



PAN AFRICA CHRISTIAN UNIVERSITY

**PhD IN ORGANIZATIONAL LEADERSHIP AND DEVELOPMENT
END OF SEMESTER EXAMINATION**

DEPARTMENT

LEADERSHIP

COURSE CODE

POLD 709

COURSE TITLE

ADVANCED QUANTITATIVE RESEARCH

EXAM DATE

.....

TIME

Duration

3 hours

See a few comments below.

INSTRUCTIONS

- Read all questions carefully.
- ANSWER **Question one** and **ONE** question from **section 2 (20 Marks)**

SECTION 1 - COMPULSORY

QUESTION ONE:

THE WOTZ CASE OF THREATENING STAFF TURNOVER

Wotz Ltd has registered staff related challenges in the last quarter of the year. Nearly does a day pass without a member of staff walking into the Human Resource Director's office threatening to resign. The HR Director persuades each of the employees threatening to resign to reconsider their decision and continue with their respective work stations. The HR Director convened a meeting with all section heads in the company and reported of the serious threat of high staff turnover the company is facing. The section heads expressed surprise at the news reported by the HR Director and requested for evidence as they had not experienced any sign of dissatisfaction from the staff in their respective sections. The HR Director also expressed surprise from the sections heads ignorance of the state of their employees in their respective sections and wondered whether the workers were complaining due to issues arising from the company or the sections heads leadership style. The HR Director had sketched some observations in his notebook based on the case of each of the employees that had reported of their intention. The HR Director's notes had cited reasons such as the work environment, the staff appraisal system, stagnated careers and the supervisors' leadership style. The HR Director posed a question to the section heads "*are the staff in our company considering resigning due to these issues they have raised or is it because the issues are leading them to a point of dissatisfaction with their jobs in the company? Or are the competitors offering better working environments or packages?*" The suggestions raised in response were not clear as to which of the factors contributed and the exact role they may have played in driving the employee decision to plan to resign. Further, the section heads however felt that since these matters had not been reported to them by any of the employees, a more concrete evidence was required to initiate any intervention to stem the threat of high staff turnover. At the end of the meeting, there was a general agreement that (i) the matter of the threat from resigning employees should not be treated lightly (ii) the company should seek to engage an expert to scientifically verify the claims made by the employees, and (iii) the HR Director to take charge of the interactions between the company and the expert throughout the process from conception of the project to the submission and dissemination of the contents of the final report.

Required:

- i. In just two sentences, describe the Leadership Problem that Wotz Ltd is facing.(1Mark)
- ii. From a scientific research point of view, why is it that the section heads seem not to have confidence in the HR Director's summarized notes on his observations.(1 Mark)
- iii. If an expert is to take up the task of providing the needed concrete evidence for a decision, what are the various steps to be followed in completing the project? (2 Marks)
- iv. Identify the variables from this case that the expert needs to investigate and clearly indicate their specific role in the research project.(2 Marks)
- v. Provide a well sketched diagram showing the conceptual framework suitable to guide the study.(2Marks)
- vi. What sampling Method would you suggest for drawing respondents from the company for the research project?(1 Mark)
- vii. Propose four hypotheses stated in the null form and corresponding objectives that the expert needs to address. (1 Mark)

SECTION 2 – ANSWER ANY ONE QUESTION

QUESTION TWO:

A) The management of the Regional Association of Manufacturers(RAM) wishes to initiate reforms in the manufacturing sector to be effected by the leaders in the respective industries that have subscribed to its membership. A consultant contracted to survey and describe the characteristics of the leadership of the industry considered important for driving the reforms submitted the report summarized in table 1.

TABLE 1: INDUSTRY LEADERS' DESCRIPTIVE STATISTICAL DATA

Type of Leadership Characteristic	N	Min	Max	Mean	SD
Strategic thinking capacity	144	1.00	5.00	4.09	.86
Systems Orientation	144	1.00	5.00	4.05	.90
Enterprising Spirit	144	1.00	5.00	3.94	.89
Networking capacity	144	1.00	5.00	4.09	.88
Human relations	144	1.00	5.00	3.99	.95
Customer Centric capability	144	1.00	5.00	3.93	1.01
Aggregate score				4.01	0.93

Required:

- i Advise the RAM Management the number of Leaders sampled for the study (0.5 Marks).
- ii Explain to the management, the structure of the instrument used to obtain the primary data (0.5 marks).
- iii Explain to the management how the various factors were rated in terms of their importance by the sampled team of leaders (1 Mark).

B) ZTC Ltd has been piloting a quality management program with an intention to use the pilot program experience to decide on whether to apply for ISO 9001 Quality Management Standard certification. The company has operated the pilot project for two years with a keen focus on four dimensions: product design, quality improvement, management commitment and customer focus. The quality assurance office obtained data upon request by management and submitted the report summarized in table 2.

TABLE 2:REGRESSION OUTPUT RESULTS

MODEL SUMMARY					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.821a	0.674	0.657	0.204736	
ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.505	4	1.626	38.797	.000
Residual	3.144	75	0.042		
Total	9.649	79			
COEFFICIENTS					
	β	Std. Error	t	Sig.	
(Constant)	0.302	0.291	1.041	0.301	
Product Design	0.165	0.058	2.829	0.006	
Quality Improvement	0.225	0.075	3.009	0.004	

Management Commitment	0.222	0.054	4.112	0.000
Customer Focus	0.330	0.061	5.413	0.000

Required:

- Explain to the Management how the pilot project has affected the performance of the company.(1.5 Marks)
- Comment on the credibility of the statistical model the quality assurance office has used to analyze and present the data (1.5 Marks)
- To help management make the decision on the contribution of the dimensions of quality used, provide the mathematical equation drawn from the data expressing the relationship between performance of the company and the four dimensions.(1 Mark)
- Explain to the management how each dimension of quality used in the project has affected the performance of the company (3 Marks)
- Advise with proper justification on whether the management of ZTC Ltd should go ahead and implement the full scale ISO 9001 Standard Certification.(1Mark)

QUESTION THREE:

(A) The Director of Human Capital Development was tasked by the board of management to identify priority areas for succession planning that the company should focus on in an executive development program targeting to improve the leadership skills of first level crop of managers. The director drew a representative sample of managers from 3 different divisions in the work structure to obtain their views on preferred areas for improvement. The data collection instrument provided to the managers focused on three areas as:

- Supervisory Competence
- Interpersonal Competence
- Systems Orientation Competence

The research assistant appointed by the director submitted the preliminary summary of the fieldwork in the form of a Tally Sheet presented in Figure 1.

Figure 1: Tally Sheet on First Level Managers' Responses

Division	Required Area of Competence		
	Supervisory	Interpersonal	Systems Orientation
Operations	 		
Business Development		 	
Finance & Administration	 		

Required:

- What is the sample size selected for the project?(0.5 Marks)
- Generate the Frequency Table for the Director from this Tally Sheet. (1Mark)
- Compute the Mean and Standard Deviation of the managers' responses. (1.5 Marks)
- Advise the Director on the top most preferred area for leadership competence for each Division (1Mark)

B) The management of the Association of the Banking Institutions in the country has been concerned about the resilience of the member organizations in relation to external shocks from global trends that pronounce high volatility for the industry. For some reasonable duration, the banks have been implementing relevant leadership strategies in view of the volatility emerging from the global trends. The Association expects that the leadership strategies would enable the banks to generate the required cognitive capability suitable to build the required level of resilience. The research unit of the Association undertook a cross sectional survey of all the listed banks to the securities exchange to form an opinion on how the adopted leadership strategies would predict both the resilience and the cognitive capability. In the analysis, the data analyst assigned different empirical roles of criterion and mediating to resilience and cognitive capability respectively. The statistical output obtained by the data analyst was summarized into four stages as presented in tables 3-6

Table 3: Testing the effect of Leadership Strategy on Resilience

Model Summary ^b						
Model	R	R Square	Adjusted R Square		Std. Error of the Estimate	Durbin-Watson
1	.755 ^a	.570	.567		.43545	2.088
ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	31.984	1	31.984	168.677	.000 ^b
	Residual	24.081	127	.190		
	Total	56.065	128			
Coefficients						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	.397	.275		1.443	.151
	Leadership Strategy	.878	.068	.755	12.988	.000

Table 4: Testing the relationship between Leadership Strategy and Cognitive Capabilities

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.811 ^a	.657	.654	.39593	2.572	
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.148	1	38.148	243.353	.000 ^b
	Residual	19.908	127	.157		
	Total	58.056	128			
Coefficients						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	.151	.250		.605	.546
	Leadership Strategy	.959	.061	.811	15.600	.000

Table 5: Testing the relationship between Cognitive Capabilities and Bank Resilience

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.837 ^a	.700	.698	.36379	1.954	
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.258	1	39.258	296.644	.000 ^b

	Residual	16.807	127	.132		
	Total	56.065	128			
Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	.634	.194		3.258	.001
	Cognitive Capabilities	.822	.048	.837	17.223	.000

Step 4: Testing the Effect of Leadership Strategy on Resilience with Cognitive Capabilities present

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.847 ^a	.718	.713	.35454	1.915	
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.227	2	20.113	160.013	.000 ^b
	Residual	15.838	126	.126		
	Total	56.065	128			
Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	.300	.224		1.336	.184
	Leadership Strategy	.261	.094	.225	2.777	.005
	Cognitive capabilities	.643	.079	.655	8.098	.000

Required:

- What is the effect of Leadership Strategy on Resilience and what percentage of the Banks variation in Resilience is explained by the Leadership Strategy?(1.5 Marks)
- Comment on how the relationship between Leadership Strategy and Resilience behaves when the cognitive capability is introduced into the relationship.(1.5 Marks)
- Express the mathematical equation showing the relationship between Leadership Strategy and Resilience when the Cognitive Capabilities are introduced..(1Mark)
- Provide three conclusions the Association needs to draw from this data presented by the analyst (2Marks)

QUESTION FOUR:

A) The head of the department of Management Sciences was presented with research findings done using a multiple regression statistical model. Upon consideration of the contents, the HOD observed that the analysis was not complete and advised that the analyst undertakes to include all pertinent analytical results that would shield decision makers from any doubt arising from credibility questions likely to be raised based on the conformance of the original data to the expected pattern and assumptions that underlie a regression analysis technique. The analyst submitted the data summarized in tables 7-9 to the HOD with an inquiry for advice as to whether what is in the tables addresses the concern he had raised

Table 7: Preliminary Data Output 1

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Transformational Leadership	.062	352	.002	.949	352	.000
Transactional	.074	352	.000	.985	352	.001

Leadership						
Authentic Leadership	.054	352	.014	.971	352	.000
Innovation	.072	352	.000	.971	352	.000
Performance	.083	352	.000	.961	352	.000

Table 8:Preliminary Data Output 2

Model	Collinearity Statistics	
	Tolerance	VIF
Transformational Leadership	0.609	1.642
Transactional Leadership	0.751	1.332
Authentic Leadership	0.508	1.967
Leadership and Innovation	1.000	1.000

a. Dependent Variable: Performance

Table 9:Preliminary Data Output 3

		Transformational leadership	Transactional leadership	Authentic leadership	Innovation
Transformational leadership	Pearson Correlation	1	.317**	.625**	0.538
	Sig. (2-tailed)		0	0	0
	N	352	352	352	352
Transactional leadership	Pearson Correlation	.317**	1	.499**	.183**
	Sig. (2-tailed)	0		0	0.001
	N	352	352	352	352
Authentic leadership	Pearson Correlation	.625**	.499**	1	.419**
	Sig. (2-tailed)	0	0		0
	N	352	352	352	352
Innovation	Pearson Correlation	.538**	.183**	.419**	1**
	Sig. (2-tailed)	0	0.001	0	
	N	352	352	352	352

** . Correlation is significant at the 0.01 level (2-tailed).

Required:

- Briefly explain why the analysis in tables 7-9 was considered necessary (1 Mark)
- For each of the contents in Tables 7-9, indicate the type of test undertaken and the assumption underlying the test (1.5 Marks)
- Advise the HOD as to whether to proceed on with the regression results interpretation based on the contents of Tables 7-9 (1.5 Marks)

B) The attached Data is a summary of Stepwise Regression results from data collected to study the effect of Leadership Competences on Service Delivery in a Public sector setting. The data analyst upon receipt of the raw data suggested that he could extend the analysis to establish how the leadership competences would behave when the data submitted on the role of Government Regulations is introduced into the original model relating leadership competence with Service delivery. The analyst followed a step-wise regression approach and submitted the output for each of the three steps summarized in Tables 10-12.

**Table 10: Leadership Competences and Service Delivery
Model Summary^b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.556 ^a	.309	.305	.37618	2.049	
ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.378	1	10.378	73.335	.000 ^b
	Residual	23.208	164	.142		
	Total	33.586	165			
Coefficients ^a						
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	
		B	Std. Error	Beta		
1	(Constant)	1.030	.361		2.853	.005
	Leadership Competences	.763	.089	.556	8.564	.000

**Table 11: Government Regulations and Service Delivery
Model Summary^b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.585 ^a	.343	.339	.36692	2.150	
ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
Regression		11.507	1	11.507	85.471	.000 ^b
Residual		22.079	164	.135		
Total		33.586	165			
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)		1.970	.233		8.440	.000
Government Regulations		.526	.057	.585	9.245	.000

**Table 12: Leadership Competences, Government Regulations and Service Delivery
Model Summary^b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.710 ^a	.504	.498	.31960	2.199

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	16.936	2	8.468	82.902	.000 ^b
	Residual	16.650	163	.102		
	Total	33.586	165			

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	.089	.328		.272	.786
	Government Regulation	.416	.052	.462	8.013	.000
	Leadership Competences	.577	.079	.421	7.291	.000
1	Leadership Competence*Government Regulations	0.232	0.344	.281	6.734	.000

Required:

- Write the Mathematical Equation to represent the relationship in each of the three steps (1.5Maks)
- Compare the β values for Leadership Competences and Government regulations under steps 1, 2 and 3 and document any change .(1.5Marks)
- Compare the adjusted R^2 values across the three steps and document the change.(1.5 Marks)
- Based on the changes observed in (ii) and (iii) above, what conclusion do you make on the effect of Government regulations on the relationship between Leadership Competences and Service Delivery?(1.5 Marks)

*****END OF PAPER*****