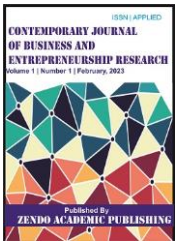

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THE IMPACT OF MANAGERIAL INTELLIGENCE ON PROJECT SUCCESS: THE MODERATING ROLE OF PARTICIPATIVE AND DIRECTIVE LEADERSHIP STYLES IN PUBLIC CORPORATIONS IN JORDAN

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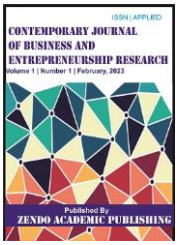
Abstract*: Project success (PS) is essential in project management, and various studies have explored the variables that contribute to PS. However, the impact of leaders' managerial intelligence (MI) on PS has received limited attention, especially in the context of public corporations in Jordan. This study aimed to investigate the relationship between MI and PS and the moderating role of participative and directive leadership styles (PLS and SLS) in this relationship. A quantitative research design was employed, and data were collected using a questionnaire survey from 216 top-level managers in public corporations in Jordan. Structural equation modeling was used to test the hypothesized model, and the results indicated that MI significantly contributed to PS. Moreover, SLS was found to moderate the relationship between MI and PS. The study's findings have practical implications for project managers in public corporations, emphasizing the importance of MI and leadership styles in achieving PS.*

Keywords: Managerial intelligence, project success, participative leadership style, directive leadership style, public corporations, Jordan, structural equation modeling.

INTRODUCTION

Over the years, field researchers have focused on project success (PS). Researchers have been looking into characteristics and variables that can assist projects to succeed. Project success is considered crucial in project management (PM) (Ika, 2009; Mir &Pinnington, 2014). However, standard performance directions for many sorts of projects have been produced after many years of research; yet, only a small percentage of projects succeed; this has led numerous scholars to investigate the elements that influence PS (Ayat et al., 2021; Belout& Gauvreau, 2004; Pacagnella et al., 2019; Petter& Nils, 2017). Moreover, a project's success or failure is profoundly dependent on its leaders (Aga et al., 2016; Drouin et al., 2018; Imam & Zaheer, 2021; Raziq et al., 2018). However, previous literature on project success elements has not identified the project manager's leadership approach or occupational capability as critical in determining the project's success (Turner & Müller, 2005). It is widely known that intelligence and experience may be vital in performing managerial tasks in certain circumstances, but they may be irrelevant or even destructive in others. By identifying these controlling conditions, intelligent and experienced managers' effectiveness can significantly increase. While intelligence and experience are possibly the furthermost vital choice conditions, the indication sustaining the roughly worldwide belief in both predictors of managerial success is inquisitively weak (Fiedler et al., 1979).

The tribrachic theory of human intelligence holds that intelligence comprises analytical, practical, and creative aspects. Each of these components is critical to management intelligence; moreover, it has been suggested that each of these components contributes to managing performance (Sternberg, 1984, 1999).



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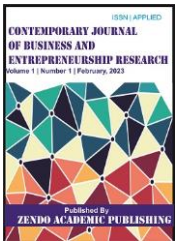
However, managers that are the most effective will have a combination of all three types of intelligence. In general, the successful person being intelligent has more than just one set of intellectual abilities. To be successfully intelligent, you need to be able to discover your strengths and weaknesses, realize how to use your strengths, and realize how to fix or compensate for your weaknesses (Sternberg, 1997). Indeed, among other things, a leader should be honest, charismatic, and kind. Intelligence is an essential characteristic of a leader. In fact, intelligence is the only thing that all leaders need to have to be good at their jobs (Lord et al., 1984). Furthermore, leaders also have to develop strategies, solve problems, motivate employees, and keep an eye on the environment. This is what we call "intellectual functions," and many of them are the same or very similar to what we find on most intelligence tests (Fiedler & Garcia, 1987). However, Leadership has also been the subject of a lot of research in project management literature, but its role in making a project succeed or fail is still up for debate (Cleveland & Cleveland, 2020; Nixon et al., 2012).

This study aims at investigating the moderation effect of participative and directive leadership styles (PLS, SLS) on the relationship between managerial intelligence (MI) and project success (PS). Moreover, the current study delivers its importance from the idea that the mainly crucial success elements are affected or even controlled through the project manager, such as project mission, vision, employees, and the way of communicating with team members. Yet, if a suitable leadership style is designated, the undesired impact of the other elements will be decreased by the leader's reasonable management with conforming capabilities (Ahmed & Abdullahi, 2017; Jiang, 2014). It worthy to mention that leading a project team is further demanding for a project manager than leading teams in conventional firms (Podgórska&Pichlak, 2019). While MI has been ignored in such investigations (Cavazotte et al., 2012). Furthermore, a theoretical model will be tested, however, this mode is specifically built for the purpose of the study and depicts the hypothesized relationships between the independent variable MI and dependent variable PS; in addition, the model is testing the moderation role of both styles of leadership PLS and DLS in this relationship.

A quantitative paradigm is used for the purpose of the current study. Nevertheless, a survey technique is employed to gather the required data from a targeted sample, yet, Quantitative methods are ideal for analyzing competency needs and profiles. In contrast, competency frames and precise measurement tools provide quantitative data. This research might also be cross-sectional. The research seeks to gather quantitative data on multiple cases at a time to discover sorts of linkages (Bryman, 2016). While AMOS23 is used to conduct structural equation modeling (SEM) to examine the hypothesized model of the current study, as AMOS is considered the most user-friendly statistical software for carrying out SEM, researchers with a rudimentary knowledge of matrix algebra can efficiently use moment structure analysis (Shek & Yu, 2014). The findings of this study revealed that both styles of leadership PLS and DLS found to moderate the relationship between MI and PS. In addition, MI was found to has a positive significant impact on PS. The current paper contributes to the existing literature by filling the gap in uncovering the ambiguity regarding the relationship between MI and PS and examining the moderation role of SL in this relationship. According to research on what makes a good leader, previous literature asserted that intelligence is an integral part of being a good leader (House & Aditya, 1997; Judge, Colbert & Ilies, 2004). At the same time, Fiedler (2002) concluded that intellectual abilities don't predict leadership performance to any significant degree.

The structure of the current study will be as follows: the first section is the introduction, the second section is reviewing the previous literature, the third section is representing the methodology used in this study, and finally the discussion section.



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Literature review

2.1 MI and PS

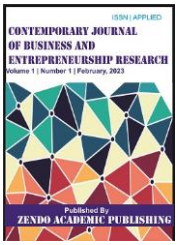
A broad conception of intelligence is a vast intellectual capacity that includes, amongst other stuff, the capability of understanding and thinking about multifaceted notions, treating with abstractions, resolving issues, and learning rapidly (Schmidt & Hunter, 1998). Most importantly, scholars have stressed the importance of analytical and critical thinking abilities in interpreting situational circumstances, learning new information, and engaging in creative problem-solving (Mumford et al., 2000). However, MI reflects allowing for the consideration of an organization's own goals and the goals of others in light of the interests and influences within the organization's internal environment (managers and staff) and with the external environment (stakeholders, institutions, counterparts in the task environment), as well as the facilitation of the development of ideas about the possible reactions of others to the agency's action (Sternberg, 1997). As mentioned above, in the introduction of this study, the tribrachic theory of human intelligence considers that intelligence includes three aspects, namely: analytical, practical, and creative (Sternberg, 1984). This claim was confirmed by Sternberg (1997), in which that each of these components is critical to management intelligence; moreover, it has been suggested that each of these components contributes to managing performance with a high degree of adequateness (Sternberg, 1999).

PS relies mainly on the project leadership competencies, in that developing leadership skills increases the chances that the project will be succeeded. Management's skills and work style also make the project more likely to succeed (Dulewicz& Higgs, 2003; Geoghegan &Dulewicz, 2008; Fareed, Su& Awan, 2021). Generally speaking, intelligence is a good indicator of overall work performance, particularly in managerial work such as team leaders, supervisors, managers, and CEOs, as these works tend to be more complex; that is, the relationship between the intelligence and the performance is greater for complex work (Schmidt & Hunter, 1998). More profoundly, Intelligent project managers use their management, intrapersonal, and interpersonal skills to develop a solution that is tailored to the current situation and aids in the improvement of project outcomes (Slaughter et al., 2007). In the same vein, it has been claimed that the project manager function demands intangible, tacit knowledge, and contextual abilities that can be used to respond to the situation at hand while managing a complex internal and external organizational structure (Napier et al., 2009). Moreover, some scholars conducted investigations on how different types of intelligence that individuals in managerial and leadership roles practice positively affect PS, such as business intelligence (Torres et al., 2018); emotional intelligence (Doan et al., 2020; Leban & Zulauf, 2004; Rezvani et al., 2016); artificial intelligence (Alhashmi et al., 2020; Ko & Cheng, 2007); competitive intelligence (Mutasim et al., 2021); and practical intelligence (Langer et al., 2014). Based on the above discussion, this study hypothesizes that:

H1: Managerial intelligence is positively related to project success.

2.2 Participative and directive leadership styles

Apparently, in our rapid change, complicated, uncertain, and the high-risk environment with erroneous, unavailable, or unequal information, decision-making must continuously be fast; these difficulties present challenges for project leadership; in addition, leadership has played a crucial role in the project's success (Faraj &Sambamurthy, 2006). There are two distinct styles of leadership: PLS, that is described as a superior and their staff making joint decisions or having a shared impact in decision making (Sashkin, 1984; Koopman &Wierdsma, 1998). At the same time, DLS is described as supplying team members with an agenda for decision-making and conduct in accordance with the superior's vision (Bass and Stogdill, 1990). DLS and PLS might be thought of as opposite extremities of the same spectrum. A directive leader will make decisions independently, whereas a participative leader will make decisions in



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cooperation and consultation with employees (Bass & Stogdill, 1990) however, while leaders with a directive style give staff precise commands, guidance, or an unambiguous roadmap to achieve desired results (House, 1996). Directive leaders likewise give staff external monitoring to speed up decisionmaking and teamwork (Kahai et al., 2004). Leaders with a participative style foster emotional connection among (i.e., organizational outcome) their employees (Mathieu & Zajac, 1990).

2.3 The moderating role of participative and directive leadership style

In general, there are also indirect hints that offer logic for the potential reinforcement impacts of both participative and directive leaders' decision approaches. First, in SMEs, a PLS may be efficient. As per various studies, the entire performance of SMEs is highly dependent on how well the team collaborates (Dietz et al., 2006; Mazzarol, 2003). On the one hand, it has been noted that PLS fosters emotional bonding among (i.e., organizational outcome) their subordinates (Mathieu & Zajac, 1990). On the other hand, DLS contributes to organizational outcomes in that, most directive leaders place a premium on goal setting and role precision (Chen et al., 2017; Judge, Piccolo and Ilies, 2004). As a result, such leaders may have an impact on the outcomes of employees, for example, in SMEs, as the majority of them prefer resilient and obvious goals (Heneman et al., 2000). Besides, employees' emotional attachment to their organization would increase if the leader provided clear instructions regarding the aims (Mathieu & Zajac, 1990). Second, DLS may also benefit organizational outcomes. Supervisors who exercise directive leadership are primarily concerned with goal formulation and role clarity (Heneman et al., 2000; Schriesheim& Kerr, 1974). Because most SMEs have fewer clearly defined job roles, directive leaders may be more effective. Employees must be adaptable and eager to take on various duties (Heneman et al., 2000).

Even though PLS and DLS may appear to be opposed, both appear to positively impact employee commitment. While this may appear to be paradoxical, both participative and directive leaders are pivotal, even though their decision-making approaches vary. PLS and DLS are differ from other styles, such those that engage in laissez-faire behavior, which is described as avoiding making decisions and commonly has a negative effect on leaders' outcomes (Bass & Riggio, 2006). Consequently, the arguments of the current study depart from, on the one hand, the notion that both PLD and DLS have the potential to improve the practices of MI and their effectiveness. An intelligent manager, for example, maybe more encouraging when he or she establishes a vision that employees support due to the integration of their personal ambitions with the bosses' vision. On the other hand, MI may have a significant role in putting the organization's vision into action and therefore contributes effectively to PS (Fiedler et al., 1979; Fiedler & Garcia, 1987; Judge, Colbert & Ilies, 2004; Turner & Müller, 2005; Geoghegan &Dulewicz, 2008; Nixon, Harrington & Parker, 2012; Cleveland & Cleveland, 2020). Finally, several previous studies have argued and proven that PLS and DLS played a moderation role in many cases (Islam et al., 2018; Mesu et al., 2015).

Based on the above discussions and arguments, the current study argues that:

H2: PLS moderates the relationship between MI and PS, in which under a high level of practicing PLS, the relationship will be strengthened.

H3: DLS moderates the relationship between MI and PS, in which under a high level of practicing DLS, the relationship will be strengthened.

The model of the current study that reflects the hypothesized relationships is shown in figure 1.

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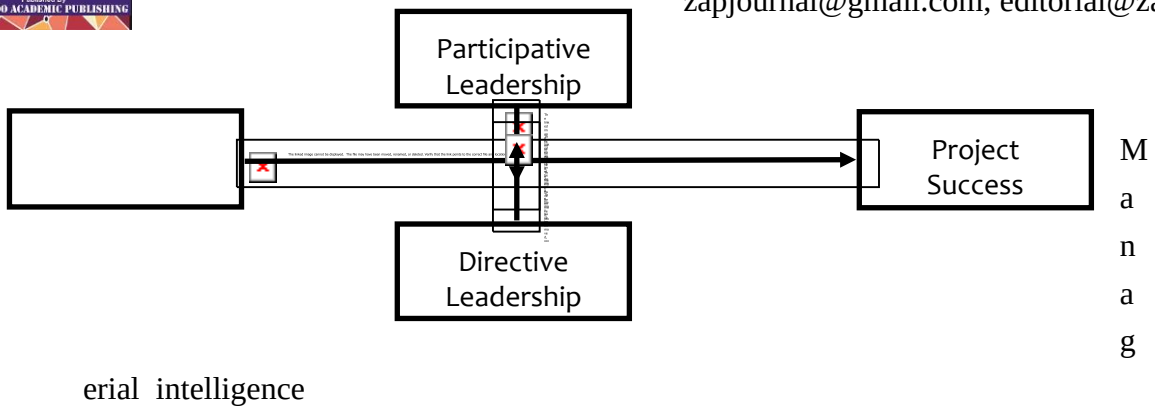


Figure 1. The model of the Study.

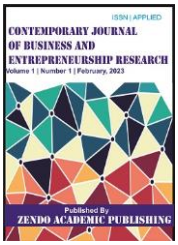
Method

The targeted sample of the current study consists of 216 top-level managers. The participants held positions of chairman, managing director, departmental director, or supervisor within 27 Jordanian SMEs in different sectors and industries. Whereas the smallest organization hired 19 employees and the largest hired 240 employees. The data was collected specifically for the purpose of this study. Table 1 represents the information about the sample in terms of industry and the number of participants from each organization. The results showed that 16 of the SMEs, with 142 leaders, were service organizations. Whereas 11 of the SMEs, with 74 leaders, were manufacturing organizations. The results showed that the average age of participants in the service sector was higher than services SMEs. Also, the tenure average was higher; however, the manufacturing sector employed more women than the service sector. A simple random strategy was used in choosing the participants in which each leader was given a random number, then half of the numbers were chosen. Questionnaires were distributed, completed, and collected at work at times arranged previously. Participants have participated voluntarily or if they were, for instance, sick or on vacation. Throughout the arranged periods, no less than one trained researcher was available to answer any inquiries or questions regarding the questionnaire.

3.1 Measures

The current study used an adapted questionnaire. The items of the questionnaire are as follow:

Managerial Intelligence (MI): According to Sternberg (1997), this variable contains 3 aspects, analytical intelligence, practical intelligence, and creative intelligence. First, the analytical intelligence was measured using the standard version of the Raven's Progressive Matrices test adapted from (Raven and Court, 1998). This test was attended to assess general intelligence levels. Whereas, in a set of abstracted geometrical forms, the participant needs to observe the relationship among components of the matrix and show the absent component from those provided under the matrix. At the same time, 60 points are the highest grade that can be achieved on this test. The grades in this study were ranged from 32 to 60. The grades were normally distributed. This is a common instrument for assessing the general mental ability, and the reliability and validity of this instrument have been empirically verified in several previous studies with Cronbach's alpha ($\alpha = 0.91$) (Harrison et al., 2015; Little & McDaniel, 2014; Shamosh& Gray, 2007). Second, practical intelligence was measured using tacit knowledge inventory for managers (TKIM) adapted based on the work of Wagner and Sternberg (1987) and Sternberg et al. (1995), which is widely used in such types of investigations (Armstrong & Mahmud, 2008; Baczyńska&



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Thornton, 2017; Baum et al., 2011). The TKIM is a test that assesses the capabilities of making decisions in certain situations. The instrument comprises 9 situations with 91 solutions. The participants evaluate individual, different solutions using a seven-point scale and select the one they believe to be the best in a particular situation. This scale is a percentage that represents the degree of conformity to the management decision-making paradigm. Records of above 90% were considered as very high (very good suitable with the paradigm), records from 85% to 90% were considered as high (good suitable with the paradigm), and from 80% to 84% were considered as medium (medium suitable with the paradigm), and records less than 80% considered as low (low suitable with the paradigm). The reliability of this instrument is adequate (α = 0.89). Third, creative intelligence this aspect was measured by following the work of (Dixon et al., 1992); since this study deals with managerial intelligence, the focus will be on the aspect of intellectual creativity. The intellectual aspect needs synthetic capability, particularly to realize problems in novel methods and avoid traditional thinking restrictions. A total of 39 items were used to measure creative intelligence with good reliability (α = 0.87). After combining all aspects of MI in one construct the final reliability was (α = 0.91)

Project success (PS): It has been claimed that there is no well-established measurement exists for assessing PS, and there is still a debate regarding what PS means (Ika, 2009; Joslin & Müller, 2015; Ngacho& Das, 2014; Todorović et al., 2015). Therefore, consistent with previous studies, this study employs a combined measure of a multi-dimensional project success factor built on the perspective of the project managers of particular standards. Also, this approach has been widely used in previous studies and has proven a good validity and reliability with (α = 0.88), particularly in the leadership field (Aga et al., 2016; Imam & Zaheer, 2021). This variable was measured using 14 items on a five-point Likert scale ranging from 1 as "strongly disagree" to 5 as "strongly agree".

Participative leadership style (PLS): This variable was measured using five items adapted from Ogbonna and Harris (2000) and it has a good reliability with (α = 0.82), whereas participants rate themselves, about their behaviours during leading their teams, on five-point Likert scale from 1 as "not at all" and 5 as "frequently, if not always". *Directive leadership style (DLS)*: This variable was measured on five-point Likert scale ranging from 1 as "strongly disagree" adapted from the work of Schriesheim and Kerr (1974). With five items participants need to rate themselves how frequently they demonstrating certain behaviours of leadership the scale ranging from 1 as "not at all" and 5 as "frequently, if not always". Moreover, both scales, PLS and DLS were used and validated in previous studies (Islam et al., 2018; Mesu et al., 2015). Also, this variable shows good reliability with (α = 0.83). However, all scales used in the current study were retested in terms of internal consistency and the results are shown in table 2.

Table 1.

Characteristics of the sample.

Characteristics of the sample	Type of industry		Total/average
	Service	Manufacturing	
Number of organizations	16	11	27
Number of leaders	142	74	216
Age average	22	18	20
Men %	42%	54%	48%
Tenure	7	12	9..5

Table 2,

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Simple descriptive of variables.

variables	Mean	SD	α	1	2	3	4
MI	3.89	0.61	0.91	1			
PS	3.71	0.54	0.88	0.59**	1		
PLS	3.94	0.75	0.82	0.53**	0.48**	1	
DLS	3.72	0.62	0.83	0.47**	0.44**	0.56**	1

Notes: MI "Managerial Intelligence; PS "Project Success", PLS "Participative Leadership Style; DLS "Directive Leadership Style"; α "Reliability". **p < 0.01

3.2 Analysis and results

The preliminary analysis is the first step in the analysis stage in the current study. This preliminary analysis includes data preparation such as missing values, normality, and reliability. The confirmatory factor analysis (CFA), structural equation modeling, and hierarchal regression are employed to produce the results. The Maximum likelihood procedure is used to assess CFA. Whereas the assessment of the model fitness shows good fit ($\chi 2$ = 193.31; df = 57; p = 0.000; RMSEA = 0.047; CFI = 0.953; TLI = 0.930; NF =0.910; AGFI = 0.892, GFI = 0.903). Moreover, in order to make sure that the issue of common method variance (CMV) is not exist, several techniques were conducted in which randomizing the order of the questions, avoiding "multifaceted syntax", and "double-barreled" items to guarantee simplicity throughout the process of data collection (Podsakoff et al., 2003). Additionally, the Harman's singlefactor method was used to examine the data and the results shows that the new latent variable (without rotation) contributes to less than 40 percent of the variance. This test, also, confirms the issue of CMV is not exist (Podsakoff et al., 2003). Furthermore, the measurement model is employed to assess the composite reliability (CR), average variance extracted (AVE), and reliability. That is, reliability was assessed via CR and Cronbach's alpha (CA); AVE was used to assess the convergent validity; discriminant validity was assessed through heterotrait –monotrait (HTMT) ratio; and finally, multicollinearity assessed through the variance inflation factor test (VIF) (Henseler et al., 2016).

3.3 Hypotheses testing

Structural equation modeling is the choice of the current study for the analysis and the hypotheses testing. As mentioned earlier, according to the analysis results the model fit was found to be good. For the correlation analysis, table 3 shows the values of the standardized estimates. The values, as predicted, identify that MI was positively associated with and as hypothesized, a positive and significant association between MI and PS was found with PS (γ = 0.63, p = 0.01). Lastly, the current study employed hierarchical regression to test the moderation. While first of all, some demographical variables were utilized as control variable (i.e. age, gender, and tenure). Second, the independent (Managerial intelligence "MI") and the moderating variables (participative leadership style "PLS" and directive leadership style "DLS") were inserted. Third, as shown in table 4, an interaction term between independent and moderating variables (MI × PLS and MI × DLS) was regressed. The values in the table 4 show that both PLS and DLS were found to strengthen the positive association between MI and PS with a variance of 21 and 19 per cent, respectively. Consequently, the results support suggested hypotheses H2 and H3.

Table 3.

The values of the standardized estimates.

Hypothesized relationship	Std. estimates	R^2	*t*	Result

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MI → PS	0.43	0.29	14.66	Supported	

Notes: MI "managerial intelligence", PS "project Success" Table 4.

Interaction term between independent and moderating variables.

Variable	Project success (PS)			Project success (PS)		
	β	SE	*t*	*β*	SE	*t*
First: control variables						
Age	0.13*	0.059	2.29	0.13*	0.059	2.29
Gender	0.11	0.042	2.59	0.11	0.042	2.59
Tenure	0.17*	0.062	2.64	0.17*	0.062	2.64
R^2		0.03			0.03	
Second: Independent and dependent variables Managerial intelligence (MI)	0.13**	0.061	2.61	0.14**	0.076	2.02
Participative leadership style (PLS)	0.18**	0.041	4.42	-	-	-
Directive leadership style (DLS)	-	-	-	0.19**	0.049	3.91
R^2		0.19			0.31	
ΔR^2		0.16			0.28	
Third: interaction term MI × PLS	0.21	0.048	4.412	-	-	-
MI × DLS	-	-	-	0.31	0.037	8.67
R^2		0.33			0.43	
ΔR^2		0.14			0.12	

Notes: PS is the dependent variable. *p < 0.05; **p < 0.01

Discussion

The current study is testing a theoretical model that was built specifically for the purpose of the study and depicts the hypothesized relationships between the independent variable MI and dependent variable PS; in addition, the model is testing the moderation role of both styles of leadership PLS and DLS in this relationship. This study one of the rare studies that deliberates the field on MI and its effects on PS. However, the current study is consistent with a few number of previous studies in intellectual capability, the results of this study have found that different types of intelligence competences (such as analytical, and creative) of managers to be important for project performance in different context (Langer et al., 2014); firm performance (Torres et al., 2018); and work place performance outcomes (Rosete &Ciarrochi, 2005) because of its consequent role in outcomes such as citizenship behavior, performance, efficiency and withdrawal (Sternberg, 1997). The current study maintains prior research accomplished in this field and contributes to deep understanding the system through which MI can affect PS. In that, the theories of trait have, for long time, been utilized as a possible pattern for comprehending leader execution with leadership occurring imputed to continuing characteristics of the individual such as intelligence and dominance (Bass & Stogdill, R.M., 1990; House, 1996; Lord et al., 1986). More

interestingly, one of the main conclusions of the current study is that both leadership styles PLS and DLS were found to significantly moderate the relationship of MI and PS. That is, managers can achieve organizational goals by either engaging employees in decision-making process or through modelling their view regarding previously made decisions (Bass & Riggio, 2006). Nevertheless, it is worthy to declare that both styles of leadership may not be fruitful in all types of organization as, in that, PLS style was further helpful in the service sector, while it was less helpful in the manufacturing sector (Mesu et al., 2015). In contrast, it has been found that PLS was ineffective in hospitals as the most of managers have had a bureaucratic philosophy (Rad &Yarmohammadian, 2006).

4.1 Practical implications

The current study is maybe the first of its sort to investigate the mechanism between MI and PS. The study contains practical implications for the practitioners of human resource development as well as leadership. The study observed that the occurrence of MI among supervisors positively adds to their decision-making process, task variety and feedback, as managers assume their growth and progress. Yet, although managers with high levels of intelligence are needed for each projects, such managers are not all the time obtainable. Therefore, the findings have significant implications for managers, as they choose project managers, and give advice and candidates potential project managers. Considering that, managers with intelligence capabilities are a rare resource, it is sensible to assign these managers to the projects that will promote from them the extremely (Langer et al., 2014). Moreover, the findings suggest that, there might be noteworthy gains regarding a higher project performance through allocating a project manager depending on its intelligence level and the nature of project (the level of project difficulty and familiarity). For instance, as discussed earlier, projects that are expected to possess superior difficulty or low familiarity would gain extra from possessing a manager with an advanced level of intelligence than would projects of inferior difficulty or greater familiarity (Geoghegan &Dulewicz, 2008).

4.2 Limitations and direction for future research

As the case in any research work, the current study has limitations that poses opportunities for new and valuable investigations in the future. First, the current research is a cross-sectional research, whereas future research could take into account a longitudinal design for superior understanding regarding intelligence capabilities of leaders and other styles of leadership that may hold different influence on managers' attitudes. Second, the current study focuses on SMEs in services and manufacturing sectors. While future studies may benefit and have different findings from focusing on other size of firms such as large or micro firms. Third, the current study conducted through data collected in Jordan context, other studies could be conducted in other context such as western cultures or developed countries.

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