

The Impact of High Performance Work Practices on Project Performance. A Case Study of Construction Companies in South Africa

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Abstract: A vast amount of research advocates that a tight link exists between high performance work practices (HPWPs) and organisational performance. Nonetheless, a detailed study indicating which of these practices offers significant performance in relation to multi-project environments is still lacking. Importantly, project performance is a measure of success in multi-project environments evident in construction firms. The objective of this study is to determine the impact of HPWPs' bundles namely: recruitment and selection (RS), training and development (TD), performance appraisal (PA) and compensation system (CS) on project performance in the construction multi-project companies in Cape Town, South Africa. In this study, perceptual data was obtained using a questionnaire survey of 63 participants working as project team members and administrative staff respectively in select construction companies in Cape Town, South Africa. Stratified and convenience sampling techniques were used to selected the participants. Data were analysed using descriptive and inferential statistics with the help of SPSS, version 24. The statistical results show that out of the four HPWPs, only CS has a significant association with project performance.

Keywords: High performance work practices; Project performance; Construction industry; South Africa; Human resource management

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1. Introduction

Within an organisation, the responsibility for ensuring that employee attitudes, skills, behaviours, knowledge competencies are favourable for effective performance and the achievement of an organisation's strategic objectives and

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competitive advantage lies with the human resource (HR) unit. (Sözbilir, 2016) A growing number of existing literature and studies acknowledge a positive relationship between human resources management (HRM) and organizational performance. (Kouhy, Vedd, Yoshikawa & Innes, 2009) High performance work practices (HPWPs) are crucial to achieving success in organisations. HPWPs' impact on organizational productivity has gained momentum in the fields of HRM and organizational psychology. (Huselid, 1995; Belout & Gauvrea, 2004) Recruitment and selection (RS), training and development (TD), performance appraisals (PA), and compensation system (CS) are four of a host of HPWPs claimed to pose a significant implication on the success of an organisation. (Turner, Huemann & Keegan, 2008; Grobler, Warnich, Carrell, Elbert & Hatfield, 2011) Pirzada, Hayat, IkramAyub and Waheed (2013) are also of the opinion that effective HR practices are supported in any field where HPWPs are well deployed. However, very few studies have attempted to reveal the importance of HPWPs on project performance. (Pinto & Prescott, 1988; Slavianska, 2015)

There were views (such as Belout & Gauvrea, 2004; Belout, 1998) that HRM has no significant impact on project performance. However, recent studies have reported differently. For instance, Harr (2009) suggests that issues such as HRM are some of the problems that confront multi-project environments (MPEs). It is also suggested that companies involved with multi-projects need to focus more on personnel issues because it is the cornerstone of organizational success. (Slavianska, 2015) MPEs are organizations in which all the work is executed as projects and where multiple projects are managed concurrently. (Patanakul & Milosevic, 2008) In this regard, the construction industry has been widely recognized by many researchers as multi-project environments. (Loosemore, Dainty & Lingard, 2003; Meredith & Mantel, 2012) Construction organisations are well known for more use of manpower in business activities as compared to other fields. (Ghatehorde & Chhinzer, 2009) Hence, this study determines the impact of HPWPs namely RS, TD, PA, and CS on project performance in select construction companies in Cape Town, South Africa.

Considering the foregoing, the study poses the following questions: (1) what is the relationship between the four HPWPs and project performance? And (2) what is the role of the four HPWPs' bundles in multi-project environments?

The contention is that the above questions would assist to (1) determine the relationship between the four HPWPs and project performance; and (2) establish the role of the four HPWPs' bundles in multi-project environments.

2. Literature Review

2.1. HRM in the Construction Multi-Project Environment

HRM practices are famous with many researchers citing them as holding affirmative relationship in ensuring organizational success in the past decade and beyond. (Khan & Rasheed, 2015) Khan and Rasheed (2015) also reiterate that a complete structure in an organisation, as far as HRM is concerned constitutes factors such as recruitment and selection; training and development; performance appraisal; and compensation system. These HPWPs have been referred to as the four, core generic functions of HRM designed to impact performance of employees across all organizational levels. (Devanna, Fombrun & Tichy, 1984) The main objective of effectively managing employees is to motivate them so that they can be more productive in their duties.

Loosemore et al. (2003) asserted that “human resources account for the highest costs in most construction projects”. Bredin (2006) in a study that looked at aspects that pose challenges in the management of multi-project organizations found that one such important challenge has to do with HRM. Reference is also made to contractual relationships created by subcontractors as having become problematic and because of this Dainty, Grugulis and Langford (2007) as well as Dainty and Loosemore (2012) are of the view that subcontracting in the construction industry needs to be well managed to ensure effective acquisition, organisation and deployment of human resources. Other problematic issues include throw-away personnel policies, reliance on the competence and knowledge of the employees; “high pressured work environment that will leave little space for formal training or staff development, and a lack of incentives for human resource development”. (Bredin, 2006)

2.2. Overview of HPWPS

The dynamic and temporary nature of work practices, policies and processes in multi-project organisations pose challenges for both the employee and the organization with regard to how HRM should be practiced. HRM practices, policies and processes have to comply with specific requirements of the multi-project organization. (Keegan, Huemann, & Turner, 2011)

2.2.1. Recruitment and Selection

Recruitment and selection are related processes. Recruitment refers to the process of attracting as many as possible, potential applicants for a vacant position while selection is the process of “choosing from a pool of applicants, the person most suitable for the job”. (Grobler et al., 2011)

Huselid (1995) in his review of HRM practices and policies of high performance companies, found that proper application of recruiting and selecting procedures

boost employee productivity, increase organizational performance, and contribute in diminishing turnover. However, poor application of the recruitment and selection practices poses detrimental effects; blocking the company from achieving its objectives thereby dwindling its competitive edge and market share. High training and development costs; high disputes and disciplinary problems; absenteeism; low productivity; and high turnover are common factors that accompany poor application of recruitment and selection practices. (Grobler et al., 2011) Ahmed and Briggs (2012) recommend that construction companies should not rely solely on interviews or reference checks to recruit skilled labour, but in addition apply performance and knowledge tests in order to improve the workforce retention rate. An essential ingredient in recruitment and selection process is transparency especially considering the Labour Relations Act of South Africa. (Nel, Werner, Haasbroek, Poisat, Sono & Schultz, 2008) In short, Coetzee and Schreuder (2010) insist that every organization should establish a systematic recruitment and selection process that should be consistently observed. (Coetzee & Schreuder, 2010)

2.2.2. Training and Development

Training and development are two interrelated, but different concepts as they are applied in the workplace. Training can be defined as the formal and systematic modification of behaviour, attitudes and skills that are critical for successful job performance through learning experiences which can occur through education, instruction, development and planned experience. (Armstrong, 2006; Coetzee, Botha, Truman & Tshilongamulenzhe, 2013) Development is defined as the “process of growing employees and equipping or preparing them for different better or big opportunities other than those required in the current job”. (Coetzee et al., 2013) Whilst the main aim of training is focused more on the ability to master and become skilful in the performance of a particular task, the thrust of development is to maintain highly competent staff that are abreast of the competitive global market demands to fulfil future organisational workforce needs. (Snell & Bohlander, 2006; McKenna & Beech, 2014)

Training is one of the most important HRM functions. (Grobler et al., 2011) At the company level, training and development prospects must be reflected in the company’s training policy and plan. In a study carried out by Castaneda, Tucker and Haas (2005), lack of training was identified as a contributing factor to the shortage of skilled workforce in the construction sector, and this has exerted a negative impact on project performance. In this regard, Canstaneda et al. (2005) suggest the hiring of better-educated workers, who would receive higher compensation and deliver improved results. Fryer (1990) concur that there is a sudden appreciation of the need to train project team members on skills and

competencies (team work skills) that will enable them to function effectively in team work procedures during the construction project production processes.

2.2.3. Performance Appraisal

HR performance appraisal can be defined “as a process of systematically evaluating performance of the companies” personnel and providing feedback on the measured performance with the aim of making adjustments”. (Dransfield, 2000) Sofijanova (2000) defines performance appraisal as the assessment of current or past employee's performance against established standards of performance. This means that if the behaviour of an individual departs significantly from the desired, either positively or negatively, further actions should be taken to improve the actual behaviour. (Minbaeva, 2005) Such actions can entail training or transferring the employee or motivate the employee for better performance. (Noe, Hollenbeck, Gerhart & Wright, 2015) Beardwell and Thompson (2014) point out that effective performance appraisal should contribute remarkably to the success of the organisation by defining the direction for training and development of employees, and feeding the reward system structures.

There is a staggering argument with regard to who has formal responsibility to appraise performance in MPEs. Whilst project managers, because of their day-to-day contact with project workers, are believed to have more influence, line managers have been widely agreed to have the formal responsibility to conduct performance appraisal. (Keegan et al., 2011) In what seemed to buttress the above researchers findings, Roelofs (2012) developed a responsibility distribution based on past literature. The perception was that the role with the highest number of articles supporting it was the role that has a more recognized formal responsibility to regulate HR activity of performance appraisal in MPEs. The results revealed that line managers, followed by project managers are the people with the mandate to conduct performance appraisal.

2.2.4. Compensation Systems

In defining compensation, Grobler et al., (2011) refer to both extrinsic and intrinsic rewards such as salary and benefits, personal goals, autonomy and more challenging job opportunities. A good compensation system should include both intrinsic and extrinsic rewards that are comparable to the market. (Nel et al. 2008) Extrinsic rewards (financial) are divided into monetary rewards (direct payments) and benefits (indirect payments). Monetary benefits can comprise hourly “wage, salary, bonuses, commissions, pay incentives”, etc. whilst benefits consist of “insurance, retirement, paid holidays, paid public holidays”, etc. Intrinsic rewards (non-financial) cover “recognition, promotion opportunities, working conditions, interesting work, training opportunities”, etc. (Grobler et al., 2011) Wages and benefits should be fairly distributed to achieve organizational competitive purposes. (Coetzee & Schrueder, 2010) Perkins and White (2011) coin what is

known as “total reward” proposition that states that compensation should go “beyond those specified in the employment contract to rewarding discretionary effort”.

Meanwhile, research has confirmed that “higher pay, greater pay growth” and other rewards are “correlated with higher performance and lower turnover”. (Haines, Victory, Jalette & Larose, 2010) Milkovich and Boudreau (1998) revealed a significant influence on firm performance that is exerted by incentive-based compensation. Also, an interesting study by Kazaz and Ulubeyli (2007) in the construction sector in which 82 firms were surveyed, indicated that socio-psychological factors, although gaining momentum, pose less influence on productivity than monetary factors.

2.3. Project Performance

Project performance is the extent at which a project achieves project and business objectives. Various yardsticks have been offered for measuring project performance. It is in fact traditionally agreed that project performance is measured by the potential to meet budgeted time, cost, and quality goals. (Meredith & Mantel, 2012; PMBOK, 2013) However, project performance can also be measured by factors such as “team satisfaction; business success; health and safety; impact on the client; project efficiency; and preparing for the future”. (Shenhar, Levy, & Dvir, 1997; Serrador & Turner, 2014) Aaron, Dov, Ofer, Alan and Maltz (2001) outline the following four distinct success measures for project performance “(1) impact on the customer; (2) project efficiency; (3) direct business; and organizational success, and (4) preparing for the future.” Meredith and Mantel (2012) argue that the “expectations of the client” is equally an important criterion while Shenhar et al., (2007) are of the opinion that “impact on the team” is a component that can be used to measure project performance. Apart from meeting time, cost and quality goals and the other measures highlighted above, the construction theorists (such as Chan & Tam, 2000) are strongly of the view that health and safety is a significant measure of project performance in the construction industry.

3. Research Methodology

In order to provide answers to the research questions stated above, a self-administered questionnaire was designed, and distributed to select project team members and administrative staff within five construction companies in Cape Town, South Africa.

3.1. Description of Sample

The target population of this study consisted of employees of selected construction companies in Cape Town, South Africa. A sample of 70 employees was drawn from five selected construction companies. Convenience sampling technique was used to select the construction companies. Each company provided between 10 to 15 employees to complete the questionnaires. Stratified sampling technique was employed in the selection of the respondents to complete the questionnaire. The study participants comprised employees who worked as project team members and other line staff such as HR officers, financial managers etc., who were involved or knowledgeable in the running of the projects in the company.

3.2. Description of the Instrument

The study used a structured questionnaire to collect data. In order to compare results with previous studies, a questionnaire was adapted from the highly cited work of Singh (2004) to measure HPWPs. The questionnaire was then adjusted to suit this study based on the existing and reviewed literature. Items to measure project performance were adopted from the five dimensions of project performance proposed by Shenhar and Dvir as cited in Serrador and Turner (2014). Again, this section was adjusted to suit this study based on the existing and reviewed literature, for example, health and safety was added as the sixth dimension.

The structured questionnaire consisted of three sections. Section A captured respondents' information with regard to gender, age, educational qualifications, number of years of service, and job position. Section B consisted of statements that measured project performance. This section consisted of eight items measured on 5-point likert scale, ranging from strongly disagree to strongly agree, with (1) representing strongly disagree and (5) strongly agree. Section C measured the perceptions of participants about the four HPWPs. This section consisted of 20 items measured on 5-point likert scale, ranging from strongly disagree (1) to strongly agree (5).

3.3. Statistical Tests Utilized for Data Analysis

Descriptive statistics was used to find the "frequency of the data; the minimum and maximum range of the data; mean, and standard deviation". (Durrheim, 2002) Inferential statistics were used to find the relationship between variables. This relationship is referred to as "correlation coefficient" which is popularly known as "Pearson product-moment correlation coefficient". (Cronbach, 1970) The utility of SPSS version 24 is acknowledged in these efforts. In this study, the variables comprised the four HPWPs (independent variables) and project performance (dependent variable).

4. Results and Discussion

4.1. Demographic Profile

71.4% of the respondents were males whilst the other 28.6% were females. Of the respondents, 46, 03% had between 5-10 years of work experience in the construction industry, 39, 92% had less than 5 years whilst 19.05% had more than 10 years of work experience. 52.38% of the respondents had a Diploma qualification, 30.16% were in possession of a degree, whilst the other 17.46% were matriculants. 28.57% indicated that they worked as construction/ site managers, 26, 98% confirmed that they were in the category of line admin staff, 15.87% were project managers, whilst 9.52% and 7.94% were engineers and architects respectively. The other 11.11% indicated that they occupied other positions. 53.97% were between the ages of 35 and 55; 39.68% were less than 35 years of age, whilst only 6.35% were above 55 years old. 20.63% of the respondents reported that they had been involved in 20 projects, while 19.05% indicated 10 projects. The others 9.15% reported to have been involved in 15 projects. 19.05% of the respondents were distributed equally to have been involved in 3, 5 or 25 projects, each having a percentage of 6.35% of the respondents. Similarly, respondents who participated in 1, 9, 13, 40 and 45 projects occupied 1.59% of the respondents in each category, whilst 4.76% of the respondents were reported to have been involved each in 8, 30 and 35 projects. Lastly, 3.17% of the respondents reported to have been involved in 6 projects. Overall, 76.2% reported to have been involved in 5 to 45 projects, whilst 23.8% reported to have been involved in less than 5 projects. And only 1.59% of the respondents reported to have been involved in less than 3 projects.

4.2. Coefficient of Determination

In order to obtain coefficient of determination, a multiple regression analysis was applied by considering PP as criterion variable and RS, TD, PA and CS as three predictor variables. The outcome of model summary is depicted in Table 1 below. The coefficient of determination measures the extent to which the independent variable determines the dependent variable. In the current study, as shown below, $R^2 = 0.237$, this means that 23.7% of the variation of PP is directly due to the variation in all of the independent constructs. In simple terms, the variables (RS, TD, PA and CS) are responsible for 23.7% of PP while the remainder (76.3%) is unattributable to any of our variables (i.e. RS, TD, PA and CS). This is an indication that there are other factors, other than RS, TD, PA and CS which significantly influence PP.

Table 1. Regression analysis to obtain a Coefficient of determination

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	CS, TD, RS, PA ^b	.	Enter

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Change	F Change
1	.487 ^a	.237	.185	.35863	.237	4.512

4.3. Research Objectives

4.3.1 The Relationship between the four Hpwps and Project Performance

Correlations are regarded significant if $p \leq 0.01$. Relationships between variables are regarded as weak if r is $\leq \pm 0.1$; modest if r is $\leq \pm 0.3$; moderate if r is $\leq \pm 0.5$; strong if r is $\leq \pm 0.8$ and very strong if r is $> \pm 0.8$ ". (Willemse & Nyelisani, 2015)

Therefore, it is important to note that on its own, each of these bundles - RS, TD and PA - has no significant relationship with PP; thus only CS has a significant correlation with PP. In simple terms, this suggests that PP is affected by RS by -16.8%; TD (-4, 1%); PA (-9, 8%). On the other hand, PP is affected by CS by 29.2%. This indicates that the "relationship which exists between the independent variables" (RS, TD, and PA) and "dependent variable" (PP) is negative. In the same vein when the independent variables (RS, TD and PA) are increased, for example, the dependent variable, PP decreases by the same percentage shown above. However, the negative relationship that exists is not significant. On another note, a positive relationship exists between PP and CS, meaning that when CS is increased for example, PP increases also by 29.2%. This further confirms that when organizations effectively conduct their compensation practices, they are bound to gain 29.2% increase in project performance.

The above findings, particularly the influence of RS, TD and PA on PP are similar to the findings of Pinto and Prescott (1988) which revealed a zero relationship of HR practices in the context of project success. TD's less or no influence on PP "confirms the temporary and unique nature of projects". (PMI, 2008) Projects are time bound and temporary in nature, and as a result, do not run together with activities such as training and development that are long-term. Also, arguments put forward on the need to save costs as a means of "gaining competitive advantage" were less favourable with regard to the effects of TD interventions on project success (Porter, 2008). It is also important to note that TD consumes money.

Hence, since multi-project organisations are constrained by costs, time and quality, they consider not engaging in TD as a prudent strategy of managing project cost. (PMI, 2008) However, the weak influences of RS and PA on PP in the current study are antagonistic to the findings of Sarwar, Aftab, Sarwar and Shahid (2016) who found that out of three HRM practices, RS and PA have significant influence on project success. With regard to the influence of CS on PP, the findings of this study echo the findings of Khan and Rasheed (2015) and, Belout and Gauvreau (2004). Khan and Rasheed (2015) as well as Belout and Gauvreau's (2004) findings advocate the significant role of HRM on project performance as opposed to the study of Pinto and Prescott (1988). CS has a "positive and significant relationship with project success in Pakistani project-based organizations". (Khan & Rasheed, 2015) Overall, the weak, positive and negative relationship of the four HPWPs with project performance as perceived by the respondents was compatible with the findings of Loosemore et al. (2003) who reveal that most of the construction industry's employment practices are informal. It is also argued that "project teams need little attention, and project managers pay little attention to human resources", with more "focus on structuring and planning operations". (Belout, 1998) In addition, Dainty, Grugulis and Langford (2007) review of the current context of construction employment, reflected skills shortages and informal employment practices as impediment to productivity in the construction industry.

Table 2. Correlation analysis of the variables

Correlations		PP	RS	TD	PA	CS
PP	Pearson Correlation	1	-.168	-.041	-.098	.292*
	p-value (2-tailed)		.188	.752	.443	.020
	N	63	63	63	63	63
RS	Pearson Correlation	-.168	1	.367**	.666**	.522**
	p-value (2-tailed)	.188		.003	.000	.000
	N	63	63	63	63	63
TD	Pearson Correlation	-.041	.367**	1	.618**	.225
	p-value (2-tailed)	.752	.003		.000	.076
	N	63	63	63	63	63
PA	Pearson Correlation	-.098	.666**	.618**	1	.492**
	p-value (2-tailed)	.443	.000	.000		.000
	N	63	63	63	63	63
CS	Pearson Correlation	.292*	.522**	.225	.492**	1
	p-value (2-tailed)	.020	.000	.076	.000	
	N	63	63	63	63	63
*Correlation is significant at the 0.05 level (2-tailed).						
**Correlation is significant at the 0.01 level (2-tailed).						

4.3.2. The Role of the four Hpwws' Bundles in Multi-Project Environments

With regard to this research objective, the four HPWPs referred to are RS, TD, PA and CS. All these variables were measured as independent variables to PP. As shown below (Table 3), amongst the independent variables, RS and CS had the highest means of 3.9246 and 3.9087 respectively. This means that on average, the respondents perceive a positive and relatively good application of RS and CS in their organisations. PA recorded the smallest mean of 3.4921 whilst TD scored a mean of 3.7857. This means that, on average, the two variables although their means are above half, were considered by the respondents to be relatively medium and below the desired standard. Similarly, RS and CS scored smallest standard deviations and range values. With regard to the standard deviation, RS recorded 0.59167 whereas CS scored the smallest 0.49656. In terms of the range value, RS indicated 2.75 whereas CS recorded 2.25. On the other hand, TD and PA had standard deviations of 0.68877 and 0.60199. The range values for TD and PA were 3.00 and 2.50 respectively. The smallest standard deviation and range values scored for RS and CS as compared to their counterparts: TD and PA, indicate that the respondents had relatively similar perceptions with regard to the applications of RS and CS in their organisations as compared to TD and PA, which revealed that respondents had relatively divergent perceptions with regard to their applications in the organisations.

Table 3. Means, Standard deviations and Ranges for PP, RS, TD, PA and CS

Statistics		PP	RS	TD	PA	CS
N	Valid	63	63	63	63	63
	Missing	0	0	0	0	0
Mean		4.2083	3.9246	3.7857	3.4921	3.9087
Std. Deviation		.39719	.59167	.68877	.60199	.49656
Range		1.75	2.75	3.00	2.50	2.25

These results are contrary to the findings of Marwat, Qureshi and Ramay (2007), which realised high means in TD and PA as compared to CS. Similarly, small values for standard deviations and range were recorded in TD and PA. For standard deviation, both TD and PA are 0.81 whilst CS and RS record 1.18 and 0.85 respectively. (Marwat, et al., 2007) With regard to the range, TD and PA score 3.67 and 3.57 respectively whilst RS and CS both score 4.0. Our results are somewhat similar to that of Khan and Rasheed (2015) on only the standard deviation of CS and mean of RS. Their findings had the highest mean recorded for RS whilst the lowest standard deviation was recorded for CS. (Khan & Rasheed, 2015)

4. Conclusion

In a nutshell, this study contributes to the body of knowledge on theories and their applications regarding HPWPs and project performance in multi-project environments. Essentially, this study confirms the commonly held notion that organisational productivity is also dependent upon HPWPs. The main objective of this study was to, based on the participants' knowledge and experience of working with projects, determine the perceptions of project team members (project managers, engineers, architects, contractors, site managers and quantity surveyors) and some line managers (financial managers, HR managers, etc. and administrative staff) on the effects of HPWPs on project performance in their construction organizations, and the role the four HPWPs have on multi-project construction organisation. The study was motivated by the fact that detailed study of HRM in the project management field was still incomplete to offer any meaningful conclusions regarding its significance in the management of projects, particularly as to which practices pose significant impact on project performance. Also, where studies concentrated on HRM in the project management field, most of it investigated the management of single projects instead of multi-project environments, and few focused on individual HPWPs on project performance. Moreover, Dainty and Loosemore (2012) state that "despite its size and socio-economic significance, the construction sector remains a poorly understood industry, particularly in relation to its people management practices."

Pertaining to the relationship between RS, TD, PA and CS and project performance, and the extent and direction of relationship, this study concludes that TD, RS and PA have a negative relationship with project performance while CS has a positive but weak relationship. Also, only CS and RS policies and practices have proven to be moderately applied in accordance with the minimum HR and labour legislations expected standards. However, although TD and PA policies and practices are being aligned with some HR and labour legislations, the alignment is somehow arbitrary and not up to expected standard. This means that construction organisations need to invest their stake more in the four HPWPs if they are to realise the benefits derivable from effective deployment of HPWPs.

5. Research Limitations and Future Plan

This study focused on selected construction organizations in Cape Town, South Africa. Owing to the fact that multi-project organizations are not limited to the construction industry only, but can exist in other industries, namely manufacturing industries, this study cannot be generalized to other organisations in South Africa and other developing nations. This means that future research can be extended to other industries and developing countries where multi-projects are executed.

Methodologically, this study utilised a limited sample coupled with a self-administered structured questionnaire. Future research can study the same population, involving a larger sample with the questionnaire containing both closed and open-ended questions in order to obtain more in depth insights into the subject matter.

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