Impact of ethical leadership on team's knowledge sharing in CPEC projects

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## Abstract
This study aims to explore the relationship between the ethical leadership of project managers working on the China Pakistan Economic Corridor (CPEC) and knowledge sharing in organizations working on CPEC, by relating Kant's Ethical theory. The study is quantitative. Data was collected through a survey method from 310 employees working in CPEC organizations like Frontier Works Organization (FWO), Pakistan Railways (PR), National Engineering Services Pakistan (NESPAK), and their consultant firms. Results showed the positive impact of ethical leadership of CPEC project managers on moral motivation, ethical culture, and knowledge sharing in project teams. However, a very strong effect was observed when both mediators; the ethical culture of CPEC organizations and moral motivation (MM) of project teams were studied in a relationship with ethical leadership (ELS) of CPEC project managers and knowledge sharing (KS) in the project teams.

**Keywords:** CPEC, ethical leadership, moral motivation, ethical culture, and knowledge sharing.

## Introduction

In the field of project management "The triple Constraint Triangle" serves as a measurement tool to grade project success or failure. If the project does not meet either of the constraints of time, cost, or scope, the chances of its failure become evident (PMI, 2013).

The cost reasons overrun, when researched during the Dubai-Fujairah Highway construction project, it was revealed that knowledge of project tasks, resources, schedules, deliveries, and many other performance criteria was not correctly transferred from site area to head office, which ultimately resulted in project delay and failure (Al Nahyan et al, 2019). In large multifarious organizations dealing with widely expanded, similar scope projects, the data exchange, knowledge, and information are essential to standardize procedures. Data Exchange, knowledge, and information are also essential to ensure improvement in the overall efficiency of projects by reducing cost overruns (Al Nahyan et al, 2019; Kovacs & Paganelli, 2003)

Likewise, in Pakistan, China Pakistan Economic Corridor (CPEC) is a project with multiple, similar scope rail, construction, road network, hydel power, wind power, solar power, coal power, IT infrastructure, and Special Economic Zones (SEZ) projects (GoP CPEC, 2019). All these projects are similar in nature and scope. They are also widely expanded in different regions of Pakistan.

Islamabad Policy Research Institute (IPRI) and the Ministry of Planning and Development (MPD) revealed that CPEC projects are facing multiple problems, leading to project delays and failures. These problems are corruption, bad administration (IPRI, 2017; Sacks, 2021), unethical behavior of firms (WEF-GCI, 2018) working on CPEC projects as a subpart of institutional capacity (Yasir, 2017), macro and meso risks (Yin & Ali, 2019), and lack of knowledge sharing and technology spillover from Chinese firms to Pakistani firms and from SEZ to existing domestic zones (DZ) (Green Book, 2019). All these problems are also jeopardizing the sustainable development of CPEC projects. Macro risks are stakeholder risk in the form of stakeholder turnover, political risk in the form of illicit demands by the politician, technical risk in the form of inadequate technical training of Pakistani employed manpower. Meso risks have cost risks in the form of inaccurate estimation of the cost of the project, communication risks in the form of lack of communication and overhead communication, and schedule risks in the form of delays in delivery processes (Yin & Ali, 2019; Khadim 2021).

Several management scholars address issues of corruption and unethical business behavior by introducing ethical leadership (Schriesheim, 2014; Hamoudah, 2021). Ethical leaders produce ethical behavior in employees (Darai & Weber, 2014; Asencio, 2021). By linking Global Reporting Initiatives of sustainability with sustainability in project management authors also document ethics as a part of the project's social sustainability (Silvius & Schipper, 2011; Stanitsas, 2021). For promoting ethical concerns of sustainability, ethical practices that are adopted by project managers can help in forming an ethical code of conduct. Subsequently, the ethical code of conduct can be implemented in project organizations, when project managers themselves practice ethical principles and ethical leadership (Agarwal & Kalmar, 2015; Bhatti, 2021).

Organization of Economic Co-operation and Development (OECD), Anti-corruption, and Integrity Forum highlight that Ethical leadership produces an ethical culture that ultimately drives ethical behavior (OECD, 2018). Ethical leaders are trustworthy, fair, good listeners, open and approachable when employees face ethical dilemmas in the organizations. This attitude

creates an ethical culture in the organization, eventually driving the ethical behavior of employees(Asencio, 2021).

On the contrary, public administration studies document a range of psycho-social (Kippin, Stoker & Griffiths, 2013), then in business management (Farrell, 2017), and education management (Khan, Bauman & Javed, 2020) studies declare moral motivation as a driver of ethical behavior(Al Halbusi, 2021). Moreover, ethical leadership is also recommended to be studied for future research as the driver for employee moral motivation (Bavik, 2018).

Three goals of the United Nation's Sustainable Development (SDG), 2015 are consistent with CPEC. Regarding this research, SDG-17 is to mobilize additional financial resources for developing countries from multiple sources. Enhance triangular regional and international cooperation on the enhancement of knowledge sharing in all fields(Ali, 2018). Developing countries face a financial deficit of US $ 2.5 trillion in development projects (OECD, 2016). To overcome this financial deficit and to meet SDGs, apart from financial assistance, knowledge sharing from developed countries is very important for the sustainable development of projects going on in developing countries (UNGA, 2015; Ali, 2018). Internal knowledge sharing from SEZ to DZ in CPEC is also very important to overcome the lack of technical manpower, resources, and technology spillover by making satellite industrial clusters (Green Book, 2019) based on IT infrastructure (Montalvo, 2011).

This will make knowledge sharing important within ongoing and upcoming similar scope rail, construction, road network, hydel power, wind power, solar power, coal power, IT infrastructure, and Special Economic Zones (SEZ) projects. Knowledge sharing will standardize resource requirements, task completion timelines, quality parameters, project risk, and many other performance criteria in similar scope ongoing and upcoming CPEC projects and reduce macro and meso failure risk factors.

Various large projects of similar scope are either completed or in the execution phase in one belt, one road initiative of CPEC. Soft issues like leadership, culture, knowledge transfer, knowledge sharing, and many more are not researched frequently in CPEC (Bashir, Baig, & Fanchen, 2019). Therefore, corruption and administrative problems are found in CPEC projects (IPRI, 2017, Sacks, 2021). Deadlines are missed (Express Tribune, 2019) and the ethical behavior of Pakistani firms is also low (WEF-GCI, 2018), affecting CPEC (Yasir, 2017). Meso and Macro failure risk factors can also affect the success of CPEC (Yin & Ali, 2019; Khadim 2021). Sustainable development is jeopardized because of a lack of technology, knowledge transfer, and knowledge spillover (Green Book, 2019).

## Conceptual Model

Ethical behavior is depicted by ethical culture (OEDC, 2018) and moral motivation, a recommendation for future research (Bavik, 2018). In light of the UNGA summit of 2015, the fiscal deficit can be overcome by increasing knowledge sharing and technology sharing in development projects in SDG 17. Knowledge Sharing with China, and Pakistani Firms working in CPEC can also improve the sustainable development of CPEC by reducing cost overrun and communication overhead in similar kinds of projects. For sustainable development of SEZ in CPEC, knowledge sharing between SEZ to EZ by satellite, IT clusters needs improvement (Green Book, 2019; Montalvo, 2011).

The Project Manager's leadership is key to controlling corruption in CPEC projects. The social sustainability of CPEC can be achieved by the ethical behavior of project leadership and CPEC

firms. Knowledge Sharing is a reason to disseminate and transfer knowledge between CPEC's similar scope projects and between SEZ to EZ by satellite IT clusters. We require knowledge sharing in both SEZ and EZ clusters and ongoing similar scope multiple projects of CPEC to maintain sustainable development of CPEC and to reduce cost overrun and communication overhead. With this image in mind, the researchers searched for reasons to increase knowledge sharing in SEZ and similar scope multiple projects in CPEC.

**Reasons to Increase Knowledge Sharing**

Unethical leaders impact the unethical behavior of admirers (Darai & Weber, 2014; Ahmed, 2021). If the corporate culture enforces a code of ethics in organizations, it improves ethical behavior within the organization. Ethical leadership induces ethical behavior in workforces from diverse backgrounds through training. Thus creating an ethical organizational culture. The key ingredient for ethical behavior is motivation. Motivation keeps ethics at the heart of a company's purpose (Farrell, 2017; Martínez, 2021).

Ethical leadership behavior impacts ethical culture. Ethical leadership shape ethical culture, which in turn, produces organizational commitment (Demirtas, 2015). There is also a positive role of ethical leadership on group learning behavior with peer justice, justice climate, and ethical conduct as mediators. For future research, the scholar recommends extending his finding in another cultural context (Misati, 2017).

Therefore, unethical leadership produces unethical behavior in firms. For inducing ethical behavior in firms; ethical culture, and motivation in employees are important to practice the ethical code of conduct(McKinley, 2010). Different culture types are suggested by scholars to be explored as a mediator between ethical leadership and group learning behavior (Misati, 2017). Firm's and country's culture influence knowledge sharing(McKinley, 2010). The impact of ethical leadership on knowledge sharing is also observed with moral identity and controlled motivation as the mediator. Further, it is also recommended that moral motivation, introjected motivation, and introjected regulation be studied as mediators in a relationship between ethical leadership and knowledge sharing in future research (Bavik, 2018).

In a research project of Higher Education Commission (HEC), Pakistan, it is researched that soft issues like leadership, culture, knowledge transfer, and knowledge sharing are not researched frequently in CPEC and emphasized research on these topics (Bashir, Baig & Fanchen, 2019). Therefore this research will explore dimensions of Ethical Leadership, moral motivation, ethical culture, and knowledge sharing of firms working in Pakistan to give a way forward to reduce CPEC failure risk factors like corruption, unethical behavior of Pakistani firms, meso and macro failure risk factors(stakeholder turn over, illicit demand by politicians, inadequate training of manpower, communication overhead, lack of communication between stakeholders, cost overrun and delivery delays)and to enhance sustainable development of SEZ by technology spillover and technology transfer between different infrastructure, power and rail projects. The relation between concepts and variables is depicted in figure 1.

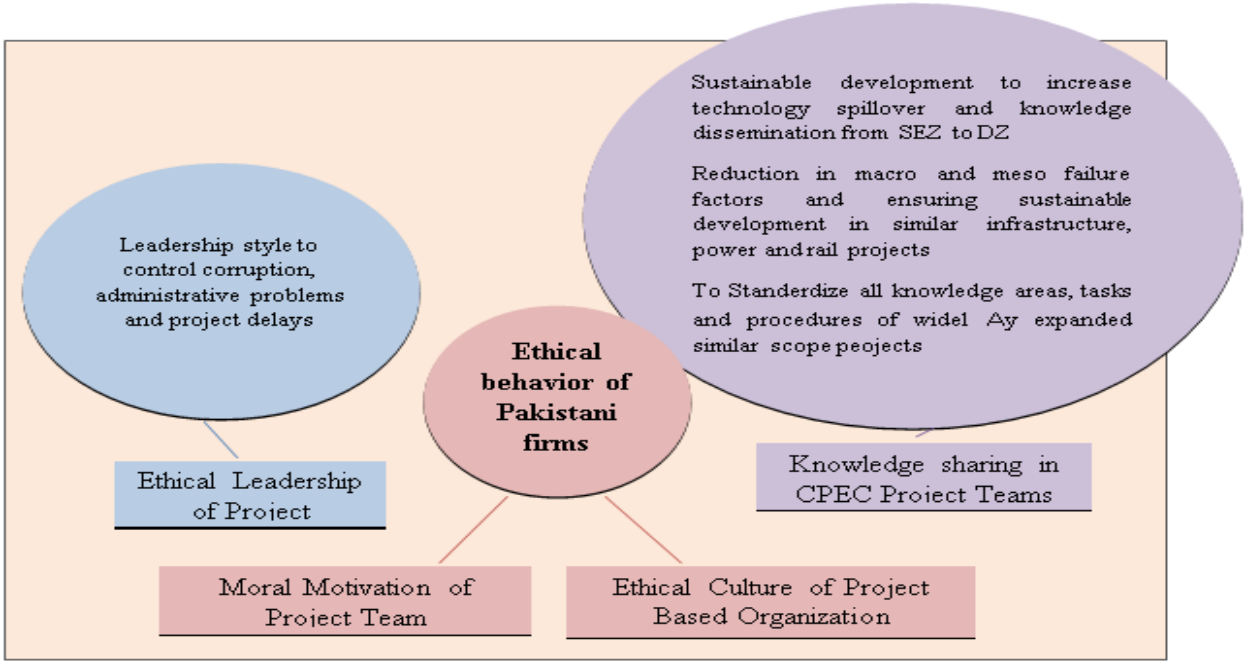


**Figure 1:** *Relationship between Concepts and Variables*

In this research first inquiry would be the effect of the project manager's ethical leadership on the project team's knowledge sharing. Second, the effect of the project manager's ethical leadership on the project team's moral motivation. Third, the mediating role of the moral motivation of the project team on the project manager's ethical leadership and the project team's knowledge sharing. Fourth, is the effect of the project manager's ethical leadership on the ethical culture of organizations working on CPEC. Sixth, the ethical culture mediating role of the project organizations, on the ethical leadership of project manager's and project team's knowledge sharing. Seventh, the mediating roles of the moral motivation of the project team and ethical culture of project organizations working in CPEC on the ethical leadership of project managers and project team's knowledge sharing, to reduce corruption and administrative problems, ensure sustainable development, to improve ethical behavior of firms working on CPEC and, to ensure knowledge sharing for standardization of widely expanded similar scope projects in CPEC and between SEZ to EZ by satellite IT clusters.

## Literature Review

### *Ethical Leadership and Knowledge Sharing*

Kant's ethics have been used for ethical leadership in corporate ethics programs. Kant's ethics support moral decision-making and problem-solving by forming principles and rules by ethical leaders. Kant's ethical leader adapts his actions to act ethically (Bevan, Wolfe &Werhane, 2019). An inter-personnel factor of knowledge sharing found out that leadership is a key dimension that affects it (Kim & Yun, 2015; Bavik, 2018). Keeping in mind the moral importance of knowledge sharing, the ethical conduct of leadership significantly influences knowledge-sharing activities in organizations (Bavik, 2018). Kant's three kinds of actions for knowledge sharing are, firstly, knowledge for technical action, enforces by information technology. Secondly, knowledge for pragmatic action, requires affection, intimacy, and

emotional relation with subordinates. Thirdly, knowledge for ethical action by distinguishing between good and bad (Muller & Merback, 2006).

Project managers share knowledge in project organizations because of their interpersonal skills (Algeo, 2015). Ethical leadership through high conduct, personal actions, and exuberant interpersonal relations influence followers for two-way communication, decision making, and reinforcement. (Voelpel, 2019), thus increasing knowledge sharing (Riege, 2005). In knowledge sharing an individual and team of project organizations, inculcate knowledge in each other in the form of actions and activities (Navimipour & Charband, 2016). The SYLLK model shows that people who form the project team disseminate and apply knowledge in the form of lessons learned in project organizations (Duffield & Whitty, 2015 & 2016). Ethical Leadership increases knowledge sharing (Bavik, 2018). Therefore, the first hypothesis would be

***H***$_1$:The Project Manager's Ethical leadership is positively associated with the knowledge sharing of the project teams working on CPEC.

### *Ethical Leadership and Ethical Behavior*

Unethical leaders impact the unethical behavior of admirers (Darai & Weber, 2014). For inducing ethical behavior in firms, motivation and ethical culture are mandatory (McKinley, 2010; Farrell, 2017). Therefore, this research explores the dimension of motivation and ethical culture, to enhance the ethical behavior of firms working on CPEC (WEF-GCI, 2018; Yasir, 2017)

### *Moral Motivation, a dimension of Ethical Behavior*

Motivation keeps ethics at the heart of a company's purpose (Farrell, 2017). A range of psycho-social research developed an approach that a changing behavior that recognizes the incentives and constraints is driven by intrinsic motivation in Public Administration Management (Kippin, Stoker & Griffiths, 2013).

CPEC is also a public sector mega project with multiple projects. There must be a psycho-social impact of motivation on the employee behavior of multiple firms and their project teams working on CPEC. But theory needs to be referred for the kind of motivation that is relevant to ethical leadership and ethical behavior.

Kant's ethics drives an ethical leader to develop values, ethics, and principles in an organization. The type of motivation that is explained by Kant's ethics is moral motivation. Moral motivation is a source point to influence people to act in the right way in problem-solving and decision-making (Bevan, Wolfe & Werhane, 2019). In education management ethical leadership is studied with moral motivation in Pakistan (Khan, Bauman & Javed, 2020). It is also recommended that moral motivation be studied as a mediator in a relationship between these two variables which are knowledge sharing and ethical leadership in future research (Bavik, 2018). Therefore, the second and third hypotheses are:

***H***$_2$: The Project Manager's Ethical leadership is positively associated with the Moral Motivation of Project Teams Working on CPEC.

***H*3:** The project team's morale motivation for knowledge sharing mediates the positive relationship between the project manager's ethical leadership and the project team's knowledge sharing.

### *Ethical Culture, a dimension of Ethical Behavior*

A Kantian perspective defines "ethical behavior" that is appropriate in a multi-cultural setting (Van Duzer, 2010). This multicultural context is also applicable to CPEC, as CPEC involves employees, technicians, and workers from multi-cultural backgrounds within Pakistan e.g.; Gilgit Baltistan, Kyber Pakhtoon Khawa, Punjab, Sindh and Baluchistan, and China.

Ethical leadership impacts ethical culture. Ethical leadership shape ethical culture, which in turn, produces organizational commitment (Demirtas, 2015). There is an observed learning behavior of groups that shows a positive role of ethical leadership when leaders practice peer justice, justice climate, and ethical conduct as mediators. For forthcoming research, it is suggested to extend findings in another cultural context (Misati, 2017). Therefore our fourth and fifth hypotheses are:

***H*4:** Project Manager's Ethical leadership is positively associated with the Ethical Culture of CPEC Organizations.

**H5:** Ethical Culture in Project Management Organizations working on CPEC mediates the positive relationship between the project manager's ethical leadership and the project team's knowledge sharing.

### *Application of Kant's Theory to Ethical Leadership and Knowledge sharing*

The Project Manager's ethical leadership is the key to controlling corruption in CPEC projects (Schriesheim, 2014; IPRI, 2017). Knowledge Sharing is a reason to disseminate and transfer knowledge between CPEC similar scope projects, SEZ satellite clusters, and existing EZ satellite clusters. We require knowledge sharing in both SEZ and EZ clusters and on ongoing infrastructure projects of CPEC (Green Book, 2019) for standardization (Al Nahyan et al, 2019). With this image in mind, the researcher searched for reasons to increase knowledge sharing in SEZ and similar scope widely expanded projects in CPEC.

Kantian viewpoint is consistent with how project managers' ethical leadership in CPEC projects understands and utilizes Kant's three kinds of actions for knowledge (Muller & Merbach, 2006), to enhance knowledge sharing in CPEC organizations. Kant's technical action for knowledge will help the CPEC project manager in understanding and enhancing knowledge sharing in various hydro, civil, and construction engineering projects. Pragmatic action knowledge will help a CPEC project manager to understand team motivation, needs, notions behind actions, and attitude required for working together with different cultural and academic backgrounds in one project. With thorough knowledge of ethical action, Kant's CPEC project manager will endeavor to get the best ethical solution to a problem and link all technical and administrative knowledge through knowledge management and IT infrastructure in CPEC Organizations in Pakistan.

Kant defines an ethical leader as a leader who establishes the organization's values, ethics, culture, and motivation (Bevan, Wolfe & Werhane, 2019; Van Duzer, 2010). Therefore, Kant's ethical leaders working on CPEC, by practicing Kant's trisection action for knowledge, by

improving the ethical culture of CPEC organizations, and by inducing moral motivation in teams working on CPEC, can enhance knowledge sharing in CPEC Organizations.
In this research, Kant's ethical leadership is studied in consonance with the Pakistani Organizations working on CPEC to adapt and form principles to reduce corruption and administrative problems, improve the ethical behavior of firms working on CPEC and increase knowledge sharing for standardization in CPEC projects. Figure 2 depicts the theoretical model for the research. The sixth hypothesis would be:

***H*$_6$**: Project Team's Moral Motivation for Knowledge Sharing and Ethical Culture in Project Management Organizations working on CPEC mediate the positive relationship between the project manager's ethical leadership and the project team's knowledge sharing.

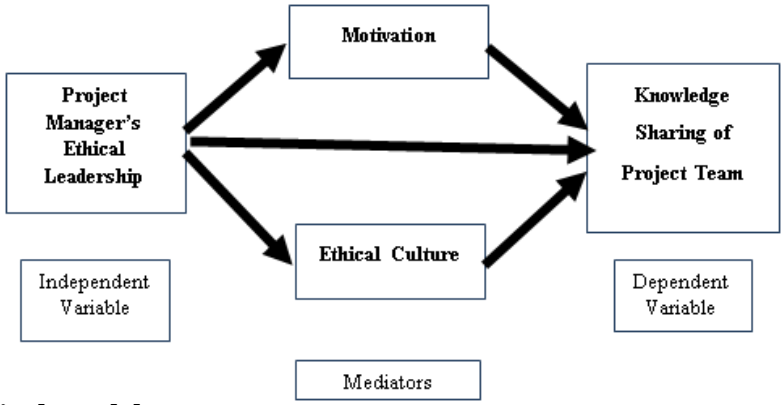


**Figure 2. Theoretical Model**

## Methodology

### *Data and sample*

This is explanatory causal research. The target population for research is project management firms working on CEPC projects and organizations which can work with mixed industries to promote satellite clusters of SEZ and existing EZ. Various CPEC projects are undertaken by Frontier Works Organization's (FWO) and Pakistan Railway's (PR) consultant firms are included in this research. In this research, Garson's rule of thumb is followed by a sample size of 310 respondents of eight firns working on CPEC.

**Table 1: Respondents Statistics**

| | N = 310 | Frequency |
|---|---|---|
| Gender | Male | 261 |
| | Female | 49 |
| Age | 21-25 | 63 |
| | 26-30 | 152 |
| | 31-35 | 61 |
| | 36 onwards | 34 |
| Experien | 1-9 | 57 |
| | 10-19 | 176 |

| | | |
|---|---|---|
| | 20-29 | 54 |
| | 30 and above | 23 |
| Qualification | Engineer/DAE/ Arch/Tech | 138 |
| | MBA | 39 |
| | BCS/ Computer Software Engineer | 47 |
| | Others | 86 |
| Organizations | National Engineering Services Pakistan (Pvt.) Ltd NESPAK | 41 |
| | Frontier Works Organization (FWO) | 81 |
| | MM Pakistan Pvt Ltd (MMP) | 62 |
| | Advance Technologies Limited (ATL) | 21 |
| | Pak Railways (PR) | 24 |
| | Associated Consultancy Center Pvt. Ltd (ACC) | 12 |
| | NETSOL Technologies Inc | 69 |

The sampling technique used for this research is purposive, heterogeneous sampling. Data is gathered from firms working on CEPC projects and organizations which work with mixed industries to promote satellite clusters of SEZ and EZ. Sampling is heterogeneous purposive, because the nature and procedures of infrastructure, hydropower, construction, and various projects undertaken by FWO, PR, and NETSOL are different. Participants of the research include supervisors, engineers, stenographers, draftsmen, and HR experts with a background in engineering, management, IT, Hydrology, Global Information systems (GIS), Town Planning Geology, Sociology, etc. Respondents Statistics are shown in table 1. Data was collected through a standardized questionnaire. Ethical leadership and knowledge sharing, both questionnaires are adapted from Bavik (2018). Ethical leadership (ELS) has 10 items and knowledge sharing (KS) has five items, A moral motivation(MM) questionnaire is adapted from Burgwal (2019), with six items. And ethical culture (EC) questionnaire is adapted from Amalina &Sulong (2019), with 10 items.

Herman's Single Factor Test shows the extracted sum of squares loadings and its percentage variance in final data is 28.061%. Therefore, the likelihood of common method bias is removed (Podsakoff & Organ, 1986). Results of the Common Latent Factor technique suggest that no significant common method bias is present in this data since the calculated variance (16.81%) is way below the threshold of 50% (Eichhorn, B. R., 2014).

**Table 2- Descriptive Statistics**

| | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|
| M_ELS | 2.20 | 5.00 | 3.7919 | .59930 | .359 |
| M_EC | 1.40 | 5.00 | 3.5777 | .66561 | .443 |
| M_MM | 2.83 | 5.00 | 3.9465 | .51573 | .266 |
| M_KS | 2.20 | 5.00 | 3.6158 | .62038 | .385 |

***Analytic strategy***

For multiple regression, path analysis is used to test causal models. Path analysis aims to check causal models that are based on theoretical and conceptual frameworks

Simultaneously, Path analysis gives a hypothesized structure of cause and effect connections. Multiple regression path analysis gives a direct, independent variable (IV) effect on the dependent variable (DV)) and indirect effect (IV effect on DV with mediators and moderators) in a causal relationship collective and independently (Ho, 2006). To test the research causal model, the Structural Equation Method was used. The software used for the research was AMOS 24.

***Reliability and Validity***

In Structural Equation Modeling (SEM), Confirmatory Factor Analysis (CFA) is steered to examine how precise the items denote the construct, thus giving model validity. Factor loadings in CFA of all items in ELS, KS, MM, and EC are higher than 0.50. An indicator of convergent validity is the Average Variance Extracted (AVE) value. Convergent validity has also been established as the AVE of ELS, KS, MM, and EC is more than 50%(Civelek, 2018; Hair, 2014). Construct Reliability is the internal consistency of the measured variables, which are there to depict a construct. Construct Reliability of ELS, KS, MM, and EC is higher than 0.7. Discriminant validity is also established as the square root of AVR is greater than the correlation between variables.

Construct validity gives the degree to which the variables represent the theoretical construct which it was designed to measure. Construct validity of the constructs is also established as all factor loadings in CFA are above 0.5 with good convergent validity, construct reliability, and discriminant validity (Hair, 2014).

***Measurement Model Validity***

CFA's eventual objective is to acquire an assurance that the model being tested is valid. CFA offers added investigative information. This information may suggest modifications for either addressing unanswered problems or refining the model's test of measurement theory (Hair, 2014). Table 3 shows the goodness of the fit summary of CFA, proving the research model to be valid. And it supports that the data is well fitted to the model (Arbuckle, 2007).

**Table 3- The Goodness of Fit Summary of CFA**

| Fit Indices | Fit Values Criteria | Model Fit Values | Fit |
|---|---|---|---|
| CFI | 0-1 | 0.889 | Good fit |
| TLI | 0-1 | 0.867 | Good fit |
| RMESA | 0.05 or less | 0.05 | Good fit |
| CMIN/ DF | 1-5 | 2.3143 | Good fit |

***Assessment of Structural Model Validity***

The structural model differs from the measurement model of CFA. The structural model gives the relationship and association between the constructs formed by the theory and confirms that the model formed by the theory conforms to the study. CFA gives the validity of the constructs to their indicators (Hair, 2014).

For model testing, three models are tested. Model A has moral motivation as a mediator in a relationship between ethical leadership and knowledge sharing. Model B has ethical culture as a mediator in a relationship between ethical leadership and knowledge sharing; Model C has the moral motivation and ethical culture as mediators in a relationship between ethical leadership and knowledge sharing. After reviewing the fit indices of Model A, B, and C, Table 4 shows the values derived from concepts. Fit indices of table 4 reveal that the theory is well-fitting for Model C only, as indicated by CFI, TLI, RMSEA, and CMIN/ DF values, which are in the suggested range of acceptability (Byrne, 2010). Model A and B are rejected.

**Table 4: Goodness of Fit Summary of Research Model**

| Model | Fit Indices | Fit Values Criteria | Model Fit Values | Fit | Accepted/ Rejected |
|---|---|---|---|---|---|
| **A** | CFI | 0-1 | 1 | Good fit | |
| **(**MM as a | TLI | 0-1 | 0 | Good fit | Rejected |
| mediator between | RMESA | 0.05 or less | 0.544 | Bad Fit | |
| ELS and KS**)** | CMIN/ DF | 1-5 | 77.668 | Bad Fit | |
| **B** | CFI | 0-1 | 1 | Good fit | |
| **(**EC as a mediator | TLI | 0-1 | 0 | Good fit | Rejected |
| between ELS and | RMESA | 0.05 or less | 0.549 | Bad Fit | |
| KS**)** | CMIN/ DF | 1-5 | 0 | Bad Fit | |
| **C** | CFI | 0-1 | 0.998 | Good fit | |
| **(**MM and EC as | TLI | 0-1 | 0.990 | Good fit | |
| mediators | RMESA | 0.05 or less | 0.047 | Good fit | Accepted |
| between ELS and | CMIN/ DF | 1-5 | 1.58 | Good fit | |
| KS**)** | | | | | |

**The Causality of Research Model**

When multivariate statistics are used, the causal relation gives the strongest inference. Because of this reason they can only be supported if situations for causality occur. These conditions are covariation, sequence, non-spurious covariation, and theoretical support (SEM-Rules of Thumb) (Hair, 2014). Covariance exists, as the results of Table 5 show covariance between predictor (cause) and the predicted (effect) variables. The sequence is also established, as each cause proceeds with the effect in time. Figure 3 also gives evidence of a non-spurious association that exists between the cause and effect i-e: mediators. Theoretical support is also discussed earlier for the relationship between cause and effect.

The result of table 5 and figure 3, reports critical ratios, regression estimates, regression path, and significance values of model C.

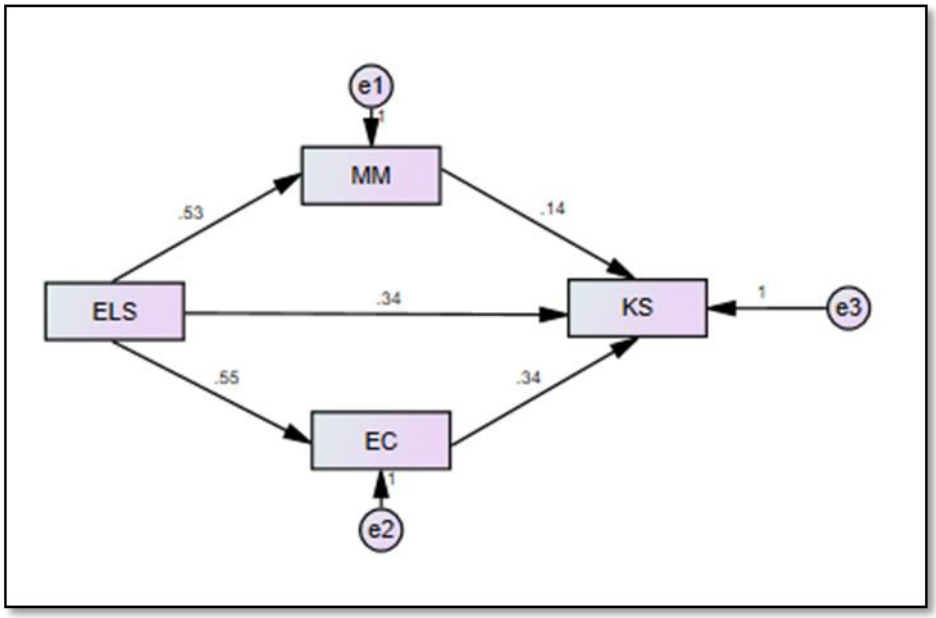


**Figure 3. AMOS Model C for Path Analysis Showing Structural Relationship**

**Table 5: Regression Results of Direct Effects of Model C**

| | | | Estimate | S.E. | C.R. | P | Label |
|---|---|---|---|---|---|---|---|
| M_MM | <--- | M_ELS | .532472 | .044669 | 11.920447 | *** | Par1 |
| M_EC | <--- | M_ELS | .552714 | .056574 | 9.769718 | *** | Par4 |
| M_KS | <--- | M_MM | .143212 | .063936 | 2.239924 | * | Par2 |
| M_KS | <--- | M_EC | .338531 | .050481 | 6.706067 | *** | par5 |
| M_KS | <--- | M_ELS | .337365 | .063640 | 5.301174 | *** | Par3 |

***Hypothesis Testing***

**Hypothesis 1**

The Project Manager's Ethical leadership is likely to be positively associated with the knowledge sharing of the project teams working on CPEC.

The result of table.5 indicates the positive and significant influence of ethical leadership on knowledge sharing (β=0.337, P< 0.001). It proves that ethical leadership rises knowledge sharing by 33.73%. The critical ratio (CR=5.301) reveals that the ethical leadership of the project manager is reflected as a significant determinant of knowledge sharing in organizations working on CPEC. Thus, hypothesis 1 is supported.

**Hypothesis 2**

The Project Manager's Ethical leadership is likely to be positively associated with the Moral Motivation of Project Teams Working on CPEC.

The result of table 5 indicates the positive and significant influence of ethical leadership on moral motivation (β=0.532, P< 0.001). It demonstrates that ethical leadership raises moral motivation by 53.243%. The critical ratio (CR=11.92) reveals that the ethical leadership of the project manager is reflected as a significant determinant of moral motivation in project teams working on CPEC. Thus, hypothesis 2 is supported.

**Hypothesis 3**

The project team's morale motivation for knowledge sharing is likely to mediate the positive relationship between the project manager's ethical leadership and the project team's knowledge sharing.

To investigate the mediating role of the project team's morale motivation, the model validity of the association between the Project Manager's Ethical Leadership and Project Team's Knowledge Sharing was analyzed first, which is not sustained. Hence, hypothesis 3 is rejected.

**Hypothesis 4**

The Project Manager's Ethical leadership is likely to be positively associated with the Ethical Culture of CPEC Organizations.

The result of table 5 indicates the positive and significant influence of ethical leadership on Ethical Culture ($\beta$=0.552, P< 0.001). It proves that ethical leadership raises Ethical Culture by 55.27%. The critical ratio (CR=9.76) reveals that the ethical leadership of the project manager is reflected as a significant determinant of Ethical Culture in organizations working on CPEC. Thus, hypothesis 4 is supported.

**Hypothesis 5**

The ethical Culture of Organizations working on CPEC is likely to mediate the positive relationship between the project manager's ethical leadership and the project team's knowledge sharing.

To investigate the mediating role of the project organization's ethical culture, the model validity of the association between the Project Manager's Ethical Leadership and Project Team's Knowledge Sharing was analyzed first, which is not sustained. Hence, hypothesis 5 is also rejected.

**Hypothesis 6**

Project Team's Moral Motivation for Knowledge Sharing and Ethical Culture of Project Management Organizations working on CPEC is likely to mediate the positive relationship between the project manager's ethical leadership and the project team's knowledge sharing.

The standardized total effect; both direct (unmediated) effect and indirect (mediated) effect of Project Manager's Ethical Leadership on Project Team's Knowledge Sharing is $\beta$ = 0.597 at $p < 0.01$ (Schumacher & Lomax, 2010). Partial mediation of both moral motivations for knowledge sharing and ethical culture of project management organizations working on CPEC is observed in a relationship between ethical leadership and knowledge sharing in CPEC organizations. Hence, hypothesis 6 is strongly supported.

**Discussion**

Ethical Leadership of Project Managers working on the CPEC project in Pakistan significantly impacts knowledge sharing in project teams. The result of this study is aligned with the findings of (Bavik, 2018). Ethical leadership of Project Manager also significantly impacts moral motivation (result is aligned with the research of Khan, Bauman & Javed, 2020) and ethical culture of CPEC organizations (finding is consistent with the OECD, Global Anti-Corruption and Integrity Forum Report, 2018).

Mediation of the project team's morale motivation for knowledge sharing is not observed in a relationship between the project manager's ethical leadership and the project team's knowledge sharing. Similarly, mediation of the ethical culture of CPEC Organizations in a relationship between the project manager's ethical leadership and the project team's knowledge sharing is

also not observed. But the most significant result is the mediating effects of the project team's morale motivation for knowledge sharing and ethical culture of CPEC organizations in a relationship between the project manager's ethical leadership and the project team's knowledge sharing. The highest impact on knowledge sharing is observed when both mediator's, direct and indirect effects are tested in a relationship between project managers' ethical leadership and the project team's knowledge sharing. This result will eventually enhance the theory.

Ethical climate, culture, and core values are constitutional foundations of ethical behavior are researched for non-family and family businesses. Results demonstrate a positive attitude of family enterprise towards ethical culture and core values (Duh, Belak & Milfelner, 2010). Literature also reveals moral character, ethical corporate culture, and personal context (Schwartz, 2017), singular factors (locus of control, Machiavellianism and value orientation), and organizational factors (ethics training, rewarding system, and code of ethics) (Pooja & Mishra, 2016) and moral awareness, moral judgment and moral motivation (Trevino & Weaver, 2006) as factors of ethical behavior causing ethical decision making. This shows dissimilarity in literature as far as constitutional elements and drivers of ethical behavior are concerned. This demonstrates evidence for the rejection of hypotheses 3 and 5, and acceptance of hypothesis 6.

IPRI reports a corruption and administrative problems in CPEC projects, but CPEC Project Managers through ethical leadership can control these problems. CPEC Project Manager with ethical leadership will be a moral person and a moral manager (Trevino et al., 2012; Voelpel, 2019). Corruption has been addressed by introducing new theories that attempt to visualize and operationalize what constitutes ethical leadership (Brown & Trevino, 2006; Darai& Weber, 2014). Therefore leadership applied to this research is ethical leadership.

Pakistan is 30 ratings behind China in the ethical behavior of firms, which is a subpart of institutional capacity (WEF-GCI 2017-2018). A working paper by the MPD, Government of Pakistan on CPEC identifies the institutional capacity difference between Pakistan and China as one of the key challenges in building CPEC (Yaisr, 2017). This research shows the positive effect of ethical leadership of Project Managers of CPEC Organizations on Moral Motivation and Ethical culture. In this research ethical behavior is conceptualized with ethical culture and moral motivation. By practicing ethical leadership, CPEC project managers can improve moral motivation and ethical culture, which further improve the ethical behavior of Pakistani firms working on CPEC. Results show a strong effect of ethical leadership on moral motivation and the ethical culture of CPEC organizations, which are drivers of ethical behavior.

Meso and macro failure risk factors of CPEC are stakeholder turnover, illicit demand by politicians, inadequate training of manpower, communication overhead, lack of communication between stakeholders, cost overrun, and delivery delays (Yin & Ali, 2019). Efforts are also required to enhance the sustainable development of SEZ by technology spillover and technology transfer and other infrastructure, power, and rail projects (Green Book, 2019). Standardization is also required in similar scope widely expanded projects (Al Nahyan et al, 2019). Multiple infrastructures, power, and rail projects are widely expanded in CPEC with the same project scope. Meso and macro risk factors and sustainable development of projects will be ensured by increasing knowledge sharing in SEZ and is widely expanded, the same scope multiple projects of CPEC. Increased knowledge sharing can reduce all these problems. Research shows a significant effect of the ethical leadership of project managers on the knowledge sharing of project teams working on CPEC. But the highest effect of project ethical leadership of project

managers on knowledge sharing is achieved when managers induce moral motivation in CPEC project teams and create an ethical culture in CPEC organizations.

This research will be a building block to fill the theoretical gap in the field of project management and CPEC research. It has enhanced the theory by investigating the effect of ethical leadership on knowledge sharing by the moral motivation of the project team and the ethical culture of organizations working on CPEC.

Practically, this research will help GOP, the Ministry of Planning and Development to identify similar scope projects shortfalls and strengths. When projects are in the execution phase, risks are prominent and deadlines are enforced to be met, it is the least priority of the entire project organization to share data of knowledge areas of the project. If knowledge sharing is enforced on project teams to share knowledge, teams will take it as an additional tasking. But ethical leadership, ethical culture, and moral motivation will force project teams to share reliable and authentic knowledge dutifully and willfully. CEPC is a large project. Knowledge sharing and standardization of material, manpower, and machines will also save project costs drastically in different regions of the country.

## Conclusion

Corruption and administrative problems of CPEC can be solved when project managers of CPEC practice ethical leadership. The ethical behavior of CPEC firms can also be improved when the project managers practice ethical leadership and reinforce moral motivation in project teams and ethical culture in project organizations working on CPEC. Meso and macro failure risk factors of CPEC will be reduced and sustainable development of widely expanded similar nature projects be ensured when CPEC project managers practice ethical leadership and influence their project teams to share project quality parameters, procurement, cost, schedule, technical, integration, resource, communication, stakeholder, risk and administrative knowledge by inducing moral motivation in CPEC project teams and creating an ethical culture in CPEC organizations.

## Limitations and Directions for Future Research

Corruption and unethical business behavior have been addressed by introducing new theories that attempt to visualize and operationalize what constitutes ethical leadership and authentic leadership (Darai& Weber, 2014). This research considers the ethical leadership of CPEC project managers, the moral motivation of project teams, and the ethical culture of CPEC organizations in a relationship with knowledge sharing. Future research can be conducted with authentic leadership.

Global Competitive Index ratings of the World Economic Forum have twenty-one parameters that rate institutional capacity. Apart from the ethical behavior of firms, the other twenty parameters can be researched to improve the institutional capacity of Pakistani firms in the domain of Public Administration and Project Stakeholder Management studies.

Ethical climate, core values, culture are constitutional foundations of ethical behavior (Duh, Belak & Milfelner, 2010). Ethical corporate culture and personal context (Schwartz, 2017), singular factors (locus of control, value orientation, and Machiavellianism) and organizational factors (rewarding system, ethics training, and code of ethics (Pooja & Mishra, 2016)) and moral awareness, moral judgment and moral motivation (Treviño& Weaver, 2006) are other factors of

ethical behavior. Future research can be conducted to get the most influential drivers of ethical behavior in CPEC organizations.

To attain SDG 17 and to overcome the financing gap in development projects in developing countries, the OECD report on "The Sustainable Development Goals as Business Opportunities", recommends that a financial deficit in sustainable development can be overcome by knowledge sharing (OECD, 2016). For future research, financial deficits of CPEC projects can be highlighted and research can be conducted to find out ways to increase knowledge sharing to overcome the financial deficit of CPEC projects.

This research shares the dimension of knowledge sharing and the ethical behavior of firms within Pakistani firms only. Future research can also be conducted to find out the difference in institutional capacity, ethical behavior of firms, and knowledge sharing between Chinese and Pakistani firms. And suggest a way forward to improve institutional capacity, ethical behavior of firms, and knowledge sharing in Pakistani CPEC firms by lessons learned from Chinese Firms. Moreover, to improve the ethical behavior of firms working on CPEC, ethics training must also be conducted for project team members.

This research is conducted quantitatively on Pakistani team members working on the CPEC project. Adding Chinese team members and executives in future research can give better results.

This research is conducted with non-probabilistic, purposive sampling. Probabilistic sampling will give better and more generalized achievement of research objectives.

This study is conducted only on project team members of organizations working on CPEC. Senior executives and project managers are not part of this study. To gain more understanding about the institutional capacity of organizations working on CPEC, qualitative research with in-depth interviews of senior executives will help in understanding the key problems of the low institutional capacity of firms working on CPEC.

For future research, IT infrastructure requirements and software development strategies may also be researched to implement IT infrastructure and software capacities in CPEC government organizations like FWO, PR, and NESPAK. These capacities can be enhanced and implemented physically to increase knowledge sharing to standardize tasks, procedures, and resource requirements of widely expanded similar scope CPEC projects.

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