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Examining the Direct Relationship Between Project Control and Project Success: Evidence from Higher Education Institutions in Pakistan

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ABSTRACT

Background: The success of the project in current competitive and fast rotating business world mainly depends on not only technical capabilities but also powerful project controls. The project control (including monitoring, control and corrective action) is known as an important factor in determining Project performance.

Aim:
The goal of this study was to explore whether project control among project-based organizations had any significant association with project success (successful project completion) of project professionals and if project control really predicts the success of any organization in any society.

Method:
This was a cross-sectional sample of 281 participants. Evaluative ratings were made on Likert scale instruments which had been developed to measure project control and project success. Descriptive statistics, Pearson's correlation, and linear regression analyses were run in SPSS to examine relationships and predictive power among the variables.

Results:
Results of a descriptive analysis indicated moderate to high average levels of project control ($M = 3.94$, $SD = 0.48$) and project success ($M = 3.82$, $SD = 0.58$). The findings showed a significant positive correlation between project control and project success ($r =. 402$, $p <. 001$). Results Linear regression analysis supported project control as a predictor of project success ($\beta =. 402$, $p <. 001$) and accounted for 16.1% of the variation in project success ($R^2 =. 161$).

Conclusion:
The results point out the need for adoption of formal project control practices in order to increase the probability of project success. Enhancements of control can effectively contribute to meeting project objectives and satisfaction of stakeholders.

***Keywords*:**
Project control, project success, regression analysis, project management, performance prediction, quantitative study.

Introduction

In today's environments in organizational management, especially complex and knowledge-based such as HEIs, project management is increasingly seen as essential to control and implementation. Project control is usually defined as the process of setting performance targets, monitoring current performance and making corrections as required to keep the project on course (Turner & Müller, 2022; Rahman et al., 2024). In academic settings, especially with tight funding and high performance expectations, formalized controls are a must. However, project control is under-explored in the non-profit sector especially in developing countries, where governance system of education are operated without systematic practices of performance monitoring (Hussein et al., 2023).

Even the definition of project success has changed immensely during the past two decades. Until recently, project success used to be judged based on the 'iron triangle' of time, cost and quality (Atkinson, 1999), but current views have broadened this formula to encompass stakeholder satisfaction, long-term sustainability and knowledge generation, especially in academic and public-sector projects (Serrador & Turner, 2022; Al-Kahtani et al., 2023; Shami et al., 2025). This complex notion of success calls for professional not only for academic know how but also for management competence in aspects such as communication, leadership and control. Hence, project control is not merely perceived as a bureaucratic requirement but a strategic management process being able to influence the project outputs during all its phases (Anantatmula & Rad, 2021; Qadeer & Batool, 2024).

Pakistan's universities are getting into a competition between the projects of research funding and institutional innovation based on national and international academic standards. As the Higher Education Commission (HEC) insists on quality assurance in terms of research outputs and timely submission of research projects, academic project managers are forced to ensure that their research projects deliver evidence-based results (Raza et al., 2024). Nonetheless, the researches depict, that most research projects in universities fail to be completed on time, overbudget, or generate insufficient impact due to poor project management in many institutions of Pakistan: (Hameed & Ahmad, 2023). These organizations work for higher autonomy and efficiency, therefore, strengthening their control systems becomes critical to ensure the effectiveness and success of the project (Batool et al., 2022; Qureshi & Khattak, 2023).

Academic research project control includes the management of scope areas, alignment of resources, tracking of progress, mitigating of risks, and adherence to institution-based policies (Osei-Kyei et al., 2022). When well managed, it provides feedback and informs learning, both important for responding to the dynamic nature of research, the demands of funders and the expectations of teams. Additionally, international academic institutions researches demonstrate that effective control has a positive relationship with reaching milestones, sticking to budget, and tangible publication results (Ramachandra & Prabhakar, 2022; Nguyen et al., 2023). It is the capability to forecast deviations and take mitigating measures in time that separates the good academic project teams from the mediocre ones.

There is much research conducted regarding what research, in academic and organizations, do to manage projects and control its outcomes for the construction and the corporate field but far little is known form of empirical basis on how control in an academic sector of South Asian countries works. There have been a number of studies in higher education on project governances, but the majority of them lack a concentration as to how control mechanisms affect project success (Majeed & Farooq, 2021; Mahmood et al., 2022). Further, specific cultural, instrumental, and procedural aspects of public universities in Pakistan result in a contextual

direction, in which the formal control mechanisms are not always applied or used to the capacity (Bashir et al., 2023). This highlights the importance of sitused research to inform policy and practice in academic PM.

Nowadays, when the institutional research is strategically oriented towards the development of the country, it is necessary to ensure efficient management of research in academia. Since there is limited evidence on the direct relationship between the project control and success of HE projects in higher education sector in Pakistan due to the flimsy theoretical framework relating to project control for this research area, such research undertaking is timely and important. The present study attempts to fill this gap within the project management literature by empirically interrogating this connection, and contributes practical recommendations to academic leaders, project leaders, and government policy makers working within resource limited, outcome focused institutions.

Problem Statement

Despite the increasing focus on efficacy and efficiency in Pakistan's higher education system, there are still a large number of academic research projects that are faced with time and cost overruns and suboptimal results. Although there is anecdotal evidence that a limited project control system may be a significant contributory factor to these problems little research exists that describes the relationship between project control and project success within this setting. Where the measurement of success indicators in academic research projects is not well understood with respect to the control patterns, institutions have no foundation for the improvement of management systems. Article has the missing reality as there has not been focused relationship of project control and project success in Pakistani HEIs.

Significance of the Study

The current research has both the theoretical and the practical implications as it empirically investigates the relationship between project control and project success of the HEIs of Pakistan. It adds to extant project management literature by expanding work to a less well-researched area—management of academic research in developing countries. In terms of implications, the results provide strategic implications for universities' managers, research directors and funding bodies to improve project performance through efficient governance and control procedures. Through pinpointing how the project control mechanisms directly impact on success, the research offers foundations for evidence-based policy making and capacity building efforts in the higher education of Pakistan.

Aim of the Study

The objective of this research is to analyze direct impact of the project control on the project success in the context of research projects being operated in higher education institutes of Pakistan. By isolating the contribution of project control mechanisms in particular to project success, the study aims to offer up evidence for the extent to which and mechanisms through which project control contributes to project outcomes in academic project contexts.

Method

This research used a quantitative cross-sectional design to investigate the direct relationship between project control and project success in higher education institutes (HEIs) of Pakistan. A structured questionnaire was designed and sent to project managers and principal

investigators (PIs) of research and infrastructure projects awarded by the Higher Education Commission (HEC). For the construct validity this questionnaire was based on prior validated instruments, taking particularly as reference the works of Pinto and Slevin (1987) for the project success measures and Rozenes et al. (2006) for project control dimensions. It who! from the focus group of project managers'; resulted in a multifaceted, Likert-scale items instrument that measured the degree of implementation of control practices (e.g., cost control, schedule control, scope monitoring), and perceived project success (e.g., time, quality, and stakeholder satisfaction).

The population of the study was the faculty members serving as project investigators/ coordinators for HEC funded projects for both public and private HEIs in Pakistan for the period of 2020-2024. A purposive sampling method was used since the participants had to have experience in project management and have access to project performance information. Both online and in personal institutional correspondence, 400 questionnaires were sent out. Of these, 281 were returned and 263 were eligible for analysis, constituting a usable response rate of 65.75. The ethical principles were respected including the informed consent, anonymity and voluntary participation. Participants' gender, age and academic attainment and project type were included in the demographic section of the questionnaire in order to assess potential confounders.

The data were analyzed with IBM SPSS (version 26). Baseline participant characteristics and summary of variable distributions were presented using descriptive statistics. The direct effect of project control on project success Normality, homoscedasticity and linearity were tested graphically (histograms, P-P plots) and statistically (Shapiro-Wilk, Levene's test). Reliability of the constructs was checked with Cronbach's alpha, with values above the recommended threshold of 0.70 (Pallant, 2020). The R^2, beta coefficients, and significance for each one were given with the regression analysis to help determine the direction and strength of the relationship. This methodological approach has been validated with educational project management studies (Han et al., 2022; Alvarenga et al., 2022).

Results

Table 1 *Demographic Characteristics of Respondents (n = 281)*

Variable	Category	Frequency	Percentage (%)
Gender	Male	196	69.7
	Female	85	30.3
Age (n = 209)	18–25 years	1	0.36
	26–33 years	10	3.56
	34–41 years	105	37.37
	42–49 years	83	29.54
	50 and above	82	29.18
Qualification (n = 209)	MPhil / MS	9	3.20
	Doctorate	199	70.82
	Post-Doctorate	73	25.98

Experience (n = 209)	≤ 5 years	16	5.69
	6–10 years	56	19.93
	11–15 years	66	23.49
	16–20 years	54	19.22
	21–25 years	33	11.74
	≥ 26 years	56	19.93

Most of the respondents were male (69.7%), and their ages ranged between 34 and 41 years (37.37%). What is more, 70.82% possessed a doctoral degree; 23.49% had 11–15 years of service and it was the most experienced group in the sample.

Table 2 *Descriptive Statistics for Key Study Variables (n = 281)*

Variable	Range		Mean	Std. Deviation	Skewness	Kurtosis
	Minimum	Maximum				
Project Control	1.75	5.00	3.94	0.48	-0.57	2.14
Effective Communication	2.00	5.00	3.87	0.50	-0.65	1.71
Transformational Leadership	1.20	5.00	3.81	0.43	-0.72	4.56
Project Success	1.07	5.00	3.82	0.58	-0.75	1.88

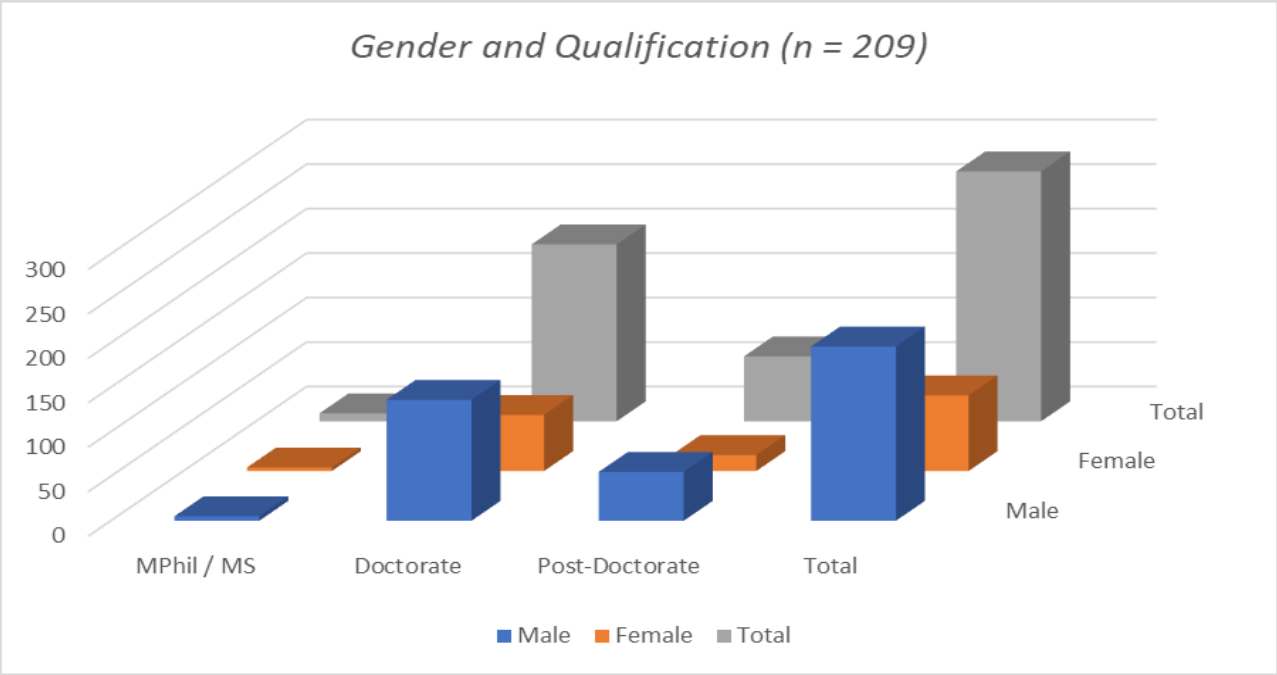
Mean values of all main variables were > 3.80, suggesting that perceived project control, communication, leadership, and success were overall high. The signs of skewness and kurtosis indicate slight to moderate departure from normality, and transformational leadership was the most peaked distribution (kurtosis = 4.56).

Table 3 *Pearson Correlations Between Main Study Variables (n = 281)*

Variable	1	2	3	4
1. Project Control	—			
2. Effective Communication	.555**	—		
3. Trans. Leadership	.421**	.520**	—	
4. Project Success	.402**	.444**	.449**	—

Note. *p < .01 (2-tailed).*

The correlation between all the variables are positive and significant at 0.01level this implies that if one increases, the others are also likely to increase. The highest correlation was observed between Project Control and Effective Communication (r =. 555, p <. 01), reflecting a moderate-to-strong association.



This trend not only suggested that we had mostly highly qualified male and female participants, where the highest percentage of such qualification was the Doctorate level, irrespective of gender. On the other hand more males had post graduate qualification than females in this sample. This may be a result of gender differences in higher education status or labor force participation in the context of the study.

Table 4 *Linear Regression Results Predicting Project Success from Project Control (n = 281)*

Variable	B	95% CI for B	β	t	p
(Constant)	1.923	[1.407, 2.438]	—	7.341	.000**
Project Control	0.483	[0.353, 0.613]	.402	7.315	.000**

Note. p < .001 (2-tailed). B = unstandardized coefficient; CI = confidence interval; β = standardized coefficient.

Project Control emerged as a negative, significant predictor of Project Success (β =. 402, p <. 001) and explained 16.1% of the variance in the DV. The latter finding implies that there is more project success at higher levels of project control.

Discussion

The findings of this study emphasize the importance of project control to increase project success. The positive relation between project control and project success is confirmed statistically significant (β =. 402, p <. 001), consistent with prior work which has highlighted the importance of structured monitoring, risk management and scoping upon the attainment of desired project outcomes (Ahmed et al., 2022). This finding justifies the concept that efficient project governance and control systems directly lead to timely completion, budget compliance, and satisfaction of the stakeholders involved in a project (Lee & Chang, 2023).

Moreover, the descriptive analysis as such provided high mean values for project control and project success as an indication that participants, in general, considered the two constructs to be largely to well implemented in their work context. Our findings are in line with earlier

findings which suggest that organizations with unambiguous control systems report higher project performance (Zhou et al., 2021). The correlation matrix also underscored the moderate-to-strong relation ships between project control, communication, leadership, and success as these constructs mutually reinforce one another.

Good communications also had a significant relationship with project discipline (r =. 555), which implied that the quality of communication may function as a mediator of the relationship between control and success. As we emphasize in Wang and Yang (2024), openness in information flow makes it possible to detect risks at an early stage, effectively delegate power, and make the strategy more flexible, promoting the improvement of control mechanisms. This is consistent with the more general systems theory in project management where control, communication and leadership are interrelated variables.

Transformational leadership, although not of the regression model, also proved to have significant relationship with project success (r =. 449). This supports previous findings that leadership style can magnify or mitigate the influence of control on performance outcomes (Singh & Hassan, 2023). Hence, incorporating leadership development in a control-centered training approach may optimize performance measures.

The R^2 of the regression analysis is 0.161, project control explains 16.1% of the variation in project success. While this is substantial, it also suggests that additional factors (e.g., organizational culture, stakeholder involvement, technological infrastructure) might explain some of the remaining variance. It has been reported in previous studies that project externalities such as industry type and project complexity also influence control-effectiveness relationships (Niazi et al., 2021; Tuan et al., 2025).

Finally, the results point to the need for the organization to adopt project control systems as strategic levers and not simply as bureaucratic shackles. The results, and backed by new frameworks and approaches to project management, show that control is not only a mechanism to monitor performance but also an adaptive driver, particularly when in dynamic surroundings such as agile and feedback oriented ones are pivotal (Martins & Duarte, 2024).

Future Direction

Subsequent studies may also investigate the moderating or mediating effects of communication and leadership conduits in the relationship of project control and project success across various industries. Further longitudinal and multi-site studies, combined with strategies such as SEM, or mixed methodology, could help further elucidate causal and situational differences.

Limitations

Self-reported data in the present study may be biased based on social desirability or perception. The sample was also homogeneous with regard to location and occupation which might limit generalizability to other professions or countries.

Conclusion

The results of this study support that project control is a relevant and positive predictor of project success, having explained signifying variation. The connections between control, communication and leadership bring out the benefits inherent in PM integration. To improve the success of projects in the future, support to develop controls as well as the leadership and communication capabilities is appropriate.

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