



Investigating the nexus between critical success factors, despotic leadership, and success of renewable energy projects

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Received: 10 May 2021 / Accepted: 5 September 2021 / Published online: 14 September 2021
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Abstract

The aim of this study to examine how critical success factors (CSFs) affect the project success (PS), directly and indirectly, using the despotic leadership (DL) as a mediating variable. Critical success factors with multiple dimensions, such as organizational factors, team factors, technical factors, and communication factors, were used in this study. In this study, we used a questionnaire survey approach. The data were collected from the project directors, project managers, functional managers, and team leaders working in the renewable energy project of Pakistan. For data analysis, we used the partial least squares structural equation modeling through SmartPLS 3.2. The outcomes indicate that team factors and communication factors have a positive and significant relationship with PS in the direct relationship. At the same time, organization factors and technical factors were insignificant in the direct relationship with PS. Moreover, to examine the mediating effects of despotic leadership, we have examined the indirect effects of critical success factors on PS. The findings of this study indicate that DL is not mediated between organizational factors and PS in the indirect relationship. However, DL negatively mediates between three factors (team, technical, and communication) of critical success factors on project success. This paper concludes that despotic leaders go beyond controlling and self-serving behaviour and are engaged in exploitative and unethical acts that can drain project resources, which reduce the success and sustainability of renewable energy projects.

Keywords Despotic leadership · Renewable energy projects · Critical success factors · Sustainable project success

Introduction

Energy plays an important role in the economic prosperity and development, besides poverty alleviation, in a country. Sustainable energy supply is among the most important concerns of every country in today's world. Hwang and Tan (2012) demonstrate the economic prosperity of a country depends on the prolonged availability of energy from convenient, cost-effective,

and environmentally efficient sources (Wang et al. 2020). Moreover, energy is not merely the source for the running industry but the household as well. The issues of conservation of planet earth, global warming, and clean public environment are the topics of contemporary energy debate (Maqbool et al. 2020). Previous studies highlight that globally, Pakistan is among the top ten most vulnerable countries focusing on fossil-based energy to meet their energy challenges (Khan et al. 2014). But luckily,

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Pakistan is rich in natural renewable energy sources like wind, sunshine, and water streams. Similarly, it also has surplus supplies of biomasses like agriculture residue and animal dung as the by-products of its rich agriculture sector. These factors equip the country with the sources that can be effectively utilized to replace fossil fuels for producing energy (Dogan 2016; Uz Zaman et al. 2021). Therefore, Pakistan has immense potential for starting projects that utilize solar, wind, biomass, geothermal, or small hydropower plants to replace fossil fuel (Malik and Maqbool 2017; Zaigham and Nayyar 2010).

Despite the immense potential of renewable energy (RE) in Pakistan, most projects cannot deliver and achieve their goals. Multiple factors like political and economic instability, socio-cultural challenges, unavailability of data, corruption, lack of transparency, financial limitations, etc. distinctively hinder the performance of such projects. The underperformance of renewable energy projects in Pakistan is resulting in either their closure or postponement. The reality is calling for scientific exploration of the critical aspects that can help policymakers overturn declining projects. This study hypothesizes on the CSFs of renewable project success identified in the previous studies (Baccarini and Collins 2003; Ika et al. 2012; Xu et al. 2011; Zhao et al. 2010). Baccarini and Collins (2003) conducted a study in the Australian Project Management Institute and identify the fifteen critical success factors that enhance the project's success. Among these fifteen critical success factors, project know-how and project team are the highly significant factors. Similarly, Ika et al. (2012) research the critical success factors that enhance the success of energy projects. This research was sponsored by the World Bank, and they suggest five CSFs that boost the success of renewable energy projects. These five factors are coordination, monitoring, training, design, and organizational environment. Accordingly, Xu et al. (2011), in their pragmatic study, incorporated semi-structured interviews and questionnaire surveys to analyse the responses of key members of energy performance contracting projects in China. This study identified 21 critical success factors in six categories: These six categories are (1) project organization process, (2) project funding, (3) knowledge and innovation, sustainable development, and measurement and verification, (4) sustainable development strategy implementation, (5) contractual provisions, and (6) external financial situation. On the basis of above literature, in this study we use four CSFs: (i) Organizational factors (OF), (ii) team factors (TF), (iii) technical factors (Tech. F), (iv) communication factors (CF), and their effects on renewable energy project success.

Prior studies investigate the impacts of bright side leadership (charismatic leadership, supportive leadership, and transformational leadership) on organizational performance (Herrmann and Felfe 2013; Huang et al. 2015; Top et al. 2015). The finding of these studies confirms the bright side of leadership brings sustainability and competitive advantages in the organizations. The renewable energy projects in

Pakistan were not delivered and achieve their goals due to negative leadership styles (Maqbool et al. 2017). So, due to conflict of employees, leader's selfishness, lack of trust and traditional corporate culture, renewable energy-based projects are negatively affected by despotic leadership (Koser et al. 2018). Despotic leadership is a self-centered leadership style that highlights the leader's absolute authority and wants absolute obedience from the followers (De Hoogh and Den Hartog 2008). However, despotic leadership focused on the pursuit of personal gains at the expense of subordinates' interests. Recent findings of the literature suggest despotic leaders have selfish and corrupt characteristics, which negatively affect achieving the renewable energy project's strategic goals (De Hoogh and Den Hartog 2008).

Therefore, previous studies explain the direct relationship between critical success factors and project success. Similarly, existing literature also provides the direct relationship between despotic leadership and project success. In this study, we identify the multiple dimensions of critical success factors. These multiple dimensions of CSFs, directly and indirectly, affect project success using despotic leadership as a mediating variable. To the best of the authors' knowledge, this is a pioneer study that investigates the direct and indirect impact of CSFs on project success, particularly when despotic leadership is taken into account as a mediating variable. Based on this ideas, the proposed research model of the study is shown in Figure 1. Therefore, this study proposes the below mentioned two research questions (RQ):

- RQ1. Does critical success factors affect the renewable energy projects of Pakistan?
- RQ2. Does despotic leadership reduce the project success in the renewable energy projects of Pakistan?

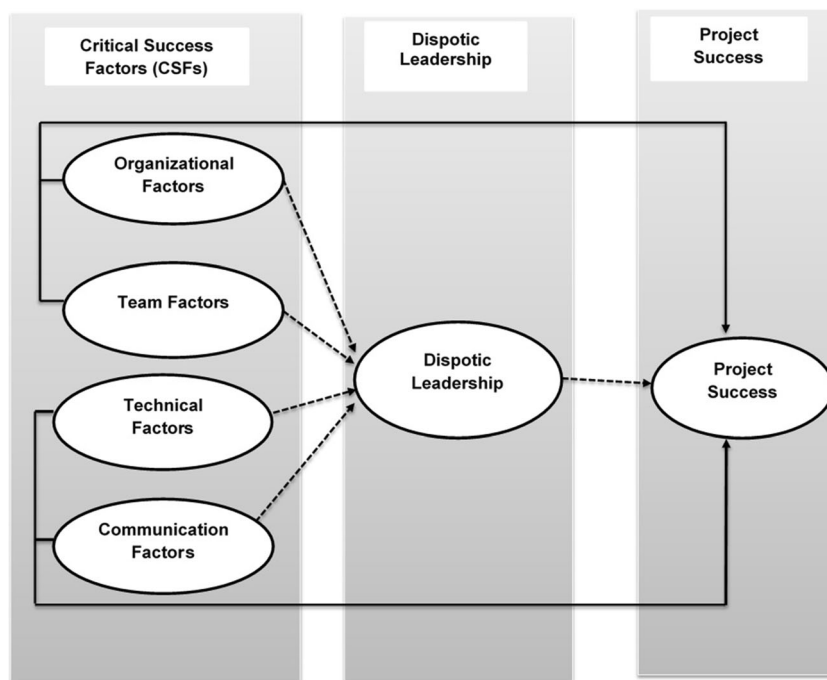
The structure of this paper is as follows. In the “[Literature review and hypotheses development](#)” section, the literature review and hypotheses development are briefly discussed. The research methods are explained in the “[Research methods](#)” section. The results and analysis are presents in the “[Data analysis](#)” section. The discussion of this study presents in the “[Discussion](#)” section. The “[Conclusions](#)” section discusses the conclusions of this study.

Literature review and hypotheses development

Critical success factors of project success

The results of a project is determined by four elements: project characteristics, formal obligations, stakeholders, and communication processes (Strachan et al. 2015). Project features comprise of external and internal characteristics. The external

Fig. 1 Theoretical framework.
Note: Dotted lines show indirect relationships, and solid lines show the indirect relationship



features include political-economic uncertainties, the influence of technical approval bodies, financial support, and geographical constraints. At the same time, the internal features comprise constructability, project size, pioneering status, etc. The project features define its discrepancies, including financial constraints and project deadlines (Afshar Jahanshahi et al. 2020). Xu et al. (2011) identified 21 CSFs grouped in six categories: (i) project organization process; (ii) project funding, (iii) knowledge and innovation, sustainable development, and measurement and verification; (iv) sustainable development strategy implementation; (v) contractual provisions; and (vi) external financial situation. (Li et al. 2019). After an extensive literature review, this study focuses on four dimensions of critical success factors: organizational factors, team factors, technical factors, and communication factors.

The CSFs of renewable energy projects have been variedly classified in previous studies. After a careful review of the literature, this study follows the framework given by Maqbool and Sudong (2018) for further analysis. This framework comprises five factors: communication, team, technological, organizational, and environmental factors. The literature review highlighted the CSFs defined in other studies, although they have different names, generally fall within these five categories. The analysis of empirical data collected from the construction-based renewable energy projects also adds to the credibility, validity, and reliability of the Maqbool and Sudong (2018) framework and makes it a natural choice for framing this study. Their study also matches the research conducted by Chua et al. (1999), which adds to its strength. The terminology used by Maqbool and Sudong (2018) is also simple and easy, which makes it understandable for the

respondents; therefore, it adds to the reliability of this research. The CSFs under the focus of this study are suitable for studying renewable energy projects under various situations regardless of any context. Prior studies conclude that CSFs play a vital role in the success of RE projects. However, only a few empirical studies have addressed this issue. In this regard, the study of Khan et al. (2014) is highly relevant as it analyzes and concludes over the survey data collected from renewable energy project experts in Pakistan. However, any further study testifying their findings was not searchable during the literature review conducted for this study. Hence, there is a need to conduct an empirical study that can testify to the CSFs of renewable energy project success. This study, based on these grounds, draw the following hypotheses for testing:

- H1a. Organizational factors positively influence the project success
- H1b. Team factors positively influence the project success
- H1c. Technical factors positively influence the project success
- H1d. Communication factors positively influence the project success

Despotic leadership effects on project success

Project success broadly refers to the achievement of goals without compromising on budget or deadlines. However, there is a disagreement among researchers over the definition of project success (Feger and Thomas 2012). In practice, the

PS is subjectively assessed by its stakeholders (Fincham 2002). Project success is defined as a project that keeps stability between the demands, the project quality, project cost, stakeholder expectations, and scope is successful (PMI 2013).

Projects of renewable energy success drive a lot of attention due to their high significance in sustainable development. The broad scope of these projects realizes a diverse stakeholders base within and outside the project firms (Berrone et al. 2019). Social learning theory supports the relationship between despotic leadership and project success (Walters 2019). According to this theory, when people are confident that they can complete certain activities, they will have a high sense of “self-efficacy” and engage more in related activities, even have an interest in these activities (BenYishay and Mobarak 2019). So, social learning theory posits that despotic leaders reduce the success of renewable energy projects. Despotic leadership and team dynamics negatively affect the financial, operational, and sequential aspects of project performance. However, team dynamics without leadership cannot assure project success (Gelbard and Carmeli 2009; Sadeh et al. 2019). Project management practices in China are influenced by the concept of “guanxi” or close group. This concept guides strong relationships with the positive relationship of bright side leadership with the project success and negative relationship of despotic leadership (dark leadership) with the project success (Chen and Partington 2004; Tsang 1998). Researchers have increased emphasis to test the relationship between despotic leadership and project success (Sadeh et al. 2019). Despotic leadership is crucial in project success as it mitigates the negative effects of psychological and operational conduct on project team members and overall project performance (Wang et al. 2020). The above discussion proposed the following hypothesis:

H2: Despotic leadership negatively influences project success

Mediating effect of despotic leadership

The concepts of despotic leadership come from the Taiwanese enterprises’ research in the 1970s. Later, this concept attracted wide attention from the management sciences (Kiazad et al. 2010). Despotic leadership has five typical manifestations, i.e., authoritarian, vengeful, unethical, self-serving, and exploitative (De Hoogh and Den Hartog 2008; Farh et al. 2000).

The relationship between critical success factors, despotic leadership, and project success is not examined by previous researchers. Prior studies are increasing trend to address the negative effect of despotic leadership between the relationship of CSFs and project success (De Hoogh and Den Hartog 2008; Ekrot et al. 2018). A study conducted by Maqbool et al. (2017) is examined the role of critical success factors with the mediating role of transformational leadership to

investigate the success of renewable energy projects. The findings suggest that the dark side of leadership negatively influences the relationship between CSFs and project success. At the same time, Wang et al. (2020) conduct a study on the relationship between toxic workplace environment and project success. The outcome of this study indicates that despotic leadership brings a toxic environment in the project-based organization that negatively mediates the relationship between CSFs and project success. Another academic researcher, Kalyar (2020), conducts a research on the relationship between despotic leadership and psychological well-being in the project-based organization. This finding of this research indicate that despotic leadership damage the team support to the project. The conservation of resource (COR) theory is linked to the depletion of resources because considering the role of this theory we postulate that despotic leadership negatively affects the subordinates to deplete their personal and emotional resources, which affect the work productivity and project success. Thus, it is observed in previous literature that despotic leaders negatively affect the critical success factors and project success, which creates the stress and depression in subordinates as well as hurts the emotions. Consequently, we hypothesized. Moreover, Figure 1 is presents the comprehensive theoretical framework of this study.

- H3a. Despotic leadership negatively mediates between Organizational factors and project success
- H3b. Despotic leadership negatively mediates between team factors and project success
- H3c. Despotic leadership negatively mediates between technical factors and project success
- H3d. Despotic leadership negatively mediates between communication factors and project success

Research methods

Research approach

In this study, we used a survey analysis research approach because it is common and broad level data can collect from the target population. Moreover, the data collection cost is relatively low as compared to other methods (Heeringa et al. 2017; Roby et al. 2003). Hennessy and Patterson (2011) suggest that for the survey analysis, first, we develop the research questionnaire (Rasool et al. 2019). So, in this study, first, we design the questionnaire to collect the data.

Questionnaire development

The purpose of this analysis is to see how important success factors, both directly and indirectly, influence the project’s

success, using despotic leadership as a mediating variable. For the sake of the respondent's comprehension, a comprehensive introduction of the research was provided at the start of the questionnaire. The questionnaire used for the survey consists of two main parts. The first part includes demographic information; in this part, we also present the measurement scale 7-point Likert scale (1 = strongly disagree, to 7 = strongly agree)—the second part of this instrument presenting the variables items in detail. First, we pre-test the questionnaire, then we distribute the questionnaire among the target population. Therefore, to test the validity and reliability of the research instrument, the authors conduct a pilot study. The pilot study's participants were the subject expert university faculty members and doctorate students. The instrument was reviewed by subject matter faculty members and doctoral students researching project management for clarity in its content and instructions. Faculty and doctoral students provided input, which resulted in a succinct and final version of the survey. In order to fix the questionnaire survey's face validity, we tweaked the questionnaire's wording and pinpointed places where it could be enhanced.

Measurements

Critical success factors

In this study, we use four critical success factors: (i) organizational factors, (ii) team factors, (iii) technical factors, (iv) communication factors and their effects on the progress of renewable energy projects of Pakistan. Moreover, in this study, we test the mediating effect of despotic leadership in the relationship between CSFs and PS.

For the measurement of communication factors, we used three items, and the items were adopted from E. Y. Li (1997), Prabhakar (2008), and Sudhakar (2012). Sample items are “The project team has an effective communication channel” and “The project manager gives great motivation to the worker to work hard at the project site.” Cronbach's alpha must be greater than 0.70 to be considered appropriate. The results of this study indicate the 0.700 alpha value of the communication factor. So, the items which we use in the research questionnaire are adequate.

A total of 5 items were used for the measurement of team factors, and these items are adopted from (Prabhakar (2008); Sudhakar (2012)). Sample items are “Our project team members having high competence and expertise” and “Our organization provides support and empowers the project team.” The accepted value of Cronbach's alpha is greater than 0.70; the results of this study indicate the 0.863 alpha value of the team factors. Therefore, the items which we use in the research questionnaire are reliable.

In this study, the items of the technical factors scale developed by Prabhakar (2008) and Sudhakar (2012) were used. Sample items are “The project manager assigns the technical

tasks to the project team” and “The project participants also face problems during technical implementation projects.” The standard Cronbach's alpha value is greater than 0.70. The results of this study indicate the 0.739 alpha value of the technical factors. So, the above value indicate that the technical factors items used in this study were reliable.

For the measurement of organizational factors, we used three items at a 7-point Likert scale. Sample items are “Legal environment, and community involvement effect the project success” and “Continuity changing of government policies negatively affect the project work.” The accepted value of Cronbach's alpha is greater than 0.70. This study indicates the 0.847 alpha value of the environmental factors, which means the items used in the environmental factor were reliable.

Despotic leadership

In this study, the items of the despotic leadership scale were developed by De Hoogh and Den Hartog (2008). The research items were measured with a 7-point Likert scale. Sample items are “my supervisor expects subordinates to absolutely obey” and “my supervisor is bossy, and he or she acts like a tyrant.” The accepted value of Cronbach's alpha is greater than 0.70; the results of this study indicate the 0.781 alpha value of the despotic leadership.

Project success

The items of project success were adopted by Wang et al. (2020). A total of 7 items were measured on a 7-point Likert scale. Sample items are “We completed our projects within the budget allocation” and “We fulfill the customers and stakeholders demands and requirements with the high quality in the project.” The standard Cronbach's alpha value is greater than 0.70; the results of this study indicate the 0.861 alpha value of the project success. So, the above value indicates that project success items used in this study were up to acceptable standards.

Sampling and data collocation

In this study, we select Pakistan as an emerging country to collect data. Two main reasons were to collect data from Pakistan. First, the majority of the studies related to despotic leadership practices and renewable energy-based projects have been conducted in developed countries, and relatively few studies have been conducted in emerging countries like Pakistan. Second, despotic leadership practices are common in emerging countries, and most of the subordinates working in renewable energy-based project organizations are not satisfied with their jobs. Therefore, the results of this study are also

useful for renewable energy-based organizations located in emerging countries around the world.

However, using the questionnaire survey approach, data were collected from the project directors project managers, functional managers, and team leaders working in the renewable energy project of Pakistan. In this study, initially, a total of 750 survey questionnaires were circulated, and from these, 551 questionnaires were received and 35 castoffs due to incomplete information that leaves us with 516 responses for the final analysis of this research. The respondent in this research majority were male, around 64.9%, and females are 35.1%. It is indicating that in Pakistan, mostly men are working in renewable energy based organizations. Similarly, the respondents working experience in this research majority were 5–10 years of experience, around 60.76%, 10–15 years of experience were 30.87%, and above 15 years were 8.55%. Also, team leaders are more than the target population, which were 48.8%, the project directors were 16.37%, the project managers were 20.7%, and the functional managers were 30.4%. The vast majority of subjects held as an undergraduate were 78.1%, and post-graduate were 21.9%. The detailed sample characteristics are presented in Table 1.

Data analysis

Reliability and validity

In this research, we applied confirmatory factor analysis (CFA) to measure the conceptual model. CFA is the technique of analysis where the data related to (SEM) structural equation modeling is analyzed. We measured each construct’s reliability, convergent, and discriminant validity to determine overall measurement model fitness. The fitness of the model was ensured up to the proposed threshold standards. The items having low standard values were removed after numerous

trials perform to achieve the proposed level. The proposed value for the reliability index is 0.70 at Cronbach’s alpha, rho_A, and composite reliability (Hair et al. 2019). Factor loading standard value is above 0.70; it is also accepted at above 0.60 if AVE is more than 0.50 (Rasool et al. 2020). We measured all the constructs as per the standard values. Table 2 presents all variables’ reliability indexes, and all are greater than 0.70, while the AVE is greater than 0.50.

The discriminant validity of all reflective constructs was measured applying HTMT (heterotrait-monotrait) approach. According to Hair et al. (2019), HTMT is better than Fornell and Larcker test for discriminant validity (Rasool et al. 2021). Henseler et al. (2015) suggested that HTMT new approach is suitable for measuring the discriminant validity. The HTMT is the approach where the items loading values are correlated across the constructs related to the geometric (mean) of the average to measure the same constructs. The standard value for HTMT is less than 0.90, which suggested that discriminant validity is appropriate. This HTMT approach has been applied in this study. Table 3 displayed the values of HTMT on each of the constructs, which is less than 0.90, which means the discriminant validity was suitable.

Descriptive analysis

Table 4 presented the details of descriptive statistics of the survey respondents. The participants have recorded their responses on a 7-point Likert scale. The range of the responses mean was from 3.908 to 4.704, and the range of standard deviation was from 1.105 to 1.437.

Hypothesis testing

Direct effect

In this study, we applied bootstrapping mechanism (1000) through SmartPLS 3.2.2 to test the hypothesis. Table 5 represents the results of direct effects demonstrates in the theoretical framework significant value. The outcomes indicate that in the direct relationship, TF and CF ($\beta=0.382, p<0.05$; $\beta=0.209, p<0.05$) have a positive and significant relationship with PS. At the same time, OF and Tech F ($\beta=0.018, p>0.05$; $\beta=-0.077, p>0.05$) were insignificant in the direct relationship with PS. Moreover, DL has a positive and significant relationship with PS ($\beta=0.283, p<0.05$), which supports H2.

Mediated effects

To examine the mediating effects of despotic leadership, we have examined the indirect effects of CSFs on PS. The indirect effects are presented in Table 6. The outcomes indicating that the indirect relationship between OF and PS ($\beta = 0.009, p > 0.05$) through despotic leadership is not significant. Thus,

Table 1 Demographics

Characteristics	Category	Frequency	Percentage
Gender	Male	335	64.9
	Female	181	35.1
Working experience	5–10 years	313	60.76
	10–15 years	159	30.87
	Above 15 years	44	8.55
Positions	Project directors	56	16.37
	Project managers	107	20.7
	Functional managers	157	30.4
	Team Leaders	252	48.8
Education	Post-graduate	113	21.9
	Undergraduate	403	78.1

despotic leadership is not mediating the relationship between OF and PS, which is not supporting H3a. In addition, the mediation effects of despotic leadership between TF and PS ($\beta = 0.109$, $p < 0.05$) were positive and significant. So, despotic leadership positively mediates, which supports H3b. However, we identify the positive and significant relationship in the indirect relationship of despotic leadership between the relationship of technical factors and project success ($\beta = 0.022$, $p < 0.05$), which supports H3c. Finally, we test the indirect relationship between CF and PS ($\beta = 0.158$, $p < 0.05$) through despotic leadership. The results confirmed that despotic leadership positively and significantly mediates, which support H3d. Hence, H3b, H3c, and H3d were accepted, and H3a is not accepted. Moreover, the path coefficients of all constructs in the model is also present in Figure 2.

Table 2 Reliability convergent validity

Measures	Factor loading	Alpha	rho_A	CR	AVE
Communication factors		0.700	0.748	0.828	0.621
CF1	0.632				
CF2	0.846				
CF3	0.865				
Team factors		0.863	0.866	0.902	0.648
TF1	0.764				
TF2	0.726				
TF3	0.848				
TF4	0.870				
TF5	0.809				
Technical factors		0.739	0.749	0.835	0.560
Tech1	0.722				
Tech2	0.791				
Tech3	0.677				
Tech4	0.795				
Organizational factors		0.847	0.981	0.906	0.763
OF1	0.882				
OF2	0.942				
OF3	0.789				
Despotic leadership		0.781	0.787	0.859	0.605
DL1	0.829				
DL2	0.762				
DL3	0.695				
DL4	0.818				
Project success		0.861	0.871	0.893	0.546
PS1	0.691				
PS2	0.669				
PS3	0.713				
PS4	0.717				
PS5	0.763				
PS6	0.847				
PS7	0.760				

Discussion

Prior studies indicate that CSFs have attracted the attention of many researchers (Sudhakar 2012; Westerveld 2003; Williams 2016). To the best of the authors' knowledge, this is a pioneer study investigating the impact of CSFs on the success of renewable energy projects, particularly when despotic leadership is taken as a mediating variable.

First, we investigate the connection between CSFs and project success. This study discussed four dimensions of CSFs, such as organizational factors, team factors, technical factors, and communication factors and their effects on renewable energy project success. The outcomes indicate that in the direct relationship, organization factors and technical factors were insignificant in the direct relationship with project success. At the same time, team factors and communication factors have a positive and significant relationship with project success. Firstly, in this study, the authors test the relationship between organizational factors and project success. So, the results confirm an insignificant relationship between organizational factors and project success that does not support H1a. Acharjee et al. (2018) and Wüste and Schmuck (2012) also confirm that organizational factors insignificantly impact the project success. Secondly, in this study, we test the relationship between team factors and project success, and our results confirm that team factor has a significant and positive relationship with project success, which supports H1b. Shrnhur et al. (1997) and Maqbool (2018) conduct a survey among project managers and found that team factors have a positive relationship with project success. Thirdly, we focus on the relationship between technical factors and project success. The results of this study indicate that technical factors and project success have an insignificant relationship, which supports H1c. Similarly, Maqbool (2018) examined 272 personnel associated with Pakistani organizations, and the outcomes of this study indicate that technical factors partially influence the success of the projects. Fourth, we test the relationship between communication factors and project success. The findings of this study show that, in the sense of Pakistan project-based organizations, the above relationship is insignificant. Doloi (2009)

Table 3 Discriminant validity (HTMT)

Sr. no.	Constructs	1	2	3	4	5	6
1	Despotic Leadership						
2	Communication factor	0.890					
3	Organizational Factor	0.132	0.206				
4	Project Success	0.733	0.585	0.112			
5	Team Factor	0.708	0.330	0.079	0.637		
6	Technical Factor	0.551	0.358	0.063	0.337	0.629	

Table 4 Descriptive analysis

Factors	N	Minimum	Maximum	Mean	Std. deviation
Communication factor	516	1.50	7.00	4.704	1.105
Team factor	516	1.33	7.00	4.237	1.340
Technical factor	516	1.33	7.00	4.442	1.251
Organizational factor	516	1.00	7.00	4.405	1.159
Project success	516	1.00	6.44	3.908	1.288
Despotic leadership	516	1.29	6.71	4.564	1.437

and Holland and Light (1999) support the results of our study; their results confirmed that the communication factor is not significantly associated with the success of the project.

Second, we test the relationship between DL and PS. The results indicate that DL has a negative impact on project success, which supported H2. The outcomes of this research are also supported by the earlier studies (Abbas and Sağsan 2019; Nauman et al. 2018). Similarly, to maintain leaders’ image and display the advantages of power, despotic leaders often show a strict and autocratic side to their employees, which makes employees feel uneasy and distant (Cheng and Wang 2015). On the other hand, the DL will destroy the fair atmosphere of the project, and they tend to promote the insiders who are ingratulatory rather than use people according to their ability (De Clercq et al. 2019).

Third, to examine the mediating effects of despotic leadership, we have examined the indirect effects of CSFs on project success. The outcomes indicated that despotic leadership is not mediated between organizational factors and project success in the indirect relationship. However, despotic leadership is negatively and significantly mediating between three factors (team, technical, and communication) of CSFs and PS, which supports H3. So, the findings also confirmed that despotic leadership reduces project success. Previous studies also support our results (De Clercq et al. 2020; De Hoogh and Den Hartog 2008; Sarwar et al. 2017). Finally, this is forerunner research that applies the influence of CSFs on the success of renewable energy based projects in the vicinity of Pakistan. Especially when despotic leadership is viewed as a mediating variable, suggesting that this is a novel contribution, therefore, the large number of failure renewable energy projects worldwide is alarming, and the outcomes of mediation would help the policymakers minimize the projects’ failure.

Conclusions

The current research probes how critical success factors (CSFs) can influence the project success (PS), directly and indirectly, using the despotic leadership (DL) as mediating variable. Critical success factors with multiple dimensions, such as organizational factors, team factors, technical factors, and communication factors, were used in this study. The outcomes demonstrate that organization factors and technical factors were insignificant in the direct relationship with project success. Similarly, team factors and communication factors have a positive and significant relationship with project success. The results of this study support the literature, which indicates that the project-based organizations are efficiently used their critical success factors to improve the success of the projects. Through a literature review and case studies, this research established many important success factors. These success factors are assessed, optimized, coded, and then categorized into four main CSFs. Among these four factors, two factors, i.e., team factors and communication factors, were dynamic for projects success.

Moreover, this is the first and novel research indicating that team factors and communication factors enhance project success and that despotic leadership reduces the success of renewable energy projects. Furthermore, this study shows that project managers, project directors, and project team leaders are diverse, but their success relies on one team building and effective communication. So, it is recommended that the project leaders motivate and take care of their subordinates and effectively communicate with the internal and external stakeholders. These factors enhance the sustainable success of their projects. However, despotic leaders go beyond controlling and self-serving behaviour and are engaged in abusive and

Table 5 Path model results (direct effects)

Relations	Coefficients	Mean	SD	T statistics	P values	Results
OF → PS	0.018	0.019	0.032	0.546	0.585	Insig
TF → PS	0.382	0.381	0.058	6.567	0.000	Sig
Tech → PS	−0.077	−0.073	0.049	1.582	0.114	Insig
CF → PS	0.209	0.212	0.055	3.814	0.000	Sig
DL → PS	0.283	0.282	0.055	5.197	0.000	Sig

Table 6 Path model results (indirect effects)

Relations	Coefficients	Mean	SD	T statistics	P values	Results
OF → DL → PS	0.009	0.010	0.009	1.057	0.291	Insig
TF → DL → PS	0.109	0.109	0.023	4.720	0.000	Sig
Tech → DL → PS	0.022	0.022	0.010	2.184	0.029	Sig
CF → DL → PS	0.158	0.157	0.032	4.979	0.000	Sig

unethical acts. These acts drain the project resources and heighten emotional exhaustion, which reduces the success and sustainability of the projects. The mediating variable despotic leadership strengthens our study because previous researchers on leadership discuss the positive side of leadership. In this paper, we have discussed the negative side of leadership, which indicate the negative impact of DL on PS. This study concludes that despotic leadership practices are common in the project-based organization of emerging countries like Pakistan. So, most of the subordinates are not satisfied with their jobs that decreases the project success.

The above-mentioned outcomes have useful implications for academic researchers, practitioners’ policymakers, and strategists. Particularly in emerging countries like Pakistan, renewable projects are still in the developing stage. Based on the results, this study recommends some strategies for project-based organizations. First, the organizations should encourage leaders to seek group resources as their primary

consideration, which requires several preconditions such as strong team culture, an interdependent team structure, and strong capabilities of subordinates. Second, the project-based organizations motivate the project team and offer them some performance-based incentives besides creating a knowledge-sharing environment. It will greatly impact on project cost, duration, and the success of the project. Third, adopting information technology, the project-based organizations introduce modern communication networks. Therefore, modern communication networks will help the project managers to better communicate with the project stakeholders.

This study will help the project-oriented organizations in Pakistan to adopt those CSFs to augment the succession of renewable projects. Indeed, effective decisions (in a guaranteed and well-managed way) could be initiated by inspecting the results of this study to choose the appropriate project and in the improved management of those previously boarded upon. A successful future renewable energy project with

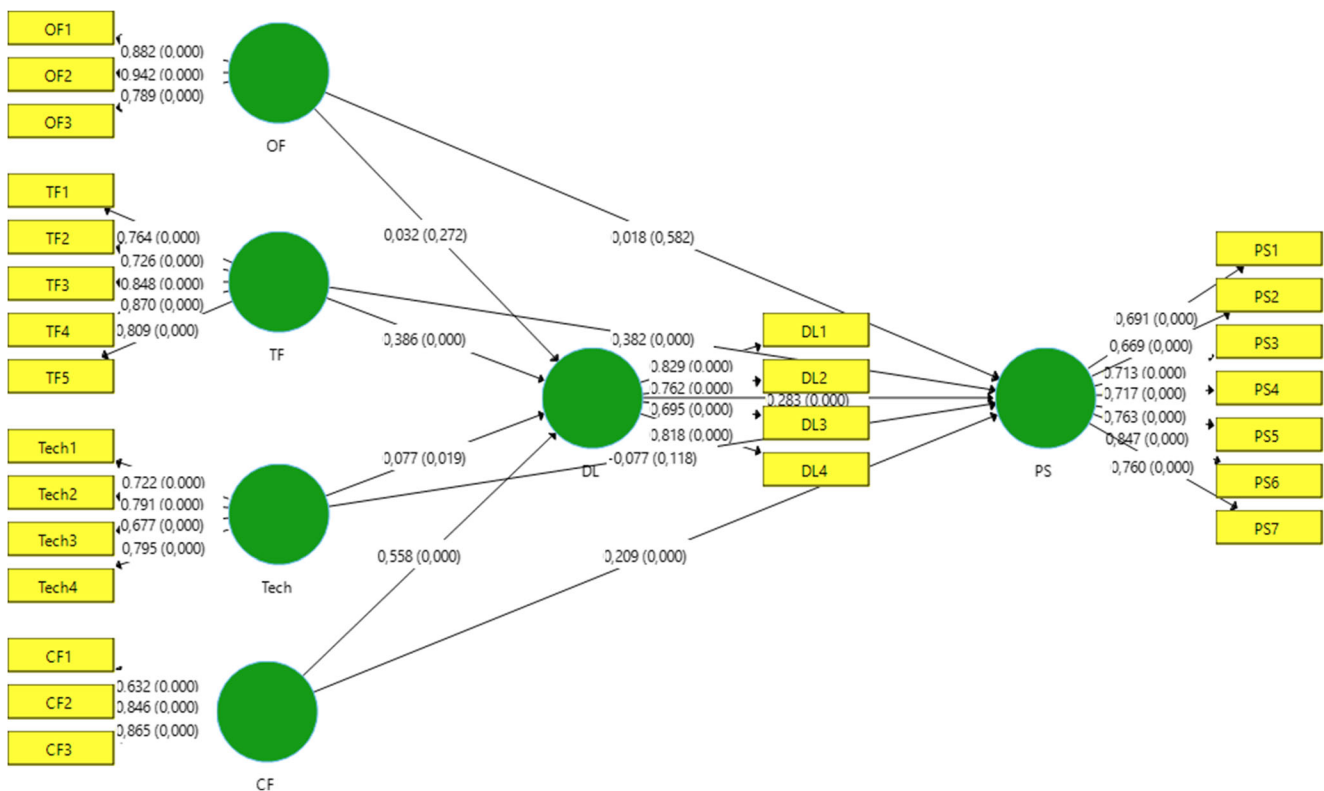


Fig. 2 Path coefficients of the theoretical framework

accelerated excellence could be based on those identified CSFs. However, it is observed that this research has facilitated to elaborate on the point of view of Pakistani energy specialists and how they estimate the CSFs for renewable energy projects in Pakistan. The level of this study is amateur because it is the first study, and this study was conducted at the national level. In the future, such a study must be vigilant at the global level, and it must be applied for ensuring success in both sustainable and renewable projects.

Author contribution Samma Faiz Rasool conceptualized the research idea and drafted the paper. Bawei Wang and Yan Zhao supervise this research project. Madeeha Samma work on the literature review and research methodology. Javed Iqbal helps in data collection and data analysis.

Funding This paper is financially supported by the International Mobilities for Research Activities at the University of Hradec Králové, Czech Republic (Grant No. CZ.02.2.69/0.0/0.0/18_O53/0017841). It is also supported by the National Natural Science Foundation of China (Grant No. 71673179).

Data availability Not applicable.

Declarations

Ethics approval Not applicable.

Consent to participants Not applicable.

Consent for publication Not applicable.

Competing interests The authors declare no competing interests.

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