

Exploring The Impact of Resilient Behavior on Employee Performance: A Case of Kenya's Ministry of Education, Science and Technology

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Abstract: *Agility of an employee has been theorized to have linkage with employee performance in a commercial business setting. The ability to resile back from negative feelings and quickly adjust to the shifting expectations of stressful situations is one of the measures of employee agility. This study investigated the influence of resilient behavior on employee performance in the Ministry of Education Science and Technology (MoEST) in Kenya. The study was founded on Social Exchange Theory (SET). The study adopted a positivism research paradigm and used a descriptive research design. From a target population of 2116 employees, a sample of 416 employees was drawn using purposive sampling technique. A pilot study was conducted from MoEST employees in Laikipia, Isiolo and Meru counties to pretest the data collection instrument. Principal Component analysis (PCA) and test of regression assumptions were carried out before hypothesis testing using a simple linear regression analysis. PCA generated seven quality measures for employee resilient behavior with factor loadings between.693 and.955. The results indicated that resilient behavior was associated with R - Square of.280, F - statistic of 115.098 and p - value of.000, a beta coefficient value of $\beta=0.473$ and associated p - value of.000 <.05. These results imply the resilient behavior had a positive and statistically significant influence on employees' performance. Based on these findings, the study recommends that the Ministry and Public service at large should initiate where necessary and enhance capacity building programs on employee resilient behavior as it can explain over one quarter of the variations in an employee's performance. Further, the study recommends that employee resilient behavior should be considered as a strong variable of interest during entry level and promotion evaluation criteria in addition to respective employee technical skills.*

Keywords: Resilient Behavior, Employee Performance, Principal Component Analysis, regression analysis.

1. Introduction

1.1 Background of the Study

For decades, corporate leaders and academics have struggled with unstable, dynamic, and ever - evolving environment (Sherehiy, Waldemar & Layer 2017). These difficulties were made even more difficult by the economic turbulence brought on by the 2008 global financial crisis, forcing managers to adapt to sudden changes in their work environment (Nijssen & Paauwe, 2012). An engaged human resource is necessary for an agile workforce to fulfill its goals (Breu, Hemingway, & Bridger, 2002; Muduli, 2018). Organizational leaders have been increasingly implementing agility into their corporate strategy to address competitive and changing human resource. In recent studies such as Sherehiy and Karwowski (2018), it has been found that human interaction and workers' capacity for effective communication, and delivery matter significantly than technology when it comes to determining how well an employee performs. In the aftermath of the COVID - 19 pandemic, it has been acknowledged that performing workers are those who can adapt their delivery systems and redevelop to keep up with the dynamics of the contemporary tumultuous economy while working online (World Economic Forum, 2020). The World Economic Forum report (2020) observed that the COVID - 19 crisis necessitates the adoption of workforce agility in order to adjust to the continuously changing laws and processes at work, where individuals are engaged and expected to perform admirably. In the Kenya's Vision 2030, a target of

10% GDP growth had been set that calls for common responsibility in order to avoid the state of economic growth being elusive. If businesses give their staff opportunities for empowerment, they become more productive ensuring that this goal will be fulfilled. Notwithstanding the prime importance, workforce agility is presently one of the less studied topics (Muduli & Pandya, 2018; Storme et al., 2020). Individuals are seen as being the primary source of competition, the primary advocates of agility and the primary change - agents (Holbeche, 2018; Munteanu et al., 2020). Therefore, it is evident that their absence of attempts to thoroughly analyze the situation of employee agility in many organizations. The focus of this research is on how employee performance in MoEST is affected by workforce agility.

1.2 Problem Statement

The core mandate of MoEST is to contribute to the building of a just and cohesive society that enjoys inclusive and equitable social development through affordable and accessible education. Performance of the employees in the public service is paramount in delivering social transformation desired by the Nation. Education is one of the key sectors under the Kenya Vision 2023 agenda and ranks top four under the United Nations Sustainable Development Goals (SDG). Human capital theory view that workforce agility has a direct linkage with employee performance driving enhanced capability to exploit opportunities and to withstand threats derived from frequent and sometimes unexpected changes. Employee resilient behavior is known to be one of the attributed of employee agility. It entails the

questioning the status quo and changing or strengthening existing circumstances, instead of simply passively adapting to the present environment (Nguyen et al., 2020). It is the ability to monitor the environment for possibilities and recognize them is typically a resilient behavior (Anjeline et al., 2019). The dearth in behavioural factors that affect performance of employees in the public service has necessitated the need to cross - examine how the MoEST can achieve improved employee performance under the ever - growing agile workforce, a globally competitive and adaptive HR base as outlined in the Kenya Vision 2030. This study therefore sought to evaluate the influence of resilient behavior on employee performance in the MoEST with the goal of driving and achieving a greater workforce performance.

1.3 General Objective

The general objective of the study was to evaluate the influence of resilient behavior on employee performance in the Ministry of Education Science and Technology in Kenya.

2. Literature Review

2.1 Social Exchange Theory (SET)

Cropanzano, Mitchell and DeConinck, (2010), assert that social exchange theory is a well - known theoretical framework for analyzing employee resilient interactions and adaptive behaviors at work. It provides a lens through which one examines social exchange connections in an organizational setting. Feeling obligated at work is crucial because it means that one is professionally flexible, ability to use various competencies, capable of multitasking and has the ability to collaborate with other employees. Kim et al., (2016) asserts that SET entails a sequence of interdependent behaviors (e. g maladaptive), reliant on how colleagues conduct themselves during the social connection and work environment. Self - management in regards to self - behavior frequently comes after becoming adaptive at work and the achievement of personal goals in an organization depends on having positive social exchange relationships because each person and/or group depends on the other. According to Biswas et al., (2016), the interactions an employee has with their employer and their immediate supervisor are the two social exchange relationships that rule their professional lives. It is believed that resilient employees are more likely to try to cope with uncertainty, tolerate to stress at work, able to maintain a positive attitude and capable to handle differences in opinions and put out higher performance in regard to (Hadi & Supardi, 2020; Qadri, & Palupi, 2020). Cropanzano et al., (2016) claims the two components of SET are the resilient behaviour efforts and adaptivity which leads to workers well - being and better performance. This theory is pertinent in this study because it focuses on adaptive and resilient behaviours, which are part of the independent variables. It describes how an agile workforce has a sense of importance, zeal, inspiration, pride, and commitment and total focus on their work (absorption). The two behavioral aspects of economic and social exchange in an organization set up has also been well defined and the theory therefore addresses resilient and adaptive behaviors

which are a measure of employee agility in this study.

2.3 Empirical Literature

In 2021, Meeta Mandaviya of India did a study on job design, employee performance, and employee resiliency. The study proposed that situational flexibility of cognitive skill gives better result in stressful situations, proving that resilient employees steer and manage work adversities efficiently. Thus, resilient workers should have their job designed in a way that they contribute to a positive impact on the tasks they carry out. A study of well - known models of resilience in contemporary management studies emerge from Positive Organizational Scholarship (POS) or Positive Organizational Behaviour (POB) frameworks in Indonesia by (Luthans et al., 2017). Resilience, developmental persistence, and how they are favorably associated to engagement and positive emotion were among the study's aims. A total of 495 questionnaires were given to a significant number of professionals. Age, gender, program of study, tenure, and academic standing are just a few of the characteristics that were included as control variables. Assuming that the data was normally distributed, SEM was used to run the Confirmatory Factor Analysis (CFA) and compare inter - variable connections. The study therefore concluded that there is a strong correlation between employee performance, employee engagement, and employee resilience. Yet another study by Erika et al., (2015) on the relationship between organizational socialization, psychological resilience, occupational burnout and employee performance was carried out in Mexico. The study focused on organizational psychology particularly its contribution to the human resources industry. A descriptive and correlational analysis of data from a sample of Mexican workers was conducted. Using the accidental quota sampling technique, a sample of 1110 employees from public and commercial enterprises in Mexico City were selected. Structural equation modeling was used in conjunction with multivariate statistics to examine the relationship between the variables mentioned above. The results showed that self - efficacy, hope, optimism, withstanding uncertainty, stress management, having a positive attitude, tolerating differences in opinions and approaches, and active engagement are the fundamental traits for effective employee performance. The study concluded that resilient employees result to be better performers hence recording great results within the labour environment. Therefore, based on the reviewed literature, it was hypothesized that: *Ho1: Resilient behavior does not have a statistically significant influence on employee performance in the Ministry of Education, Science and technology in Kenya.*

2.4 Conceptual Framework

This study conceptualized employee resilient behavior as the regress and for weighted employee performance.

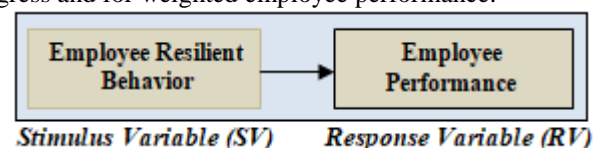


Figure 1: Conceptual Framework for Resilient Behavior and Employee Performance

2.5 Research Gaps

This study was carried out in a social sector and in a devolved system of governance. Principal Component Analysis (PCA) was used to enhance the validity of these measures and develop a tool for measuring employee resilient behavior.

3. Research Methodology

3.1 Philosophy, Design, Instrumentation and Data collection

This study was guided the four (4) principles of positivism research paradigm and adopted a descriptive research design (Bryman 2021). The unit of response was six (6) County employees from each County; Regional Directors (RD) & Deputy Regional Directors (DRD) (48), County Directors (CD) and Deputy County Directors (DCD) (48), Sub - County Directors (S - CD) and their Deputy Sub - County Directors (DS - CD) (48), Education Officers (EO) (136), Administrative Assistants (AA) (48) and finally Clerical Officers (CO) (88). Purposive sampling was deemed useful to determine a sample size of 416 respondents. Primary data was collected using a structured questionnaire. The measurement of the each of the variables was based on opinion, belief and attitude. These constructs do not have a direct measure. As such, a five - point Likert scaled questionnaire asked the respondents to indicate to which extent they agreed with the statement and scale had the equivalences of agreement "to a very small extent" (1), to a small extent (2), to moderate extent (3), to a high extent (4) and finally to a very high extent (5) (Charandrakandan, Venkatapirabu, Sekar & Anandakumar 2011). SPSS was preferred owing to its systematic capabilities on a wide range of statistical analyses and presentations (Porter & Gujarati, 2009).

3.2 Reliability and validity of Instrumentation

Internal consistency test was evaluated for the eleven measures of resilient behavior and nine (9) measures of employee performance using Cronbach alpha coefficient. A coefficient of was 0.734 and 0.848 was achieved respectively and hence acceptable based on the rule of thumb of 0.7 threshold for acceptable level of stability assessment. The eleven (11) statements measuring resilient behavior generated a KMO Coefficient of.696, at 55 degrees of freedom and Bartlett's Chi - Square of 991.751, p - value of.000. On the other hand the nine (9) measures for employee performance generated a KMO Coefficient of.782

and Bartlett's Chi - Square of 1218.615 (p - value of.000). These results further point that principal factor analysis could be used to enhance the validity and reliability of the measures used in each of the variables. (Montgomery, Peck & Vining, 2001).

3.3 Data Analysis and Presentation of Results

The eleven (11) parameters' of resilient behavior were subjected to principal component analysis (PCA), test of regression assumptions and finally inferential analysis. Hypothesis testing was done using simple Linear Regression (SLR) model using the equation; $Y/Employee\ Performance = \alpha + \beta_1 + \epsilon$; where Employee performance (EP) is (regressand) and β_1 is resilient behavior measures (regressor). This equation is supported by Montgomery, Peck, & Vining, 2001; Garson, 2012; Argyrous, 2011).

4. Findings & Discussions

4.1 Response Rate

A total of 416 questionnaires were distributed to the eight regions; that is, Mombasa, Garissa, Kisumu, Kakamega, Machakos, Nyeri, Nairobi and Nakuru. Two hundred and ninety eight (298) questionnaires were totally filled and returned; giving a composite response rate of 71.6%. This was deemed as an adequate response rate, an indicator that the results are generalizable and inferences could be drawn from the analysis. The response rate was attributed to anonymity and self - administration of the instrument.

4.2 Drivers for Resilient Behaviour

Proactive behavior was measured using eleven (11) parameters. These statements were subjected to PCA to ensure that the variable (resilient behavior) as a regressor was measured using quality parameters with high constructs validity. TVE, scree plot and rotated component matrix for these measures were generated and presented.

a) Total Variance Explained for Resilient Behavior

After confirming the factorability of resilient behavior, the next property of interest was to evaluate how strong the eleven (11) parameters measuring resilient behavior were in measurement of the independent variable. As a result, the next factor analysis output generated for this predictand was Table 1. In this test, initial Eigenvalues, extraction sums of Squared Loadings and the Rotation Sums of Squared Loadings values were generated and presented. The results are presented in Table 1.

Table 1: Total Variance Explained for Resilient Behaviour

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.958	63.257	63.257	6.958	63.257	63.257	5.763	52.394	52.394
2	1.144	10.398	73.656	1.144	10.398	73.656	2.339	21.262	73.656
3	.861	7.830	81.486						
4	.695	6.314	87.800						
5	.537	4.882	92.682						
6	.335	3.046	95.728						
7	.197	1.789	97.517						
8	.194	1.760	99.276						

9	.046	.418	99.695						
10	.034	.305	100.000						
11	5.760E - 19	5.236E - 18	100.000						
Extraction Method: Principal Component Analysis.									

Table 1 shows that after the varimax rotation of the eleven statements, two (2) components were generated with eigenvalues above the threshold of greater or equal to one (1). The first component had an eigenvalue of 6.958 with an associated rotation sum of squared loadings of 52.394%, followed by the second with an eigenvalue of 1.144 and an associated rotation sum of squared loadings of 21.262%. Both of these components explained a cumulative variance of 73.656% of the distribution of the variance after the varimax - orthogonal rotation of the statements measuring the variable. The results further show that the first and second component accounts for a variance greater than 60%,

meaning that all statements under the two (2) components were sufficient enough to represent measures for proactive behaviour (Tabachnick & Fidel, 2012).

b) Scree Plot for Resilient Behavior

This study also presented a scree plot to examine how many factors to retain for the measurement of the variable of interest, resilient behavior for further analysis. The plot was generated for the eleven (11) statements and their associated eigenvalue of each statement. A plot for each of the generated component (s) was also presented. The findings of resilient behavior's scree plot are as displayed in Figure 2.

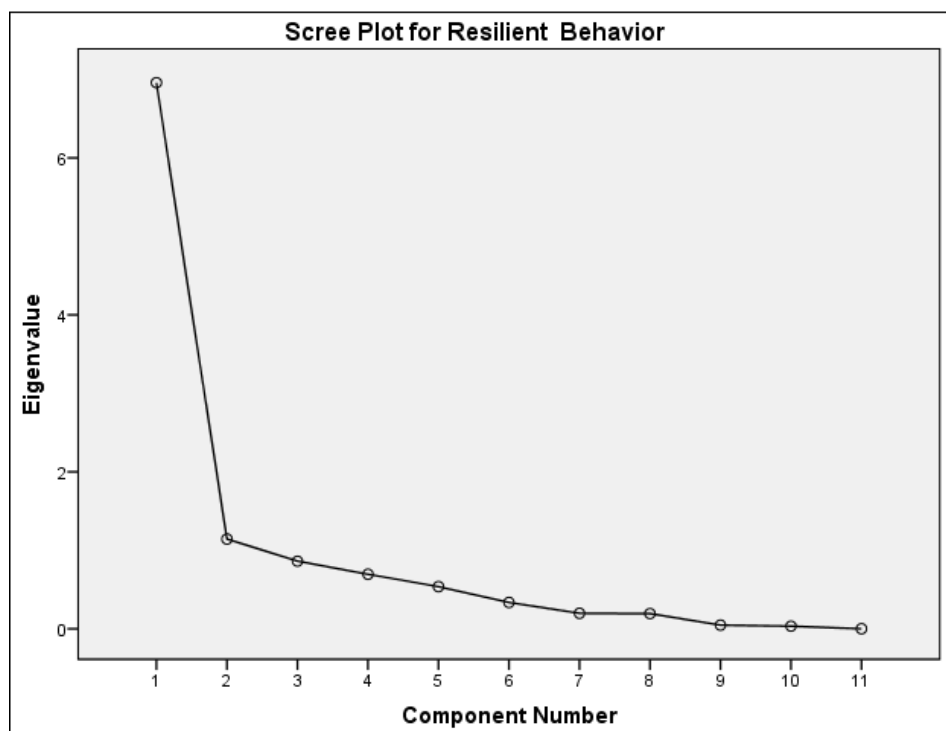


Figure 2: Scree Plot for Resilient Behavior

The results presented in Figure 2 shows a downward curve with a leveling-off (elbow) between component one (1) and component three (3). Further the plot shows that from component two (2) all the other components, that is; component three (3) to component eleven (11), had Eigen values less than 1.00. The deviation of the eigenvalue from the unitary measure of one (1), the less useful it is in the measurement of the variable resilient behaviour. These results show that largely only two (2) components were generated by the analysis for the variable resilient behavior (Tabachnick & Fidel, 2012).

c) Rotated Component Matrix for Resilient Behavior

To examine the various constructs for resilient behavior, a rotated component matrix for the variables was generated. Through a varimax orthogonal rotation, components and their associated factor loadings were generated based on eigenvalues with a threshold of greater than one (1). The factor loadings were ordered from the highest to the lowest in absolute values, and were also suppressed for all loadings of absolute value less than 0.4 loading as the cut - off criteria. The results of the rotated components are presented in Table 2.

Table 2: Rotated Component Matrix for Resilient Behavior.

	Statement	Component	
		1	2
Resil7	Employees positively respond to feedback even if it is a criticism	.955	
Resil9	Employees feel that they have full influence and control of the decisions made at their workplace	.955	
Resil1	Employees effectively adapt to changes in the workplace	.929	
Resil11	Employees have the culture of celebrating change (s) rather than resisting workplace changes	.865	
Resil3	Employees can handle a high workload for long periods of time	.818	

Resil4	Most department strive to handle their own problems ta workplace	.791	
Resil6	Employee approach their managers when they need workplace expertise or support	.693	
Resil8	Most of the staff are able to resolve crisis/conflicts in a competent way at the workplace	.582	.505
Resil2	Most employees collaborate with others to handle unexpected challenges		.869
Resil5	Many employees perceive changes in the ministry as opportunities for growth		.723
Resil10	Many employees appear to know who to contact when they encounter taxing decisions in their work	.407	.433

The results in show that eight (8) out of the eleven (11) statements used to measure resilient behaviour loaded to the first component. The statement “Most of the staff are able to resolve crisis/conflicts in a competent way at the workplace”, (Resil8) cross - loaded between the first and the second component with a factor loading of .582 and .505 respectively. Similarly, the statement “many employees appear to know who to contact when they encounter taxing decisions in their work” (Resil10) also loaded between the first component and the second component with factor loading of .407 and .433 respectively. These results further show that only two of the statements purely loaded to the second component with factor loadings of - .869 in the case of the statement “Most employees collaborate with others to handle unexpected challenges” (Resil2) and a factor loading of .723 for the statement “Many employees perceive changes in the ministry as opportunities for growth” (Resil5). Based on these results, the two statements that cross - loaded between the first component and the second component were dropped from further analysis under the variable resilient behavior, that is (Resil6) and (Resil10). Further, component three was left with only two statements loading to them that is (Resil 2), “Most employees collaborate with others to handle unexpected challenges “and (Resil5) “Many employees perceive changes in the ministry as opportunities for growth” The reason for dropping was that two statements are too few to constitute a solid component. Cumulatively, four out of the eleven statements were dropped from in the rest of the analysis for this stimulus variable. All the statement which was dropped are presented in parenthesis in

Table 2. The remaining seven (7) statements were re - evaluated for reliability of the measure. The results are presented in Table 4.20 and shows that Cronbach alpha coefficient alpha improved from a low scale of .734 to a high of .961, implying that factor analysis also had the resultant effect of improving the reliability of the constructs used in the measurement of resilient by approximately 31%.

4.2 Test of Regression Assumptions

(Porter & Gujarat, 2009) advice that prior to data analysis, it is important to assess a number of statistical assumptions about the distribution of the response variable and the properties of the regressors in general.

4.2.1 Test of Normality for Employee Performance

The primary data measuring employee performance was weighted for the nine (9) parameters. The weighted measures of the dependent variable were subjected to customize analysis; Z - score Box - Cox transformations through rescaling the continuous target (employee performance) to reduce the skewness of the fields. During the transformation (s) the final mean was set as a mean of zero (0) and the final standards deviation was set with a threshold of one (1). The resultant transformed scores were then subjected once again to the normality Q - Q Test. The results of the visual normality tests and test for outliers are presented in Figure 3. . The Quartile by Quartile (Q - Q) and the Box Plot were used to assess the normality of the distribution. The results are presented in Figure 3.

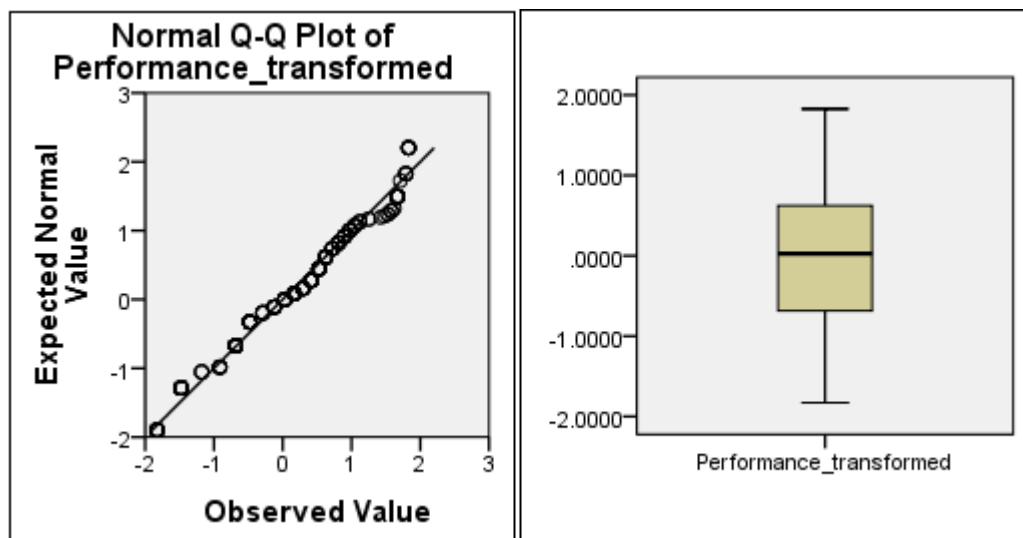


Figure 3: Q - Q Plot and Box Plot for Employee Performance

The visualized distribution of random variables of the differences between an empirical distribution and a theoretical distribution of the weighted Box - Cox scores of employee performance are normally distributed. This is because the Q - Q plots are fairly spread on the diagonal line from point (- 2, - 2) to the point (+3, +3). On the other hand,

the Box - Plot shows that the median is about the middle of the Box and the associated whiskers are also about the same size on both sides of the box. This means that the distribution is quite symmetric, a confirmation that the overall distribution is normally distributed and that the distribution does not have outliers. Therefore, Box - Cox

Scores were used in the rest of the analysis for the measurement of employee performance

4.2.2 Test of Autocorrelation and Test of Linearity

The test of independence for resilient behavior was carried out using Durbin - Watson d statistics. A Durbin - Watson d statistics of 1.974 was extracted. This was within the recommended range of 1.5 and 2.5 for an acceptable level of no autocorrelation in a variable measure. The independent variable (resilient behavior weighted measure) and the response variable (employee performance) were subjected to a linearity test using Pearson's correlation coefficient (r). A correlation coefficient of 0.529** was generated at p - value of .000. This statistic implied that indeed a linear relationship existed between the two variables. Simple linear regression model was deemed appropriate for inferential analysis. (Chatterjee & Simonoff 2013).

4.3 Hypothesis Testing

In order to assess the influence of resilient behavior on employee performance, the following null hypothesis; H_01 : **Resilient behavior does not have a statistically significant influence on employee loan performance in the Ministry of Education Science and Technology in Kenya.**

In order to test the null hypothesis, (H_01) weighted scores of resilient behavior measures were regressed against weighted measures of employee performance. Model summary, ANOVA and regression model coefficients output were generated and the results presented in Table 3.

Table 3: Regression Output for Resilient Behavior and Employee Performance

	R	R Square	F - Statistic	Constant	Beta
Model 1	.529	.280	115.098	-.937	.473
P - value			.000	.000	.000

Table 3 shows that the R was 0.529. This implies that resilient behavior measures had a strong and high correlation with employee performance. In addition, the R - Square was 0.280. This implies that resilient behavior accounted for approximately 28% of the variations in employee performance among staff in the Ministry of Education Science and Technology in Kenya. Table 4 further show that F statistic of 115.098 and the associated p - value of $0.000 < .05$. This implies that the resilient behavior has a statistically significant influence on employee performance in the Ministry of Education Science and Technology in Kenya at 5% level of significance. Based on these results the Null hypothesis (H_01) that stated: resilient behavior does not have statistically significant influence on employee performance in the Ministry of Education Science and Technology in Kenya was rejected and instead confirmed that resilient behavior has a positive and statistically significant influence on employee performance in the Ministry. The beta coefficient of resilient behavior was .473 and associated p value of 0.000. This implies that a unit change in resilient behavior is associated with 0.473 changes in employee performance in the Ministry of Education Science and Technology in Kenya. The resultant linear Model for the resilient behavior measures is in the form;

$$\text{Employee Performance} = -.937 + .473 (\text{Resilient Behavior})$$

.....Model 1

Empirical studies highlighted earlier in this study on the influence of employee's resilient behaviour on employee performance by Meeta Mandaviya, (2021), Luthans et al., 2017 and Erika et al., (2015) corresponds with the results that supported the view that intrinsic and extrinsic motivation together with resiliency were crucial for supporting how an employee performs. The above studies recommended that self - efficacy, hope, optimism, withstanding uncertainty, stress management, having a positive attitude, tolerating differences in opinions and approaches, and active engagement are the fundamental traits for effective employee performance

5. Conclusions and Recommendations

5.1 Conclusions

ANOVA coefficients for resilient behavior had an associated p - value of $p = .000 < p$ - value of .05. Based on this, the associated objective's null hypothesis was rejected. This study therefore concludes that indeed, at 95% degree of confidence, there is a positive and statistically significant relationship between employee's resilient behavior and employee performance in the Ministry of Education, science and Technology in Kenya. In addition, the study concluded that in terms of human capital theory, employee resilient behavior can and actually does contribute to performance of employee in MoEST in Kenya.

5.2 Recommendations

In order to develop and or sustain a high performance team in the MoEST, management should invest and develop employees resilient behavior capabilities in any of the noted areas of interest. Thus study noted that ability to cope with uncertainty, tolerance to stress at work, ability to maintain a positive attitude, capable of handling of differences in opinions, high workload management, managing and celebrating change, resolving crisis/conflicts, respond to criticism and taking control of decisions are key areas of resilient behavior that an institution can leverage on to drive high performance among employees in the Ministry. These employee capability areas have been conformed to have high linkage with high performing in the Ministry of Education Science and Technology in Kenya.

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