

Article

How Team Voice Contributes to Construction Project Performance: The Mediating Role of Project Learning and Project Reflexivity

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Abstract: Voice behavior has been widely recognized as having various benefits for organizations, while researchers seldom notice its consequences in construction projects. Against this context, this study empirically explores the impact path of team voice on project performance in construction projects from a multi-team system (MTS) perspective. Considering the essence of voice behavior is to provide information, this study introduces the input–process–outcome (IPO) framework to verify how team voice can affect project performance by influencing project learning and project reflexivity. The online survey method, monetary incentive method, and chain-referral sampling method are adopted to distribute the designed questionnaire. A total of 184 data points from completed construction projects in China supported the research conclusion by adopting the partial least squares structural equation modeling (PLS-SEM) technique. Project learning and project reflexivity positively mediate the relationship between team voice and project performance in construction projects. Specifically, team voice can first positively influence project learning and project reflexivity, which both have a positive relationship with project performance. For theory, this study opens the black box between team voice and project performance in the context of construction projects by unveiling the mediating path of project learning and project reflexivity, which also enriches the literature on voice behavior and expands its application. Furthermore, this study provides one new perspective for MTS knowledge by adopting the IPO framework to explore the underlying mechanism between the focal team and the overall team performance of the MTS. For practice, this study has a directive function for construction project management and MTS management, while providing reminders for policymakers, researchers, and practitioners about the significance of project learning and project reflexivity on project performance.

Keywords: construction project; project management; team voice; project performance; project reflexivity; project learning



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1. Introduction

In the construction industry, the project is the most common organizational form, which is mainly composed of teams from various organizations and disciplines, such as the owner, designer, contractor, sub-contractor, consultant, and supervisor [1,2]. Although participants of a construction project may come from divergent enterprises with different performance expectations and coordination mechanisms, all involved teams share the same objective of promoting project success; thus, the project can also be referred to as a multi-team system (MTS) [2,3]. In an MTS, due to the interdependence among teams, teams must interact with each other to achieve their goals; this process is referred to as team boundary spanning. Team boundary spanning is defined as the actions of gathering significant resources and support conducted by a team [4]. As all involved teams have an embedded relationship with the whole MTS, when a single team intends to obtain

resources from other teams, it is necessary to seek support from the whole MTS to meet their needs. This boundary spanning originating from a single team can ripple through to the entire project team, enabling the construction project to function as a whole [3]. In order to distinguish the observed single team from other involved teams in one MTS, this study named the interviewed team as the “focal team”. In the domain of the MTS issue, “focal team” is a common word without a fixed definition. Some previous studies use “focal team” to represent the team with core positions or prominent roles in an MTS [5,6]. Meanwhile, some existing research use “focal team” to distinguish a specific single team from another team in the MTS under the role perspective [7–9].

Compared with the relatively stable and simple structure inside a single organization, it is more complex to manage a temporary and multi-team project, as the participating teams may have varying capacities to influence the whole outcome [10–12]. To increase efficiency, scholars have conducted lots of research, including communication, conflict, motivation, and so on, wherein voice behavior refers to the discussion and communications between team members within the work territory [13]. As a kind of altruistic organizational behavior, voice behavior frequently occurs in organizations, and it has been proven to have various benefits, which drive it to become one of the research hotspots [14–16]. The essential premise of all the prior discussions of voice behavior is based on the nonnegligible advantages of speaking up, where silence brings adverse effects [13]. In view of this, the subsequent impacts of voice play a decisive role in voice research. With regard to all kinds of projects, project performance is the most intuitive expression of outcome for the entire project team and a common goal of both academia and the industry; it is significant to empirically demonstrate the impact of voice behavior on project performance.

It is not new to discuss voice behavior in the construction management field, but most of the previous research studies on voice stand from the individual perspective [17–19]. However, for the MTS, the behavior or viewpoint from the team level is more concerned and influential than that from the individual level [20]. So, the existing evidence of individual voice is insufficient to understand the principles of team voice within an MTS. Compared to the individual voice, team voice in construction projects refers to the focal team’s behavior of raising issues or making recommendations for the whole project team [9]. Although the literature in other fields suggests the positive impact of team voice on team performance [13], the research on whether and how team voice will impact project performance in the construction field is still blank. Considering the particularity of the construction project context, this study aims to clarify the impact of team voice on project performance in construction projects and the underlying mechanism.

Essentially, voice is an act of providing information. According to Liang et al. [21], voice can be categorized into two types, which are promotive voice (i.e., the expression of new ideas or suggestions for improvements) and prohibitive voice (i.e., the expression of concerns or complaints for potential problems). No matter which kind of voice it is, the emergence of a voice or team voice generates dissatisfaction with the current situation and the inclination to change the status quo. Therefore, in a construction project team, when a team voice occurs, in order to manage this information that is aimed to cause changes, a series of subsequent team processes will be generated. Marks et al. [22] defined the team process as “members’ interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioral activities directed toward organizing task work to achieve collective goals”. According to this definition, the independent and spontaneous act of the team voice is the “inputs”, while project performance is the “outcomes”. All team processes ultimately flow towards serving project performance. In summary, the follow-up of team voice in construction projects is crucial for investigating the relationship between team voice and project performance, while its impact path conforms to the running mode of the input–process–outcome (IPO) framework [22].

The IPO framework is a theoretical model of team effectiveness first proposed by McGrath [23], which has been modified and extended by many scholars [24]. It displays the mechanism of team operation, demonstrating how teams can transform team actions

and information into team productivity. The IPO model of team performance has been widely accepted by scholars for discussing, explaining, and exploring team issues [3,24–26]. Considering the inherent multilevel nature of teams, which means that “individuals are nested within team, which in turn are nested in organizations, which exist in environments”, Cohen and Bailey believe that environmental factors, including team and compositional inputs, are also driving factors [24,27]. Therefore, according to the operating mechanism presented in the IPO framework, team voice can ultimately impact the outcome by triggering a series of team processes. Occupying a pivotal role in the IPO framework, team processes usually act as intermediary mechanisms to link variables such as team characteristics with standards such as performance, which also are the means of interdependent teamwork to generate meaningful outcomes [22]. Based on the IPO framework, we cautiously propose our research framework as Figure 1; the figure was drawn by the authors. As shown in Figure 1, team voice can be regarded as the “input”, the consequential factors of team voice can be regarded as the “process”, and project performance can be regarded as the “outcome”.

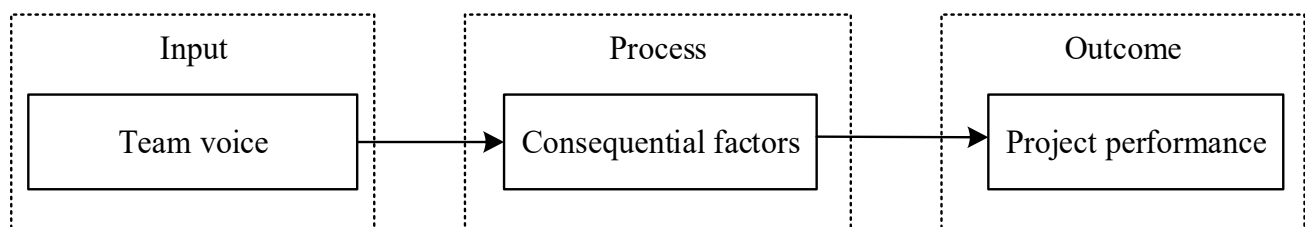


Figure 1. Research framework.

With the application of science and technology, the construction industry is no longer a single labor-intensive industry, but gradually has the characteristics of a knowledge-intensive industry [28]. On account of this, when the focal team expresses suggestions or concerns for the current situation, the construction project team will first conduct knowledge management more efficiently because of the willingness to change from participating teams, in other words, learning. Team learning includes activities of knowledge acquisition, sharing, and combination [29], and it is defined as a continuous process of collective reflection and action [30]. In project situations, this is the team learning of the project, namely project learning. Moreover, team learning can also trigger deep-level learning as a superficial and direct form of learning, which is team reflexivity. Team reflexivity is the extent of the team’s reflection and communication on the team objectives for adjusting [31]. Through project learning and project reflexivity, the whole project team reacts to the team voice, and addresses the dissatisfaction and changing needs. With the guidance of the IPO framework, this study will further validate the causality between team voice and project learning, and team voice and project reflexivity, demonstrating the bridging role of project learning and project reflexivity between team voice and project performance.

Generally speaking, our purpose is to shed light on the impact of team voice behavior on project performance in construction projects. This study aims to address the following three key issues:

Objective 1 Identify how team voice impacts the project performance in construction projects.

Objective 2 Identify the mediating role of project learning between team voice and project performance.

Objective 3 Identify the mediating role of project reflexivity between team voice and project performance.

Concretely, we discuss the aftereffects of promotive team voice (PrmV) and prohibitive team voice (PrhV), respectively. To certify the effectiveness of team voice, we simultaneously measured project learning and project reflexivity as its consequence factors. We collected 184 valid questionnaires from construction professionals through snowball sampling and adopted the partial least squares structural equation modeling technique. The results show

that project learning and project reflexivity mediate the relationship between team voice and project performance.

The theoretical contribution of this study is then three-fold. Firstly, this study unveils the mediating role of project learning and project reflexivity between team voice and project performance, which opens the black box between team voice and project performance in the context of construction projects. Secondly, this study expands the knowledge of team voice through the distinguishable discussion of promotive and prohibitive team voice and the investigation of the team voice's consequences. Thirdly, this study explains how a single team's voice can influence the whole performance in the MTS, providing one new perspective for MTS knowledge. Furthermore, for practice, this study first has a directive function for construction project management and MTS management, then emphasizes the necessity and importance of project learning and project reflexivity for project performance to policymakers, researchers, and practitioners.

2. Theoretical Background and Hypothesis Development

2.1. Team Voice

Voice behavior refers to the expressions and communications of work-related suggestions, ideas, and concerns by employees for improving organizational functions [13]. Generally, the effective utilization of this spontaneous altruistic behavior is comparable to enhancing employee value and human resource efficiency inadvertently in organizations, which indicates the significance of studying voice behavior. Although current research typically perceives voice as a constructive behavior from employees with the motivation of providing a positive contribution to the organization [32–38], the voice-related outcomes still remain conflicting [13] (Morrison, 2011). In this regard, Liang et al. [21] believed that the heterogeneity of previous research results is generated from the differential of delivered information type in voice. So, Liang et al. [21] divided it into two categories in a more fine-grained construct; precisely, the improvement suggestions or ideas on the current situation are identified as promotive voice, while prohibitive voice corresponds to the expression of concerns and complaints about the potential predicaments. To better understand employee voice in a multi-dimensional way, refined conceptual models like Liang's have prevailed in this domain [9,39,40]. In this study, both promotive voice and prohibitive voice are measured simultaneously for more precise conclusions.

Compared with an individual voice, a team voice reflects team members' collective thoughts [20,35] and is more welcomed and respected by organizations, since suggestions proposed by a team are usually more insightful and sensible than those from an individual [20]. Moreover, a "favorable voice climate" will encourage employees to engage more in voice behavior. In other words, when the approval of voice behavior is a shared belief within the whole work group [41], the frequency of voice behavior will increase. Thus, the collective-level belief and voice behavior are inextricably interwoven [42], which demonstrates that research should not be limited to the individual level. Considering most prior research on the consequences of voice behavior focused on the individual level [43–46], this study mainly concentrates on the team level.

Furthermore, most existing research usually sets the general organization form as the research background to observe voice or team voice while treating the special organizational form background as Cinderella [13,47], such as projects, with multi-team scale and temporary nature. However, with its prominent flexibility and economy, projectification has won a dominant position in various fields, such as engineering, defense, and aerospace. It is significant to investigate voice behavior in project-based contexts. Therefore, this paper will explore the consequences of team voice in construction projects to fill the academic gap.

2.2. Project Learning

The advent of the knowledge–economy age is a prelude for knowledge competitions among organizations, especially in knowledge-intensive industries, where knowledge plays a dominant role in maintaining a competitive edge and long-term success for enterprises [48–51]. Organizations rely on employees to create, share and apply knowledge during the work process for utilizing and managing knowledge [52], thus improving competitiveness [53]. Thereupon, team learning, as an effective activity for knowledge sharing and combination [29], has received increasing attention. Edmondson [30] defined team learning as a continuous process of collective reflection and action, and it has been recognized to be the core of organizational change and renewal [30,54]. In the case of the construction industry, each construction project involves a wealth of core knowledge during implementation, and project team members from various disciplines leverage their professional knowledge to launch the construction processes and create new knowledge from their experiences [28]. On these grounds, work on construction projects can be regarded as typically knowledge-based, and it is significant to study team learning for the construction industry. To discriminate the focal team and the whole project team, this study collectively refers to team learning in construction projects as project learning.

2.2.1. Team Voice and Project Learning

Drawing on Social Cognitive Theory [55], when team members acknowledge the dependence of cooperation results under prosocial motivation, they will settle conflicts better, behave in a more pleasant manner, and engage in greater learning [56]. Team voice, which embodies its prosocial and cooperative characteristics [13], involves communication, ideas, and concerns about work issues. These studies suggest a connection between team voice and team learning. Moreover, a familiar and safe environment can enhance individuals' inclination to express opinions for subjective purposes [57,58]. In other words, the emergence of team voice in the workplace insinuates that the focal team feels safe and trusts the whole team, while team psychological security is an important sustainer for team learning [30]. Therefore, we speculate that there may exist an analogous direct relationship between team voice and project learning in construction projects. Specifically, a promotive voice relates to ideas and suggestions for improving current thinking, procedures, and situations [21], and such promotion-focused behavior will stimulate the whole project team to attach more importance to project learning. A prohibitive voice involves concerns about possible problems [21], which will motivate project learning for searching and creating solutions to avoid greater losses. Although prior research can indirectly support our conjecture, there is still a lack of exact empirical investigation on this subject, which is the gap that this study aims to fill in.

Thus, the hypotheses are formulated as follows:

H1: *A promotive team voice will positively influence project learning in construction projects.*

H2: *A prohibitive team voice will positively influence project learning in construction projects.*

2.2.2. Project Learning and Project Performance

Teams need team learning to understand their situation and customers and to effectively arrange team actions, especially considering the challenges and uncertainties faced by many teams [30]. Information gathering, dissemination, interpretation, storage, and retrieval may be accomplished through team learning [59,60]. This facilitates teams to accommodate the changing conditions, optimize work patterns and solve problems, which may ultimately lead to team performance improvement. Considering the benefits and generality of team learning, academia has started to test the empirical relationship between team learning and team performance [61]. Ample proof shows a positive association between learning and performance in organizations [62–65]. Previous studies also suggest learning behavior in teams is positively related to team performance [30,66–70]. In this regard, organizational learning theory states that enterprises generate innovation via

continuous learning and knowledge management [71]. This is probably because team learning fosters shared understanding and common language among team members, which then facilitates the development of new knowledge [72]. So, this study aims to clarify the relationship between project learning and project performance within the context of construction projects.

Thus, the next hypothesis is formulated as follows:

H3: *Project learning will positively influence project performance in construction projects.*

2.3. Project Reflexivity

Self-regulation theory proposes that individuals adjust cognitions and behaviors through the comparison of the current state and expected objectives to increase the success probability; this process is also known as self-regulatory action [55,73,74]. For an MTS, such as a construction project, self-regulatory actions are achieved through team regulatory processes. The team regulatory processes include team monitoring, team goal orientation, and team goal planned speed tracking [75–77], which are all based on team reflexivity. Team reflexivity is defined as “the extent to which group members overtly reflect upon, and communicate about the group’s objectives, strategies (e.g., decision making), and processes (e.g., communication), and adapt them to current or anticipated circumstances” [31]. In other words, team reflexivity can be regarded as the extent of team reflection. There are different depths of reflection [78], including shallow reflection, moderate reflection, and deep reflection. The shallow reflection concentrates on immediate tasks [79], the moderate reflection emphasizes methodological criticism [79], and the deep reflection generally involves cultural norms and value issues [80]. The function of reflection in different depths is not immutable; their importance for a team in different scenarios is various. For specific types of teams, deep reflection may be more important, while for construction project teams, immediate tasks will attract more concern, due to their temporary and urgent nature [81–83]. Based on this, it is necessary to examine team reflexivity in construction projects. To tell the focal team and the project team apart, this study collectively refers to team reflexivity in construction project as project reflexivity.

2.3.1. Team Voice and Project Reflexivity

Considering the team voice can be understood as expressions and communications of work-related suggestions, ideas, and concerns from work teams [13], the information transmitted by the focal team through voice usually can induce reflection and discussion of the project team. After all, all the team actions stem from the common expectation of improving the project performance [2,3]. Especially for construction projects, the promotive voice from the focal team will encourage the project team to make targeted discussions, which can lead to new possible considerations of proposed constructive ideas or suggestions [84,85]. Similarly, although the complaints and concerns recognized as a team prohibitive voice may cause a negative impact on the project team to some extent [86], it can rouse vigilance and provoke the team to rethink the preventive measures of assumptions and practices [84,87,88]. Moreover, a prohibitive voice can even stimulate the emergence of explanations, introspections, and debates in conflicts.

Thus, the hypotheses are formulated as follows:

H4: *A promotive team voice will positively influence project reflexivity in construction projects.*

H5: *A prohibitive team voice will positively influence project reflexivity in construction projects.*

2.3.2. Project Reflexivity and Project Performance

Since the fundamental driver of self-regulatory actions is achieving the set goal [55,73,74], team reflexivity is served as the foundation of the team regulation process and ought to lead to positive outcomes. To verify this conjecture, scholars executed empirical works on the relationship between team reflexivity and team performance, while the conclusions are still ambiguous. Abundant evidence from existing research asserted that team

reflexivity promotes team performance [89–91]; also, a team with higher team reflexivity represents better team performance and information processing [56]. Simultaneously, some researchers suggested team reflexivity positively influences team performance in an indirect way, such as bridging through other intermediary factors, or acting as a moderator of other interfering factors [92,93]. In addition, limited studies claimed there is a negative or even null relationship between team reflexivity and team performance under some conditions [74,94]. The inconsistency of the above conclusions indicates that the impact of team reflexivity on team performance in specific contexts requires empirical data. So, this study takes construction projects as the research background to map the MTS context, which provides further empirical evidence for exploring the impact of project reflexivity on project performance.

Thus, the next hypothesis is formulated as follows:

H6: *Project reflexivity will positively influence project performance in construction projects.*

3. Methodology

3.1. Measurement Development

To examine these proposed hypotheses, a questionnaire was designed to conduct empirical research. All survey items were derived from publicly published academic works in related realms. The measurements for team voice (including promotive voice and prohibitive voice) were transcribed from Liang et al. [21]. The project reflexivity was measured with instruments from Swift and West [78]. The scales for project learning were based on the research of Edmondson [30]. The project performance metrics referred to the study of Jia et al. [95]. All options were gauged with a seven-point Likert scale, ranging from “strongly disagree” to “strongly agree”. In addition, the general project information was also considered as control variables, including project duration, project investment, project type, and project delivery mode [9]. Figure 2 was provided herein to show the conceptual model based on the proposed hypotheses, with all corresponding item measurements for every indicator, and the figure was drawn by the authors.

In order to distinguish the “team” between the focal team and the project team with an MTS, the questions related to promotive team voice and prohibitive team voice were highlighted only for the work team to which the respondent belonged, rather than the entire project team. For the questions related to project learning, project reflexivity, and project performance, the respondents were asked to answer based on the actual situation of the entire project.

As we conducted the investigation in China, a series of preparations was unfolded to ensure the scientificity and effectiveness. We introduced the back-translation method to guarantee linguistic equivalence between English and Chinese [96]. Specifically, we translated the questionnaire content into Chinese and then invited three professors majoring in construction management, engineering management, and organization management to referee the Chinese version. The professors also discussed and revised the translated text to eliminate cultural bias and enhance accuracy. After that, four construction professionals were interviewed to comment on the understandability, appropriateness, and sensitivity of the items. Then, two project management doctoral candidates translated the Chinese version back into English. Furthermore, we distributed the questionnaire to fifteen experts and project managers engaged in the construction industry who had worked for more than three years as a pre-test. The interviewees provided suggestions on the whole data collection process, including the length of the questionnaire, the estimated time for answering, the appropriateness of the problem description, and the effective distribution method. The questionnaire was finally modified and finalized.

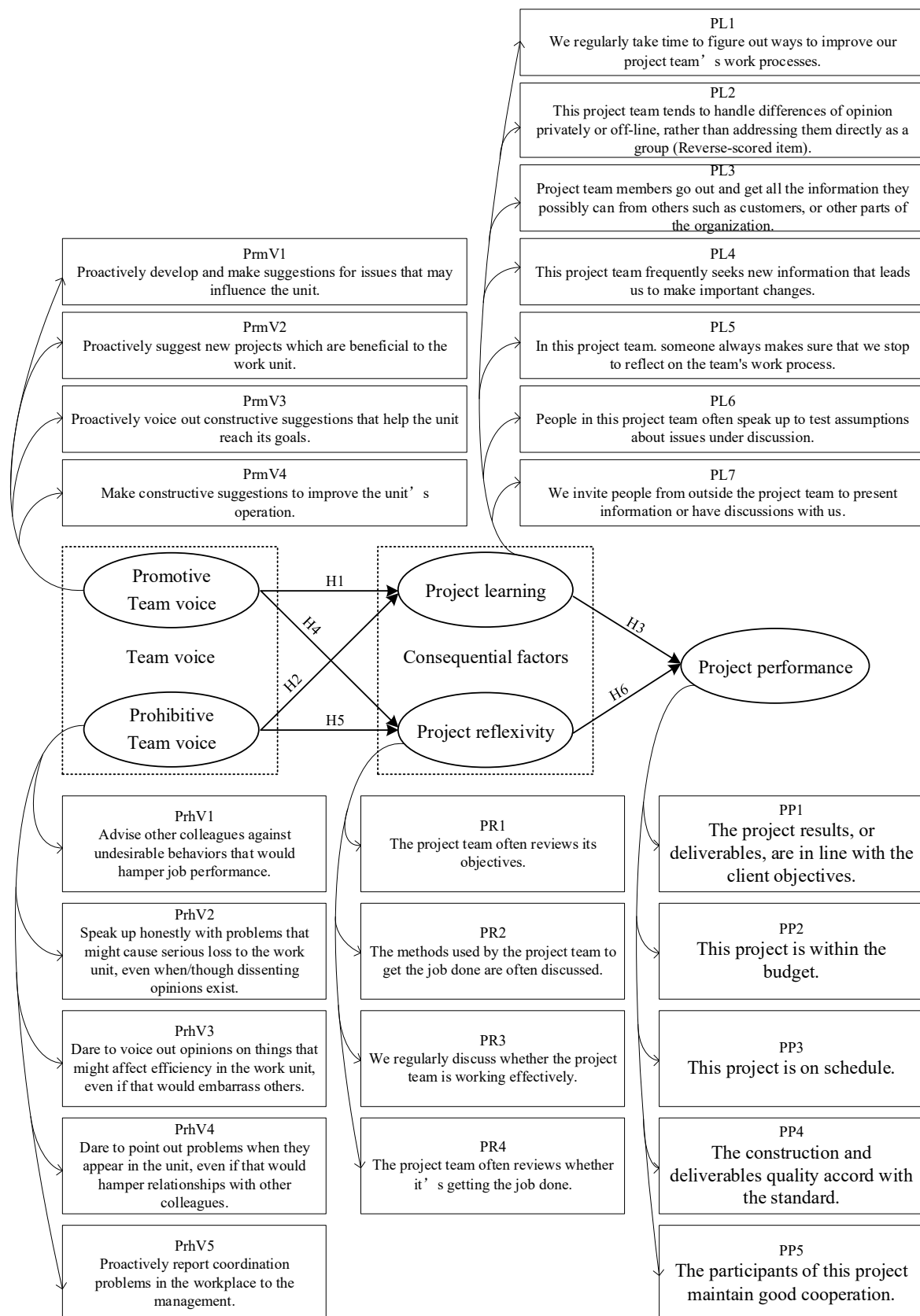


Figure 2. The conceptual model with indicators and corresponding measurements.

3.2. Data Collection

Direct management participants consisting of the executive in construction projects were the target group of this study, including the project manager, project department head, and general management involvers. Compared with other participants, the direct management participants in the focal team owned higher authority and credibility when describing the situation of team voice, the focal team, and the entire project team. The respondents were required to take one recently completed project as the answer basis. In this study, we adopted the online survey method, monetary incentive method, and chain-referral sampling method, which boosted the response rates of the questionnaire and enriched the collection of effective data. To ensure authenticity, the questionnaire was published on a popular publicly accessible questionnaire website (Tencent wenjuan) and collected anonymously. Moreover, each completed answer sheet would be automatically screened online to scrub the invalid data, while a small e-cash reward would be sent to the remaining respondents to encourage the questionnaire dissemination.

Considering the representativeness of the data, we distributed the questionnaire to the students of Master of Engineering Management (MEM) from Tongji University in China as the first batch of formal respondents. The student information manifested the divergence of the student backgrounds; although all students were employed in the construction industry, they settled in different cities, worked in various enterprises, and participated in distinct projects. More than that, we randomly sent the survey link to the alumni chatgroups of two famous universities, and we also publicized our questionnaire to construction professionals through social media. All respondents were encouraged to share the questionnaire with other colleagues or practitioners. Substantially, our questionnaire link was visited 568 times, and 195 answers were received, yielding a response rate of 34.3%. After excluding invalid data, we analyzed 184 questionnaires to examine the model. The descriptive information of respondents and projects on the control variables is shown in Tables 1 and 2. All information in the tables was reduced from the analysis results of collected data, and the tables were drawn by the authors.

Table 1. Descriptive information of respondents (N = 184).

Profile	Frequency	Percentage
Gender		
Male	121	66
Female	63	34
Working years		
≤5	33	18
6~10	97	53
11~15	31	17
16~20	8	4
>20	15	8
Education		
Junior college or below	13	7
Undergraduate	117	64
Master or above	54	29
Position		
Project manager	44	24
Project department head	62	34
Project engineer	78	42

Table 2. Descriptive information of projects (N = 184).

Profile	Frequency	Percentage
Team Size		
≤5	31	17
6~10	51	28
11~20	56	30
21~30	13	7
≥31	33	18
Number of teams		
2~5	52	28
6~10	37	20
11~20	32	17
21~30	15	8
31~40	8	4
41~50	7	4
>50	33	18
Project duration		
6 months or below	36	20
7~12 months	32	17
13~24 months	47	26
25 months or above	69	38
Project cost		
<CNY 50 million	54	29
CNY 50~100 million	23	13
CNY 101~1000 million	69	38
>CNY 1000 million	38	21
Project party		
Owner	54	29
Contractor	110	60
Others	20	11
Project type		
Building construction	23	13
Municipal construction	134	73
Others	27	15
Project delivery method		
Design-Bid-Build (DBB)	81	44
Design and Build (DB)	47	26
Construction Management at Risk (CMAR)	9	5
Others	47	26

According to Table 1, the proportion of male respondents (66%) was approximately twice that of female respondents (34%), which reflected the characteristics of the construction industry. Work experience represented familiarity with construction project work, and 82% of interviewees in this investigation had worked over five years. Of the participants in 184 questionnaires, more than 90% had obtained an undergraduate degree or above. In terms of position, 24% of answerers were project managers, and 34% were the head of the project department.

As these empirical data were based on the completed projects that the respondents participated in recently, the fundamental state of the project involved is highly valued to ensure timeliness. According to Table 2, regarding team size, 35% of the respondents belonged to a team with less than 10 colleagues, 37% of the sample teams contained 10~20 employees, and 25% had more than 20. Simultaneously, 48% of the sample projects comprised 2~10 teams, 18% consisted of 11~50 teams, and 33% were more than 51. As for project duration, 37% of the sample projects were completed within one year, 26% lasted 13~24 months, and 38% covered more than two years. Correspondingly, 42% of the project

expenditures were within CNY 100 million, 38% cost about CNY 101~1000 million, and 21% spent more than CNY 1000 million. Furthermore, 29% of answers pertained to the owner party, while 60% were from the contractor party. The vast majority of the type of the sample projects was municipal construction (73%), while building construction occupied 13%. Finally, for the project delivery method, 44% adopted the DBB mode, and 26% applied the DB mode.

The approach of time trend extrapolation recommended by Armstrong and Overton (1977) was adopted to examine the problem of non-response bias. We compared the early 25% of respondents with the late 25% of respondents for the main variables in our study. The t-tests suggested that there was no significant difference. Thus, non-response bias was not a serious concern in this study.

4. Analysis and Results

Partial least squares–structural equation modeling (PLS-SEM) was adopted to analyze the data for three reasons. Firstly, research on team voice in the construction management field is still in its infancy. This study aimed to unearth the influence of team voice and the influencing mechanism, thus being exploratory, which aligned with the predictive ability of the modeled pathway of PLS-SEM [97]. Secondly, the differences in parameter estimation between PLS-SEM and covariance-based SEM (CB-SEM) were small in common scenarios of applied research; also, the resulting results of CB-SEM and consistent PLS (PLSc-SEM) were generally similar. However, given the limited data ($N = 184$) collected in this study, compared with CB-SEM, PLS-SEM had favorable convergence behavior, which was better at processing small-size samples without setting any distribution assumptions about the data [97,98]. A small sample size might lead to nonnormal data, which could process nonnormal outcomes through CB-SEM, while PLS-SEM presented more robust [99,100]. In addition, PLSc-SEM was usually used for theoretical model recognition deficiencies and structural models with six or more constructions [98]. Thirdly, the theoretical model in this study was complex (including multiple mediation analysis), and PLS-SEM guaranteed robust estimations for our theoretical model [101]. Simultaneously, different from regression analysis and PROCESS methods, which only allowed sequential testing of model parts and ignored the entire model structure, PLS-SEM outstandingly considered the whole theoretical structure model in the estimation process [98].

4.1. Measurement Model

We assessed reliability, convergent validity, and discriminant validity to verify the measurement model. Table 3 shows Cronbach's alphas, composite reliability [102], and average variance extracted (AVE). Table 4 displays factor loadings for each indicator. The values of factor loadings for all items were above the threshold of 0.7, reaching a satisfactory level of item reliability [103]. In addition, Cronbach's alphas ranged from 0.89 to 0.95, and the CRs ranged from 0.924 to 0.964, suggesting good internal consistency [103]. In addition, the minimum AVE value was 0.715, which was greater than the acceptable level of 0.5, supporting good convergent validity. Table 5 demonstrates the correlations of all constructs. Most correlations were smaller than the recommended level of 0.7. In addition, all the square roots of the AVE values were greater than the respective cross-correlations, thus establishing discriminant validity among each of the latent variables according to the Fornell–Larcker criterion [104]. Tables 3–5 are shown below; all information in the tables was reduced from the analysis results of collected data, and the tables were drawn by the authors.

Table 3. Results of confirmatory factor analysis.

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	AVE
PP	0.902	0.91	0.927	0.717
PrhV	0.9	0.906	0.926	0.715
PrmV	0.95	0.954	0.964	0.871
PL	0.94	0.941	0.957	0.849
TR	0.89	0.899	0.924	0.752

Note: PP = project performance; PrhV = prohibitive team voice; PrmV = promotive team voice; PL = project learning; and PR = project reflexivity.

Table 4. Factor loadings of research constructs.

	PP	PrhV	PrmV	TL	TR
PP1	0.811				
PP2	0.83				
PP3	0.884				
PP4	0.865				
PP5	0.842				
PrhV1		0.786			
PrhV2		0.877			
PrhV3		0.85			
PrhV4		0.842			
PrhV5		0.869			
PrmV1			0.944		
PrmV2			0.948		
PrmV3			0.926		
PrmV4			0.913		
TL1				0.927	
TL2				0.926	
TL3				0.928	
TL4				0.903	
TR1					0.846
TR2					0.85
TR3					0.876
TR4					0.896

Note: PP = project performance; PrhV = prohibitive team voice; PrmV = promotive team voice; PL = project learning; and PR = project reflexivity.

Table 5. Correlation matrix.

	PP	PrhV	PrmV	TL	TR
PP	0.847				
PrhV	0.597	0.845			
PrmV	0.591	0.744	0.933		
TL	0.588	0.417	0.541	0.921	
TR	0.581	0.537	0.509	0.692	0.867

Note: Bold values are square root of average variance extracted. PP = project performance; PrhV = prohibitive team voice; PrmV = promotive team voice; PL = project learning; and PR = project reflexivity.

4.2. Structural Model

The structural model was examined by the PLS technique with SmartPLS 4. The results are shown in Figure 3, including standardized path coefficients and R-squared values of endogenous variables. All information in the figure was reduced from the analysis results of collected data, and the figure was drawn by the authors. The bootstrapping technique was adopted to examine the significance of path coefficients (10,000 resampling with 184 cases). As suggested by Figure 2, promotive team voice was found to be positively related to both project learning ($b = 0.369$, $p < 0.001$) and project reflexivity ($b = 0.245$, $p < 0.05$), thus

supporting H1 and H4. Similarly, prohibitive team voice was found to have a positive effect on project reflexivity (b = 0.355, $p < 0.01$), thereby verifying H5. However, contrary to our derived hypothesis, prohibitive team voice negatively influenced project learning because the path from prohibitive voice to project learning was significantly negative (b = −0.181, $p < 0.05$). In this way, H2 did not receive empirical support. Consistent with H3 and H6, both project reflexivity (b = 0.334, $p < 0.001$) and project learning (b = 0.357, $p < 0.001$) were found to positively influence project performance. Finally, there was a positive relationship between project learning and project reflexivity (b = 0.601, $p < 0.001$).

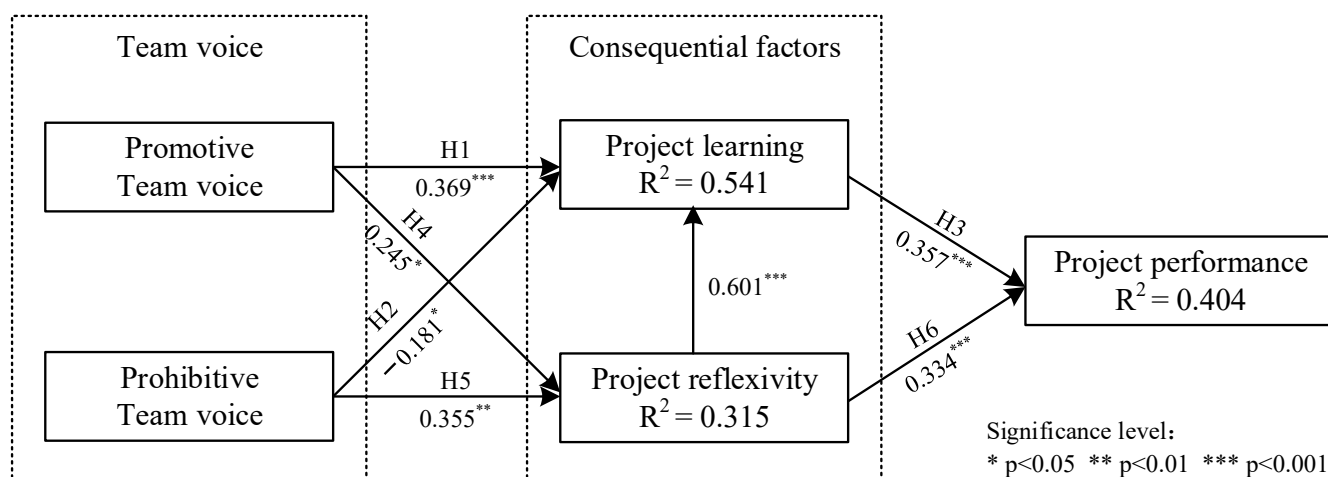


Figure 3. Structural model analysis results.

4.3. The Mediating Role of Project Learning and Project Reflexivity

To examine the mediating effects of project learning and project reflexivity, the bootstrapping technique was used with 10,000 resamples. The results of the mediation analysis are displayed in Table 6; all information in the table was reduced from the analysis results of collected data, and the table was drawn by the authors. As shown in Table 6, for all examined paths, the lower and upper bounds of the 95% confidence interval did not contain 0, which supported the mediating effect [95].

Table 6. Result of mediation analysis.

Path	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	p Values	95% Bootstrapping Confidence Interval	
					Lower Bound	Upper Bound
PrmV→PL→PP	0.132	0.041	3.221	0.001	0.06	0.215
PrhV→PL→PP	−0.065	0.031	2.075	0.038	−0.127	−0.002
PrmV→PR→PP	0.082	0.041	1.983	0.048	0.008	0.168
PrhV→PR→PP	0.118	0.055	2.163	0.031	0.029	0.235
PrhV→PR→PL→PP	0.076	0.032	2.416	0.016	0.025	0.148
PrmV→PR→PL→PP	0.053	0.029	1.841	0.066	0.007	0.118

Note: PP = project performance; PrhV = prohibitive team voice; PrmV = promotive team voice; PL = project learning; and PR = project reflexivity.

Concretely, all paths shown in Table 6 illustrated that team voice could influence project performance indirectly. The path “PrmV→PR→PP” and “PrhV→PR→PP” proved the mediating role of project reflexivity between team voice and project performance. The path “PrmV→PL→PP” and “PrhV→PL→PP” suggested the mediating role of project learning between team voice and project performance. Furthermore, according to the path “PrmV→PL→PP” and “PrmV→PR→PP”, project learning and project reflexivity showed

a parallel multiple mediation effect between team voice and project performance. Based on the path “PrmV→TR→PL→PP” and “PrhV→TR→PL→PP”, project learning and project reflexivity indicated chain-mediated effects between team voice and project performance.

5. Discussion

This study employed the IPO framework to explain the internal impact mechanism between team voice and project performance in construction projects. Results from 184 project participants revealed the mediating role of project learning and project reflexivity. Specifically, promotive team voice could positively impact project learning and project reflexivity, while prohibitive team voice had a positive relationship with project reflexivity but was negative to project learning. Both project learning and project reflexivity were positively related to project performance. In addition, project reflexivity could actively affect project learning. Project learning and project reflexivity were mediators between team voice and project performance. Specifically, project learning and project reflexivity together showed a parallel multiple mediation effect between team voice and project performance, and together played chain-mediated effects between prohibitive voice and project performance.

In terms of the relationship between team voice and project learning, the results were contrary, which might come from the difference between PrmV and PrhV. According to Liang et al. [21], promotive voice related to the suggestions or ideas that had a positive effect on improving the current situation, while prohibitive voice mainly meant the concerns or complaints of possible problems. Although both promotive team voice and prohibitive team voice were voice behaviors derived from altruistic and prosocial motives, prohibitive team voice was more aggressive than promotive team voice. According to Wang et al. [9], the satisfaction, trust, and commitment of the project team would foster a promotive team voice; however, satisfaction and trust had no obvious connections with a prohibitive team voice. It could be indicated that the relationship quality of the whole project team will turn to a lower level after receiving a prohibitive voice from the focal team, which could possibly interfere with collective understanding and actions, in other words, to the detriment of project learning.

As for project reflexivity, the results showed that both promotive voice and prohibitive voice could positively affect project reflexivity. This positive relationship implied that when the focal team expressed promotive team voice (i.e., suggestions or ideas on improving the current situation [21]), the project team might reflect and communicate based on the constructive suggestions and make targeted adjustments or changes to some extent. Meanwhile, if the focal team expressed prohibitive team voice (i.e., concerns or complaints of possible problems [21]), the team might reconsider the raised potential problems to avoid losses and risks. These findings reflected the effectiveness of the promotive voice and prohibitive voice in the project team, which were consistent with our ratiocination in the previous chapters. Interestingly, prohibitive team voice had a stronger impact on project reflexivity than promotive team voice. This subtle distinction might be on account of self-esteem [105]; according to social identity theory [106,107], questioning or negative attitudes more easily attract attention and cause conflict, while the team completed the reflection in the process of interpretation and debate.

Consistent with our hypothesis, both project learning and project reflexivity could positively affect project performance, which was identical to many previous research studies [30,70,89–91]. It was concluded that the positive relationship of project learning and project reflexivity with team performance was appropriate for both general organizational structure and multi-team organizational structure. As project performance is the common goal of all involved teams in a construction project, common and appropriate understanding from learning and reflection would provide strong support for project performance [89].

Moreover, the results notably sketched a strong positive relationship between project learning and project reflexivity. In virtue of the definition, project learning and project reflexivity emphasize the collective conception. Specifically, team reflexivity was the extent of collective reflection [31], while team learning was the process of collective reflection [30].

This implied that team reflexivity related to team learning through knowledge exchange at the collective level. In this regard, other researchers suggested that team reflexivity could urge team learning with systematic information processing and collective knowledge sharing [56,108], which might provide explanations.

In general, the bridge role of the consequential factors between team voice and project performance could be safely confirmed. Project reflexivity was proven to play one mediating role between prohibitive team voice and project performance. Promotive team voice could possibly influence project performance through project learning and project reflexivity simultaneously, which presented a parallel multiple mediation effect. Based on the positive attitude of scholars toward the relationship between voice behavior and performance [44], this study further provided an explanation for the underlying mechanism under a construction project background. Furthermore, the path of project learning and project reflexivity between team voice and project performance indicated the chain multiple mediation effect, which was caused by the inextricable connection between project learning and project reflexivity. Also, these mediation relationships verified the effectiveness of the IPO framework.

6. Conclusions

This study adopted the IPO framework to open the black box of the relationship between team voice and project performance in the context of construction projects by revealing the mediating role of project learning and project reflexivity. Specifically, the main conclusions of the study are as follows: (1) team voice impacts project performance through its consequential factors; (2) project learning mediates the relationship between team voice and project performance; and (3) project reflexivity mediates the relationship between team voice and project performance. This study contributes to the literature on team voice and the understanding of project management.

6.1. Implications

This study makes theoretical contributions in the following aspects.

Firstly, this study opens the black box between team voice and project performance in the context of construction projects by revealing the mediating role of project learning and project reflexivity, which echoes the recent call for empirical work on the mechanism between voice behavior and its positive outcomes [44]. Although prior literature suggested the benign relationship between voice behavior and group functioning [13], this study corroborates its applicability at the team level in the context of construction projects and demonstrates this mediating path by adopting the IPO framework, which deepens the theoretical understanding of promoting project performance.

Secondly, this progresses the relevant research on voice behavior. The distinction between the promotive and prohibitive team voices in this study deepens the understanding of their different meanings. Also, previous studies of team voice focused on the antecedents [9], while the existing studies of the voices' consequences focused on the individual level [43–46]. This study compensates for the research deficiency on the consequence factors of team voice.

Thirdly, this study contributes to the literature on MTSs. Although some prior research studies attempted to understand how the focal team affected the overall performance of the MTS in the context of the construction project [3], they rarely probed from the voice perspective. Essentially, voice behavior is an act of providing information, while information is the foundation of collaboration between teams. Therefore, it is significant to study how the focal team impacts system performance from the perspective of voice behavior. This study demonstrates the impact of a single team's voice on system performance on a multi-team scale and reveals the impact paths, providing a new perspective for MTS knowledge.

This study also provides practical implications in the following aspects.

Firstly, this study has a directive function for construction project management and MTS management. Voice behavior, reflexivity, and learning are common organizational

actions in the work routine. These three processes can facilitate the exchange of opinions and knowledge within the organization, thus strengthening cooperation. For managers, the understanding and acceptance of teamwork skills figures prominently in a team-based organization [109,110]. The mediating role of project learning and project reflexivity between team voice and project performance in this study can provide managers with guidance and explanation of teamwork skills. Therefore, managers should encourage and think highly of the expression from participant teams in MTSs, which will help to enhance the project performance. The opinions spoken from the team level imply a higher level of importance and value.

Secondly, this study also suggests that policymakers, researchers, and practitioners need to better emphasize the necessity and importance of project learning and project reflexivity, which is conducive to project performance directly. Specifically, submitting regular feedback reports, conducting collective lectures, establishing information exchange platforms, etc., can effectively stimulate project learning and project reflexivity, thereby promoting project performance.

6.2. Limitations and Future Research

There are inevitable limitations in this study.

Firstly, although this study explains the impact path of team voice on project performance through project learning and project reflexivity in construction projects, other factors from different perspectives may also reveal the underlying influence mechanism of team voice on project performance. Sophisticated elements are involved in project management, such as the operating environment, the role of the project manager, the integration strategy, and so on [111], which may be affected by team voice and then influence project performance. The issue of team voice in construction projects requires more systematic discussion and research in the future.

Secondly, team voice is a dynamic action in practice that needs long-term observation and statistics, while this study collected only cross-sectional data as analyzed samples. A team is composed of individuals, so the dynamic individual reflexivity development of members may also affect the team status [112]. Furthermore, the respondents of this study only collected data from the focal team, without other teams or supporting colleagues in the same project. If future research can collect long-term data from more participant teams in the same construction project team, the conclusion will be more accurate.

Thirdly, notwithstanding the fact that project learning and project reflexivity are common team processes for all organizations worldwide, all the sample data were gathered from China in this study. Future research should better collect data from more countries and regions to avoid regionality.

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References

- Garcia, A.J.; Mollaoglu, S. Measuring Key Knowledge-Related Factors for Individuals in AEC Project Teams. *J. Constr. Eng. Manag.* **2020**, *146*, 04020063. [\[CrossRef\]](#)
- Ma, G.F.; Jia, J.Y.; Jiang, S.; Wu, Z.J. Incentives and contract design for knowledge sharing in construction joint ventures. *Autom. Constr.* **2020**, *119*, 103343.
- Jia, J.; Li, Y.; Gan, X.; Ma, G. From local to the whole: Understanding construction projects as multiteam systems. *Int. J. Manag. Proj. Bus.* **2022**, *16*, 355–373. [\[CrossRef\]](#)
- Faraj, S.; Yan, A.M. Boundary Work in Knowledge Teams. *J. Appl. Psychol.* **2009**, *94*, 604–617. [\[CrossRef\]](#)
- Maurer, I. How to build trust in inter-organizational projects: The impact of project staffing and project rewards on the formation of trust, knowledge acquisition and product innovation. *Int. J. Proj. Manag.* **2010**, *28*, 629–637. [\[CrossRef\]](#)
- Hansen, M.T.; Løvås, B. How do multinational companies leverage technological competencies? Moving from single to interdependent explanations. *Strat. Manag. J.* **2004**, *25*, 801–822. [\[CrossRef\]](#)
- O’Leary, M.B.; Mortensen, M.; Woolley, A.W. Multiple Team Membership: A Theoretical Model of Its Effects on Productivity and Learning for Individuals and Teams. *Acad. Manag. Rev.* **2011**, *36*, 461–478.
- van de Brake, H.J.; Berger, S. Can I leave my hat on? A cross-level study of multiple team membership role separation. *Pers. Psychol.* **2022**, *76*, 221–248. [\[CrossRef\]](#)
- Wang, D.; Jia, J.; Jiang, S.; Liu, T.; Ma, G. Differential effects of contextual factors on promotive and prohibitive voice in construction projects: A multiteam system perspective. *Eng. Constr. Arch. Manag.* **2022**. [\[CrossRef\]](#)
- Firth, B.M.; Hollenbeck, J.R.; Miles, J.E.; Ilgen, D.R.; Barnes, C.M. Same Page, Different Books: Extending Representational Gaps Theory to Enhance Performance in Multiteam Systems. *Acad. Manag. J.* **2015**, *58*, 813–835. [\[CrossRef\]](#)
- Rico, R.; Hinsz, V.B.; Burke, S.; Salas, E. A multilevel model of multiteam motivation and performance. *Organ. Psychol. Rev.* **2017**, *7*, 197–226. [\[CrossRef\]](#)
- Davison, R.B.; Hollenbeck, J.R.; Barnes, C.M.; Sleesman, D.J.; Ilgen, D.R. Coordinated action in multiteam systems. *J. Appl. Psychol.* **2012**, *97*, 808–824. [\[CrossRef\]](#) [\[PubMed\]](#)
- Morrison, E.W. Employee Voice Behavior: Integration and Directions for Future Research. *Acad. Manag. Ann.* **2011**, *5*, 373–412. [\[CrossRef\]](#)
- Van Dyne, L.; LePine, J.A. Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Acad. Manag. J.* **1998**, *41*, 108–119. [\[CrossRef\]](#)
- LePine, J.A.; Van Dyne, L. Voice and cooperative behavior as contrasting forms of contextual performance: Evidence of differential relationships with Big Five personality characteristics and cognitive ability. *J. Appl. Psychol.* **2001**, *86*, 326–336. [\[CrossRef\]](#) [\[PubMed\]](#)
- Hung, H.-K.; Yeh, R.-S.; Shih, H.-Y. Voice behavior and performance ratings: The role of political skill. *Int. J. Hosp. Manag.* **2012**, *31*, 442–450. [\[CrossRef\]](#)
- Tangirala, S.; Ramanujam, R. Exploring Nonlinearity in Employee Voice: The Effects of Personal Control and Organizational Identification. *Acad. Manag. J.* **2008**, *51*, 1189–1203. [\[CrossRef\]](#)
- Ekrot, B.; Rank, J.; Gemünden, H.G. Antecedents of project managers’ voice behavior: The moderating effect of organization-based self-esteem and affective organizational commitment. *Int. J. Proj. Manag.* **2016**, *34*, 1028–1042. [\[CrossRef\]](#)
- Zhu, F.; Wang, L.; Yu, M.; Müller, R.; Sun, X. Transformational leadership and project team members’ silence: The mediating role of feeling trusted. *Int. J. Manag. Proj. Bus.* **2019**, *12*, 845–868. [\[CrossRef\]](#)
- Frazier, M.L.; Bowler, W.M. Voice Climate, Supervisor Undermining, and Work Outcomes: A Group-Level Examination. *J. Manag.* **2015**, *41*, 841–863. [\[CrossRef\]](#)
- Liang, J.; Farh, C.I.C.; Farh, J.-L. Psychological Antecedents of Promotive and Prohibitive Voice: A Two-Wave Examination. *Acad. Manag. J.* **2012**, *55*, 71–92. [\[CrossRef\]](#)
- Marks, M.A.; Mathieu, J.E.; Zaccaro, S.J. A temporally based framework and taxonomy of team processes. *Acad. Manag. Rev.* **2001**, *26*, 356–376. [\[CrossRef\]](#)
- McGrath, J.E. *Social Psychology: A Brief Introduction*; Holt, Rinehart & Winston: New York, NY, USA, 1964.
- Mathieu, J.; Maynard, M.T.; Rapp, T.; Gilson, L. Team Effectiveness 1997–2007: A Review of Recent Advancements and a Glimpse into the Future. *J. Manag.* **2008**, *34*, 410–476. [\[CrossRef\]](#)
- Hülsheger, U.R.; Anderson, N.; Salgado, J.F. Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *J. Appl. Psychol.* **2009**, *94*, 1128–1145. [\[CrossRef\]](#) [\[PubMed\]](#)
- Kauffeld, S.; Lehmann-Willenbrock, N. Meetings Matter: Effects of Team Meetings on Team and Organizational Success. *Small Group Res.* **2012**, *43*, 130–158. [\[CrossRef\]](#)
- Cohen, S.G.; Bailey, D.E. What makes teams work: Group effectiveness research from the shop floor to the executive suite. *J. Manag.* **1997**, *23*, 239–290. [\[CrossRef\]](#)
- Zhang, P.; Ng, F.F. Explaining Knowledge-Sharing Intention in Construction Teams in Hong Kong. *J. Constr. Eng. Manag.* **2013**, *139*, 280–293. [\[CrossRef\]](#)
- Argote, L.G.D.; Naquin, C. *Group Learning in Organizations*; Routledge: New York, NY, USA, 2001.
- Edmondson, A. Psychological Safety and Learning Behavior in Work Teams. *Adm. Sci. Q.* **1999**, *44*, 350–383. [\[CrossRef\]](#)
- West, M.A.; Garrod, S.; Carletta, J. *Group Decision-Making and Effectiveness: Unexplored Boundaries*; Wiley: Chichester, UK, 1997.

32. Dutton, J.E.; Ashford, S.J. Selling Issues to Top Management. *Acad. Manag. Rev.* **1993**, *18*, 397–428. [\[CrossRef\]](#)
33. Frese, M.; Teng, E.; Wijnen, C.J.D. Helping to improve suggestion systems: Predictors of making suggestions in companies. *J. Organ. Behav.* **1999**, *20*, 1139–1155. [\[CrossRef\]](#)
34. Howell, J.M.; Higgins, C.A. Champions of Technological Innovation. *Adm. Sci. Q.* **1990**, *35*, 317–342. [\[CrossRef\]](#)
35. LePine, J.A.; Van Dyne, L. Predicting voice behavior in work groups. *J. Appl. Psychol.* **1998**, *83*, 853–868. [\[CrossRef\]](#)
36. Morrison, E.W.; Phelps, C.C. Taking charge at work: Extrarole efforts to initiate workplace change. *Acad. Manag. J.* **1999**, *42*, 403–419. [\[CrossRef\]](#)
37. Withey, M.J.; Cooper, W.H. Predicting Exit, Voice, Loyalty, and Neglect. *Adm. Sci. Q.* **1989**, *34*, 521–539. [\[CrossRef\]](#)
38. Zhou, J.; George, J.M. When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Acad. Manag. J.* **2001**, *44*, 682–696. [\[CrossRef\]](#)
39. Van Dyne, L.; Ang, S.; Botero, I.C. Conceptualizing Employee Silence and Employee Voice as Multidimensional Constructs. *J. Manag. Stud.* **2003**, *40*, 1359–1392. [\[CrossRef\]](#)
40. Ren, X.; Deng, X.; Liang, L. Knowledge transfer between projects within project-based organizations: The project nature perspective. *J. Knowl. Manag.* **2018**, *22*, 1082–1103. [\[CrossRef\]](#)
41. Morrison, E.W.; Wheeler-Smith, S.L.; Kamdar, D. Speaking up in groups: A cross-level study of group voice climate and voice. *J. Appl. Psychol.* **2011**, *96*, 183–191. [\[CrossRef\]](#)
42. Morrison, E.W.; Milliken, F.J. Organizational silence: A barrier to change and development in a pluralistic world. *Acad. Manag. Rev.* **2000**, *25*, 706–725. [\[CrossRef\]](#)
43. Rollmann, L.F.; Weiss, M.; Zacher, H. Does Voice Benefit or Harm Occupational Well-Being? The Role of Job Insecurity. *Br. J. Manag.* **2021**, *32*, 708–724. [\[CrossRef\]](#)
44. Bashshur, M.R.; Oc, B. When Voice Matters: A Multilevel Review of the Impact of Voice in Organizations. *J. Manag.* **2015**, *41*, 1530–1554. [\[CrossRef\]](#)
45. Thomas, J.P.; Whitman, D.S.; Viswesvaran, C. Employee proactivity in organizations: A comparative meta-analysis of emergent proactive constructs. *J. Occup. Organ. Psychol.* **2010**, *83*, 275–300. [\[CrossRef\]](#)
46. Weiss, M.; Morrison, E.W. Speaking up and moving up: How voice can enhance employees' social status. *J. Organ. Behav.* **2019**, *40*, 5–19. [\[CrossRef\]](#)
47. Frazier, M.L.; Bowler, W. Voice climate in organization: A group-level examination. In Proceedings of the Annual Meeting of the Academy of Management, Chicago, IL, USA, 7–11 August 2009.
48. Grant, R.M. Toward a knowledge-based theory of the firm. *Strat. Manag. J.* **1996**, *17*, 109–122. [\[CrossRef\]](#)
49. Nonaka, I.; Takeuchi, H. *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*; Oxford University Press: Oxford, UK, 1995.
50. Spender, J.-C. Making knowledge the basis of a dynamic theory of the firm. *Strat. Manag. J.* **1996**, *17*, 45–62. [\[CrossRef\]](#)
51. Spender, J.-C. Pluralist Epistemology and the Knowledge-Based Theory of the Firm. *Organization* **1998**, *5*, 233–256. [\[CrossRef\]](#)
52. Ipe, M. Knowledge Sharing in Organizations: A Conceptual Framework. *Hum. Resour. Dev. Rev.* **2003**, *2*, 337–359. [\[CrossRef\]](#)
53. Davenport, T.H.; De Long, D.W.; Beers, M.C. Successful knowledge management projects. *Sloan Manag. Rev.* **1998**, *39*, 43.
54. Senge, P.M. *The Fifth Discipline: The Art and Practice of the Learning Organization*; Currency Doubleday: New York, NY, USA, 1990.
55. Bandura, A. Social Cognitive Theory of Self-Regulation. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 248–287. [\[CrossRef\]](#)
56. De Dreu, C.K.W. Cooperative outcome interdependence, task reflexivity, and team effectiveness: A motivated information processing perspective. *J. Appl. Psychol.* **2007**, *92*, 628–638. [\[CrossRef\]](#)
57. Nembhard, I.M.; Edmondson, A.C. Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *J. Organ. Behav.* **2006**, *27*, 941–966. [\[CrossRef\]](#)
58. Bienefeld, N.; Grote, G. Speaking up in ad hoc multiteam systems: Individual-level effects of psychological safety, status, and leadership within and across teams. *Eur. J. Work. Organ. Psychol.* **2013**, *23*, 930–945. [\[CrossRef\]](#)
59. Huber, G.P. Organizational Learning: The Contributing Processes and the Literatures. *Organ. Sci.* **1991**, *2*, 88–115. [\[CrossRef\]](#)
60. Van Offenebeek, M. Processes and outcomes of team learning. *Eur. J. Work. Organ. Psychol.* **2001**, *10*, 303–317. [\[CrossRef\]](#)
61. Druskat, V.U.; Kayes, D.C. Learning versus Performance in Short-Term Project Teams. *Small Group Res.* **2000**, *31*, 328–353. [\[CrossRef\]](#)
62. Martinez-Costa, M.; Jimenez-Jimenez, D. The Effectiveness of TQM The Key Role of Organizational Learning in Small Businesses. *Int. Small Bus. J. Res. Entrep.* **2009**, *27*, 98–125. [\[CrossRef\]](#)
63. Hung, R.Y.-Y.; Lien, B.Y.-H.; Fang, S.-C.; McLean, G.N. Knowledge as a facilitator for enhancing innovation performance through total quality management. *Total. Qual. Manag. Bus. Excel.* **2010**, *21*, 425–438. [\[CrossRef\]](#)
64. Akgün, A.E.; Ince, H.; Imamoglu, S.Z.; Keskin, H.; Kocoglu, I. The mediator role of learning capability and business innovativeness between total quality management and financial performance. *Int. J. Prod. Res.* **2013**, *52*, 888–901. [\[CrossRef\]](#)
65. Škerlavaj, M.; Štemberger, M.I.; Škrinjar, R.; Dimovski, V. Organizational learning culture—The missing link between business process change and organizational performance. *Int. J. Prod. Econ.* **2007**, *106*, 346–367. [\[CrossRef\]](#)
66. Edmondson, A.; Bohmer, R.; Pisano, G. Speeding up team learning. *Harv. Bus. Rev.* **2001**, *79*, 125.
67. Van der Vegt, G.S.; Bunderson, J.S. Learning and performance in multidisciplinary teams: The importance of collective team identification. *Acad. Manag. J.* **2005**, *48*, 532–547. [\[CrossRef\]](#)

68. Zellmer-Bruhn, M.; Gibson, C. Multinational Organization Context: Implications for Team Learning and Performance. *Acad. Manag. J.* **2006**, *49*, 501–518. [\[CrossRef\]](#)
69. van Woerkom, M.; van Engen, M.L. Learning from conflicts? The relations between task and relationship conflicts, team learning and team performance. *Eur. J. Work. Organ. Psychol.* **2009**, *18*, 381–404. [\[CrossRef\]](#)
70. Yeh, Y.-J.; Chou, H.-W. Team composition and learning behaviors in cross-functional teams. *Soc. Behav. Pers. Int. J.* **2005**, *33*, 391–402. [\[CrossRef\]](#)
71. Srinivasan, R.; Haunschild, P.; Grewal, R. Vicarious Learning in New Product Introductions in the Early Years of a Converging Market. *Manag. Sci.* **2007**, *53*, 16–28. [\[CrossRef\]](#)
72. Nonaka, I.; Byosiore, P.; Borucki, C.C.; Konno, N. Organizational knowledge creation theory: A first comprehensive test. *Int. Bus. Rev.* **1994**, *3*, 337–351. [\[CrossRef\]](#)
73. Yeow, J.; Martin, R. The role of self-regulation in developing leaders: A longitudinal field experiment. *Leadersh. Q.* **2013**, *24*, 625–637. [\[CrossRef\]](#)
74. Schippers, M.C.; Homan, A.C.; van Knippenberg, D. To reflect or not to reflect: Prior team performance as a boundary condition of the effects of reflexivity on learning and final team performance. *J. Organ. Behav.* **2012**, *34*, 6–23. [\[CrossRef\]](#)
75. DeShon, R.P.; Kozlowski, S.W.J.; Schmidt, A.M.; Milner, K.R.; Wiechmann, D. A Multiple-Goal, Multilevel Model of Feedback Effects on the Regulation of Individual and Team Performance. *J. Appl. Psychol.* **2004**, *89*, 1035–1056. [\[CrossRef\]](#) [\[PubMed\]](#)
76. Rapp, T.L.; Bachrach, D.G.; Rapp, A.A.; Mullins, R. The role of team goal monitoring in the curvilinear relationship between team efficacy and team performance. *J. Appl. Psychol.* **2014**, *99*, 976–987. [\[CrossRef\]](#) [\[PubMed\]](#)
77. Bunderson, J.S.; Sutcliffe, K.M. Management team learning orientation and business unit performance. *J. Appl. Psychol.* **2003**, *88*, 552–560. [\[CrossRef\]](#) [\[PubMed\]](#)
78. Swift, T.A.; West, M.A. *Reflexivity and Group Processes: Research and Practice*; The ESRC Centre for Organization and Innovation: Sheffield, UK, 1998.
79. Argyris, C. *On Organizational Learning*, 9th ed.; Blackwell Publishers: Malden, MA, USA, 1992.
80. Allen, N.J. *Affective Reactions to the Group and the Organization*; John Wiley & Sons: Chichester, UK, 1996.
81. Park, C.; Im, G.; Keil, M. Georgia State University Overcoming the Mum Effect in IT Project Reporting: Impacts of Fault Responsibility and Time Urgency. *J. Assoc. Inf. Syst.* **2008**, *9*, 409–431.
82. Hanisch, B.; Lindner, F.; Mueller, A.; Wald, A. Knowledge management in project environments. *J. Knowl. Manag.* **2009**, *13*, 148–160. [\[CrossRef\]](#)
83. Sun, J.; Ren, X.; Anumba, C.J. Analysis of Knowledge-Transfer Mechanisms in Construction Project Cooperation Networks. *J. Manag. Eng.* **2019**, *35*, 04018061. [\[CrossRef\]](#)
84. Higgins, E.T. Promotion and Prevention: Regulatory Focus as A Motivational Principle. *Adv. Exp. Soc. Psychol.* **1998**, *30*, 1–46.
85. Li, A.N.; Liao, H.; Tangirala, S.; Firth, B.M. The content of the message matters: The differential effects of promotive and prohibitive team voice on team productivity and safety performance gains. *J. Appl. Psychol.* **2017**, *102*, 1259–1270. [\[CrossRef\]](#)
86. Hassan, S. The Importance of Ethical Leadership and Personal Control in Promoting Improvement-Centered Voice among Government Employees. *J. Public Adm. Res. Theory* **2015**, *25*, 697–719. [\[CrossRef\]](#)
87. West, M. *Reflexivity and Work Group Effectiveness: A Conceptual Integration*; Wiley: Chichester, UK, 1996.
88. Lanaj, K.; Chang, C.-H.; Johnson, R.E. Regulatory focus and work-related outcomes: A review and meta-analysis. *Psychol. Bull.* **2012**, *138*, 998–1034. [\[CrossRef\]](#)
89. van Ginkel, W.; Tindale, R.S.; van Knippenberg, D. Team Reflexivity, Development of Shared Task Representations, and the Use of Distributed Information in Group Decision Making. *Group Dyn.-Theory Res. Pract.* **2009**, *13*, 265–280. [\[CrossRef\]](#)
90. Otte, K.-P.; Knipfer, K.; Schippers, M. *Team Reflection: A Catalyst of Team Development and the Attainment of Expertise*; Oxford University Press: Oxford, UK, 2018.
91. Schippers, M.C.; Den Hartog, D.N.; Koopman, P.L. Reflexivity in teams: A measure and correlates. *Appl. Psychol. Int. Rev. Psychol. Appl. Rev. Int.* **2007**, *56*, 189–211. [\[CrossRef\]](#)
92. Yang, M.; Schloemer, H.; Zhu, Z.; Lin, Y.; Chen, W.; Dong, N. Why and When Team Reflexivity Contributes to Team Performance: A Moderated Mediation Model. *Front. Psychol.* **2020**, *10*, 3044. [\[CrossRef\]](#) [\[PubMed\]](#)
93. Pieterse, A.N.; van Knippenberg, D.; van Ginkel, W.P. Diversity in goal orientation, team reflexivity, and team performance. *Organ. Behav. Hum. Decis. Process.* **2011**, *114*, 153–164. [\[CrossRef\]](#)
94. Brav, A.; Andersson, K.; Lantz, A. Group initiative and self-organizational activities in industrial work groups. *Eur. J. Work. Organ. Psychol.* **2009**, *18*, 347–377. [\[CrossRef\]](#)
95. Jia, J.; Ma, G.; Wu, Z.; Wu, M.; Jiang, S. Unveiling the Impact of Task Conflict on Construction Project Performance: Mediating Role of Knowledge Integration. *J. Manag. Eng.* **2021**, *37*, 04021060. [\[CrossRef\]](#)
96. Paillé, P.; Chen, Y.; Boiral, O.; Jin, J. The Impact of Human Resource Management on Environmental Performance: An Employee-Level Study. *J. Bus. Ethics* **2014**, *121*, 451–466. [\[CrossRef\]](#)
97. Hair, J.F.; Ringle, C.M.; Sarstedt, M. Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results and Higher Acceptance. *Long Range Plan.* **2013**, *46*, 1–12. [\[CrossRef\]](#)
98. Hair, J.F.; Sarstedt, M.; Ringle, C.M. Rethinking some of the rethinking of partial least squares. *Eur. J. Mark.* **2019**, *53*, 566–584. [\[CrossRef\]](#)

99. Sarstedt, M.; Hair, J.F.; Ringle, C.M.; Thiele, K.O.; Gudergan, S.P. Estimation issues with PLS and CBSEM: Where the bias lies! *J. Bus. Res.* **2016**, *69*, 3998–4010. [[CrossRef](#)]
100. Reinartz, W.; Haenlein, M.; Henseler, J. An empirical comparison of the efficacy of covariance-based and variance-based SEM. *Int. J. Res. Mark.* **2009**, *26*, 332–344. [[CrossRef](#)]
101. Foss, N.J.; Laursen, K.; Pedersen, T. Linking Customer Interaction and Innovation: The Mediating Role of New Organizational Practices. *Organ. Sci.* **2011**, *22*, 980–999. [[CrossRef](#)]
102. Crosby, L.A.; Evans, K.R.; Cowles, D. Relationship Quality in Services Selling: An Interpersonal Influence Perspective. *J. Mark.* **1990**, *54*, 68–81. [[CrossRef](#)]
103. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E.; Tatham, R.L. *Multivariate Data Analysis*; Pearson Prentice Hall: Upper Saddle River, NJ, USA, 2006.
104. Fornell, C.; Larcker, D.F. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *J. Mark. Res.* **1981**, *18*, 39–50. [[CrossRef](#)]
105. Leary, M.R. Sociometer theory and the pursuit of relational value: Getting to the root of self-esteem. *Eur. Rev. Soc. Psychol.* **2005**, *16*, 75–111. [[CrossRef](#)]
106. Hogg, M.A.; Abrams, D. *Social Motivation, Self-Esteem and Social Identity*; Harvester Wheatsheaf: New York, NY, USA, 1990.
107. Tajfel, H.; Turner, J.C. *The Social Identity Theory of Intergroup Behaviour*; Nelson-Hall: Chicago, IL, USA, 1986.
108. Konradt, U.; Schippers, M.C.; Garbers, Y.; Steenfatt, C. Effects of guided reflexivity and team feedback on team performance improvement: The role of team regulatory processes and cognitive emergent states. *Eur. J. Work. Organ. Psychol.* **2015**, *24*, 777–795. [[CrossRef](#)]
109. Stevens, M.J.; Campion, M.A. The Knowledge, Skill, and Ability Requirements for Teamwork—Implications for Human-Resource Management. *J. Manag.* **1994**, *20*, 503–530. [[CrossRef](#)]
110. Stevens, M.J.; Campion, M.A. Staffing Work Teams: Development and Validation of a Selection Test for Teamwork Settings. *J. Manag.* **1999**, *25*, 207–228.
111. PMI. *Navigating Complexity: A Practice Guide*; Project Management Institute: Newtown Square, PA, USA, 2014.
112. Di Fabio, A.; Maree, J.G.; Kenny, M.E. Development of the Life Project Reflexivity Scale: A New Career Intervention Inventory. *J. Career Assess.* **2018**, *27*, 358–370. [[CrossRef](#)]

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