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The Mediating Effect of Organizational Culture on the Relation-ship between Continuous Training and Organizational Performance: Case of the Burundian Central Public Administration

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Abstract

The aim of this study was firstly to analyze the effect of continuous training on organizational performance, and secondly to analyze the mediating effect of organizational culture in the relationship between continuous training and organizational performance. To the best of our knowledge, a work of this kind does not exist here in Burundi, in particular in the public sector. To this end, with reference to Denison's organizational culture model, a questionnaire was drawn up and distributed to the members of staff of two pilot central ministerial administration: The Ministry of Public Service, Labor and Employment (MPSLE) and the Ministry of National Solidarity, Social Af-fairs, Human Rights and Gender (MNSSAHRG). The data was collected and processed by about 101 employees of these institutions. For analysis purposes, this work uses the correlation coefficient method based on the Chi-square statistic and the multiple linear regression analysis. And the significance of indirect effect was analyzed using the Sobel test and the bootstrapping method using the Hayes SPSS Macro Process model 4.2. The results show that continuous training positively improves organizational performance. However, these results once again show that although, theoretically, continuous training is widely considered as a fundamental element of organizational per-formance, its impact is most often manifested in budget reporting and consumption. Moreover, the quality of or-ganizational culture should be constantly refined, as it plays a mediating role in the relationship between continu-ous training and organizational performance in the two central ministerial institutions studied.

Keywords: Continuous training, organizational culture, organizational performance, mediating effect

1. Introduction

Expertise shows that, at the moment of recruitment, a worker may be named and engaged with inadequate know-how, hanging on the intricacy of the duties, to pitch in to the institution's performance. Alongside this, it is also possible for an organization to be adequately endowed in terms of capable and determined employees, even with considerable managerial kit, while its performance remains below expectations (Chukwononso, 2022). This is be-cause the milieu in which the institution operates is frequently altering. As such, this milieu forces the organiza-tion to push its human resources to adapt to better circumvent potential challenges in order to sustainably position itself in the competitive marketplace.

In such a situation, it is clear that one of the fundamental factors on which the organization can rely on to boost the intellectual and professional capacities of its employees is continuous training (Chouchane, Louati and Boudabouss, 2017). This is one of the pillars of the human capital stock, alongside basic training (level of educa-tion), professional experience and the employee's state of mental and physical health. In the course of training, employees acquire the knowledge, attitudes and skills they need to improve their skills. They learn how to solve problems related to day-to-day activities.

According to Chouchane, Louati and Boudabouss (2017), training is compulsory for all organizational staff in or-der to achieve employee and organizational performance. Training can be defined as a program designed to im-prove the knowledge, skills and performance of the organization's personnel (Mamat, 2001 cited by Omar and Mahmood, 2020). It is also a process of changing employee behavior through the application of learning principles (Omar and Mahmood, 2020). Consequently, training increases organizational performance (Peteraf, 1993 and Nia-zi, 2011 cited by Raza, 2014).

Yet organizational performance is an important element for managers, as it helps them to evaluate organizational success in terms of objectives (Cooke and Rousseau, 1998; Jacobs and Roodt, 2008; Scott, Mannion, Huw and Marshall, 2003 cited by Alshamari, 2017). Thus, although the concept of performance is ambiguous (Ahmed, 2023); it is defined as the way in which an organization effectively and efficiently uses available resources to car-ry out all activities in order to achieve its long-term objectives (Chukwononso, 2022; Akbari and Gözen, 2022).

However, it is important to note that the quality of the environment in which managers and employees interact is crucial to the effectiveness of this organizational performance. As such, one of the elements required for this envi-ronment to be healthy is the highest quality of the organizational culture (Salajegheh et al., 2015 cited by Akbari and Gözen, 2022). The latter is an important factor that heavily influences the performance of every organization.

Thus, in their overview of the impact of organizational culture on organizational performance, Shahzad et al. (2012) assert that if employees are engaged and have the same norms and values as those of the organizations, there can be increased performance towards the achievement of the organization's overall goals.

Hereafter, organizational culture is outlined as the block of faiths, values, conducts and hypotheticals participated by members of an institution (Cooke and Rousseau, 1998; Jacobs and Roodt, 2008; Scott, Mannion, Huw and Marshall, 2003 cited by Alshamari, 2017). In alignment with this, Deal and Kennedy (1982) noted, as referenced by Tulcanaza-Prieto et al. (2021), that there is consistency between a strong culture and superior performance, as this implies alignment between the strategic structure and other supporting organizational resources, suggesting that a strong organization culture involves the majority of an organization's members through adherence to shared values and beliefs, promoted by the organization's leaders.

There's thus a positive associationship between organizational culture and organizational performance (Denison, 1984 and Denison and Mishra, 1995 mentioned by Tulcanaza-Prieto et al., 2021). Similarly, according to the study by Omar and Mahmood (2020), who surveyed 219 employees in courier service organizations in Malaysia to analyze the mediating effect of organizational culture the relationship between training and development and organizational performance, there's a mediating effect of organizational culture on the association-ship between nonstop training and development and organizational performance.

In Burundi's public administration, training of public servants is the main mission given to the National School of Administration (NSA). The problem under study is that, each year, the NSA, which has a special status and is placed under the supervision of the MPSLE; trains senior executives, managers and agents from various Burundian public institutions. However, it has never given the means to carry out a cold evaluation in order to analyze the real impact of these training courses on the performance of the employees taking part in these courses, or on the performance of the organizations from which these participants originate. Furthermore, in Burundi, research oriented in this direction has never been carried out. Thus, given the inexistence of research on the analysis of the mediating effect of organizational culture on the relationship between training and development and organizational performance, more specifically here in Burundi, the aim of this work is to study the impact of continuous training on organizational performance and thus to test the mediating effect of organizational culture on the relationship between ongoing training and performance organizations whithin central public administration of Burundi, focusing on two pilot ministries: the Ministry of Public Service, Labour and Employment (MPSLE) and the Ministry of National Solidarity, Social Affairs, Human Rights and Gender (MNSSAHRG).

2. Literature review and construction of hypotheses

2.1 Relationship between continuous education and organizational performance

Until the era of massive use of information technology in various sectors of the economy, continuous training was not considered a milestone in human capital investment in some developing countries, and more specifically in Burundi. Today, however, with the advent of information technology in many countries, capacity building is still seen as an effective way of improving the skills of employees in both private and public organizations. This has drawn the attention of researchers to analyze the impact of training on organizational performance.

According to Daniel (2018), training is the acquisition of skills, knowledge and information directly required to perform a specific role. It includes practical training, workshops, seminars and conferences. likewise, in their study to determine the impact of training and development on organizational performance and to dissect the moderating effect of

organizational commitment on the relationship between training and development and organ-izational performance in three Ken- yan companies, Butali and Njoroge (2017) set up that training and development had an alike significant effect on organizational performance. In an analogous tone, in their study of the impact of training and development on organizational performance in Sri Lankan university libraries, Shanmugathasan and Thirunavukkarasu (2023) argue that training and development programs have a constructive effect on organizational performance. Cera and Kusaku (2020), in their study of four factors (work environment, training and development, management and organizational culture) influencing the organizational performance of local public entities, found that training and development is an important determinant of organizational performance.

To this end, the first research question to which this study seeks to provide an answer is formulated as follows: What is the impact of continuous training on organizational performance in Burundi's two central ministerial institutions?

To answer this question, the first hypothesis of our research is formulated as follows:

Hypothesis 1: Continuous training positively predicts organizational performance in the Burundian central ministerial institutions studied.

2.2 Relationship between organizational culture and organizational performance

The quality of organizational culture in organizations, and more specifically in public administrations, is always a subject of questioning. This is because, according to Schein (2004), organizational culture is one of those hidden phenomena, powerful in its impact, but invisible. That is to say, this concept, often ambiguous and complex to define and study (Martinez et al., 2015), has been widely considered in the organizational field (Lim, 1995). It continues to raise questions about its impact on organizational performance.

The concept of organizational culture evolved in the 1980s (Xiaoming and Junchen, 2012 cited by Alshamari, 2017) when there was a need to understand why Japanese companies outperformed American ones (Denison, 1984). Since then, several authors have attempted to define organizational culture.

Schein (2004) characterizes organizational culture as a set of shared fundamental beliefs, theories, or claims that a group has acquired while addressing its challenges related to external adaptation and internal cohesion. These beliefs have proven effective enough to be deemed valid and thus are passed on to new members as the appropriate way to understand, think, and feel about these issues. Similarly, according to Cooke and Rousseau (1998); Jacobs and Roodt (2008); Scott, Mannion, Huw and Marshall (2003) mentioned by Alshamari (2017); organizational culture is defined as the set of faiths, values, conduct patterns and hypotheticals practiced by members of an institution. Culture is a notion that pertains to somewhat fixed collection of beliefs, values, and behaviors em-braced by society (Lim, 1995). According to Salajegheh et al. (2015) cited by Akbari and Gözen (2022), organizational culture being an evolving concept comprises practices, experiences, behaviors and ideas that are produced, invented, learned and transmitted from one individual to another.

In order to analyze and understand organizational culture, Denison and Mishra (1995) propose to study it through a model based on four characteristics: 1) involvement, 2) consistency, 3) adaptability and 4) mission. In their study, Denison and Mishra showed that the two characteristics, participation (or involvement) and adaptability, are indicators of flexibility, openness and responsiveness, and are powerful predictors of growth. The distinct two characteristics, consistency and mission, are pointers of integration, exposure and vision, and are better predictors of profitability. Each of the four characteristics was alike a revelatory predictor of effectiveness criteria similar as quality, worker contentedness and whole performance. What's more, each of these four cultural dimensions is associated with a key question to be answered (Denison Consulting, 2019). These questions are:

- For participation (or involvement): Is the organization's staff aligned and committed to the organization's cause?
- For consistency: Are the organization's values, systems and processes in place to create a levier for a sin-gle, coherent whole?
- For adaptability: Is the organization (as a whole) responding to the external market/environment (needs and changes)?
- For the mission: Does everyone in the organization really know where we're going?

The degree to which these questions are answered satisfactorily shows the cultural stronghold prevailing in the organization. These questions are aggregated, but can be practically disaggregated into several sub-questions or statements during a survey.

Tulcanaza-Prieto et al. (2021) to examine how organizational culture affects business performance in the Ecuadorian service sector, applying the four organizational culture factors and twelve concepts (Empowerment, Team Orientation and Capacity Development for the Participation characteristic; Core Values, Agreement and Coordination and Integration for the Consistency characteristic; Creating Change, Orientation to Service Beneficiaries, Organizational Learning for the Adaptability characteristic ; Orientation and Strategic Intent, Goals and Objectives and Vision for the Mission characteristic) of Denison's model for business performance using a self-designed questionnaire and provided to postgraduate students in academic programs at the Universidad de Las Americas(UDLA) in Quito, Ecuador; found that there is a positive relationship between organizational culture and organizational performance.

This leads us to divide the general hypothesis of organizational culture into four sub-hypotheses, according to the four components of organizational culture and their key issues. In this respect, we have formulated our second re-search question as follows: Does organizational culture positively predict organizational performance in the two Burundi's central

ministerial institutions?
In order to provide some answers to such a question, we formulate our second research hypothesis as follows:
Hypothesis 2: Organizational culture positively predicts organizational performance in the Burundian central min-isterial institutions studied.
Hypothesis 2 (a): Participative organizational culture positively predicts organizational performance in the Bu-rundian central ministerial institutions studied.
Hypothesis 2 (b): Consistency-based organizational culture positively predicts organizational performance in the Burundian central ministerial institutions studied.
Hypothesis 2 (c): Organizational culture through adaptability predicts organizational performance in the Burundi-an central ministerial institutions studied.
Hypothesis 2 (d): Mission-based organizational culture positively predicts organizational performance in the Bu-rundian central ministerial institutions studied.

2.3 Mediating effect of organizational culture in the relationship between continuous train-ing and organizational performance

There are small exploration studies that dissect the relationship between nonstop training, organizational culture and organizational performance. Among this small number, are those that analyze the mediating effect of organizational culture on the relationship between training and organizational performance, and those that are interested in analyzing the moderating effect of organizational culture on the relationship between training and organization-al performance. In the latter, there is the work of Fareed, Noor, Isa and Salleh (2016), who, in their study on human capital development for sustainable competitive advantage; the role of organizational culture and high-performance work system, revealed that there was a significant moderating effect of organizational culture on the relationship between high-performance work system and human capital development in the context of Pakistan's telecommunications sector. For the first group of works, it is worth citing that of Omar and Mahmood (2020), who examined the mediating effect of organizational culture on the relationship between nonstop training and development and organizational performance, and revealed that the relationship between training and development and organizational performance is influenced by organizational culture.
Thus, our third research question is as follows: Does organizational culture play a mediating role in the relationship between continuous training and organizational performance in the central Burundian ministerial institutions studied?
To answer this question, we pose our third research hypothesis as follows:
Hypothesis 3: Organizational culture mediates the relationship between continuous training and organizational performance in the Burundian central ministerial institutions studied.
Hypothesis 3 (a): Participative organizational culture mediates the relationship between continuous education and organizational performance in the Burundian central ministerial institutions studied.
Hypothesis 3 (b): Consistency-based organizational culture mediates the relationship between continuous training and organizational performance in the Burundian central ministerial institutions studied.
Hypothesis 3 (c): Organizational culture through adaptability exerts a mediating effect in the relationship between continuous training and organizational performance in the Burundian central ministerial institutions studied.
Hypothesis 3 (d): Mission-based organizational culture exerts a mediating effect in the relationship between continuous training and organizational performance in the Burundian central ministerial institutions studied.
The conceptual framework of our research is summarized in the following figure in accordance with the prior theory and hypotheses:

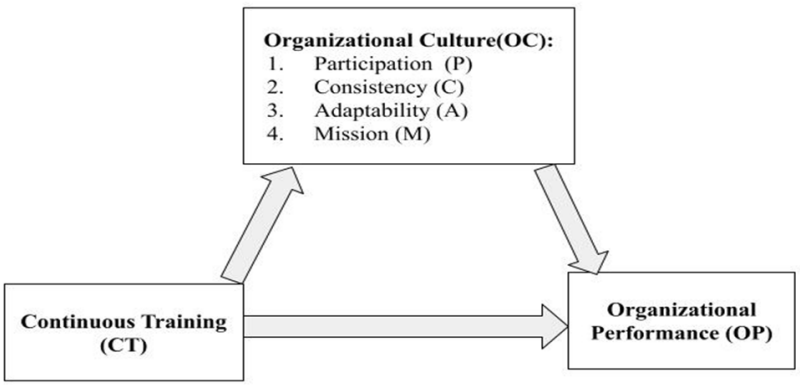

Figure 1: Conceptual research framework
Source: Built by authors based on theoretical framework.

3 Research methodology

3.1 Population, sample and data collection method

This study uses a survey research model. However, due to the lack of resources to cover all central ministerial institutions in Burundi, this study is focused solely on two central ministerial administrations chosen. These two institutions are:

- The Ministry of Public Service, Labour and Employment (MPSLE), and
- the Ministry of National Solidarity, Social Affairs, Human Rights and Gender (MNSSAHRG).

Another problem is that it was impossible to use a sample because neither the NSA nor these two ministerial institutions have a database of employees who have been trained over the years. The solely simple reason for which these two institutions are chosen is that the first is a ministry that has training management within its remit through the National School of Administration (NSA), and socially manages the staff of all other ministries. The second is also responsible for social management.

Due to the lack of a database of all those who had attended NSA, we opted not to use a sample. The aim was to dis-tribute the questionnaire to anyone working in one of these two ministries who had taken at least one training course at NSA, regardless of the year of training.

To this end, we drew up a questionnaire which was distributed to 112 people who had taken part in at least one training course offered by NSA. We visit each office in the two central ministerial institutions and the questionnaires were given to employees who has followed at least one training program at NSA disregarding any other se-lection criteria. Of the 112 questionnaires distributed, only 106 were collected. The other 6 were given to the participants, but the latter kept them and left for different missions or on leave; and over a period of a month and a half, despite several visits, we never had the opportunity to meet them so that they could complete them and return them to us. Of the 106 questionnaires collected, 5 were incompleted that they could not be processed. As a result, the data we have processed concerns only 101 respondents, i.e. 90.2% of the original population.

3.2 Techniques used to analyse data

In this study, SPSS package version 25 was used to analyze the data. It uses the Alpha Crobach and correlation co-efficients to analyze respectively data reliabilty, relationship between variables and the validity of the data. As far as the answers to the research questions and hypothezes are concerned, this study uses multiple linear regression and the analysis of their results using chi-square and t-student tests and their probaibilities. Furthermore, this paper follows Baron and Kenny's (1986) method to study the mediation of organizational culture on the relationship between continuous training and organizational performance. It further uses the Sobel test to test the indirect effects.

4 Results

4.1 Analysis of demographic data

Our analysis begins with an analysis of the socio-demographic variables of the people who actually responded to our survey. The summary of socio-demographic variables is provided in Tables 1 and 2 below. The results show that of the 101 respondents, 44 (43.56%) were men and 57 (56.44%) were women.

Of these men, 13 respondents are in the 30 to 39 age bracket; 16 in the 40 to 49 age bracket and 15 are in the 50+ age bracket. For women, 3 are in the 20-30 age bracket, 29 in the 30-39 age bracket, 20 in the 40-49 age bracket and 5 in the 50+ age bracket. The 30 to 39 age group dominates the total number of people surveyed, representing 41.58% of the total. This shows that the people working in these two ministerial institutions today are young. This situation is also the result of the policy applied by the current government in 2024 of sending people aged 60 and over into retirement.

Of the 44 male respondents to the questionnaire, 1 has a doctorate; 2 have a master's degree; 33 have a bachelor's degree or equivalent and 8 have secondary education, while of the 56 female respondents, 1 has a master's degree, 43 have a bachelor's degree or equivalent; 11 have secondary education and 2 have primary education or less. Ac-cording to the data in Table 2, the male respondent with a doctorate is in the 40 to 49 age bracket. Among respondents with a Master's degree, there are 2 people in the 40 to 49 age bracket and 1 person in the 50 and over age bracket. As for respondents with a Bachelor or Equivalent level, there are 3 respondents aged between 20 and 30; 29 respondents aged between 30 and 39; 29 respondents aged between 40 and 49; and 15 aged 50 and over. The data show that the level most represented in the two central ministerial institutions is the Bachelor or Equivalent level. Of the 101 respondents, 76 (75.25%) have the aforementioned level.

Table 1: Gender, age and education matrix

Age range of respondents						Total in %	Study level					Total in %
		20 to 30 years	30 to 39 years	40 to 49 years	50 and above		PhD	Master	Bac or Equiv.	Secondary level or eq.	Prim. or less	
Gender	M	-	13	16	15	43.56	1	2	33	8	-	43.56
	F	3	29	20	5	56.44	-	1	43	11	2	56.44
Total in %		2.97	41.58	35.64	19.80		0.99	2.97	75.25	18.81	1.98	100

Source: Built by authors

Table 2: Age and education level matrix

Education level						Total	Total in %
Age	PhD	Master	Bachelor's degree or equivalent	Secondary level or equivalent	Primary or less		
20 to 30 years	-	-	3	-	-	3	2.97
30 to 39 years	-	-	29	12	1	42	41.58
40 to 49 years	1	2	29	3	1	36	35.64
50 and above	-	1	15	4	-	20	19.80
Total	1	3	76	19	2	101	100
Total in %	0.99	2.97	75.25	18.81	1.98		100

Source: Built by authors

4.2 Data reliability analysis

The study of data reliability is an essential step, because if the data collected are not reliable, they will not be used in the linear regression. For this reason, reliability is studied on the basis of the Alpha Cronbach coefficient. The value of the Alpha Cronbach coefficient is an estimate of data reliability. An estimated reliability value equal to or greater than 0.7 indicates better data reliability (Hair et al.2009, cited by Cheung et al.2024).

Thus, we calculated the Alpha Cronbach coefficients. Then, the estimated reliability value for all constructs taken together is 0.90 (α = 0,90). However, taken separately, the variable CT(Continuous Training) has an estimated re-liability value of 0.85 (α = 0,85), OCP(Organizational Culture/Participation) has an estimated reliability value of 0.87 (α = 0,87), OCC(Organizational Culture/Consistency) has an estimated reliability value of 0,84 (α = 0,84), OCA(Organizational Culture/Adaptability) has an estimated reliability value of 0.85 (α = 0,85), OCM(Organizational Culture/Mission) has an estimated reliability value of 0.90(α = 0,90) and OP(Organizational Performance) has an estimated reliability value of 0.73 (α = 0,73) . Taking all these results into account, we can confirm that the data are reliable, as all constructs have an estimated Alpha Cronbach coefficient value greater than 0.7.

4.3 Correlation and validity analysis

Correlation is used to analyze relationships between variables and to assess validity. The correlation results are summarized in Table 3 below:

Table 3: Correlation Analysis

Variables	CT	OCP	OCC	OCA	OCM	OP
CT	1					
OCP	0.451***	1				
OCC	0.400***	0.573***	1			
OCA	0.434***	0.668***	0.786***	1		
OCM	0.451***	0.490***	0.770***	0.737***	1	
OP	0.459***	0.522***	0.562***	0.681***	0.737***	1

***: Shows significance at the 1% level.

According to these results, all correlation coefficient values are significant at the 1% level. This indicates that there are relationships between the constructs. Furthermore, no value exceeds 0.8 or 0.85. This shows that there are no problems of discriminant validity (Op.cit.).

Nevertheless, with the exception of the six correlation coefficients $r_{(CT,OCP)}$= 0.451; $r_{(CT,OCC)}$= 0.400; $r_{(CT,OCA)}$= 0.434; $r_{(CT,OCM)}$ = 0.451 and$r_{(CT,OP)}$= 0.459 and $r_{(OCP,\ OP)}$= 0.490, which show weak correlations (i.e. below 0.50); all the values of the other correlation coefficients are above 0.50.

4.4 Pre-validation of hypotheses by Chi-square test

To complete our analysis, we begin hypothesis testing using cross-tabulations and chi-square statistics (x^2). This allows us to pre-validate the relationship between certain statements (questionnaire assertions) in our research.

Table 4: Cross-tabulation of continuous training and organizational performance

CT1 : I have already taken part in at least one training course organized or sponsored(autorized) by my organization	Chi-Square
OP1 : Department staff often provided ad hoc reports to management and line managers.	102.014***
OP2 :The organization has always met its targets because reports are submitted on time.	34.461
OP3 : The organization has always acted within budget for planned projects.	50.084***
OP4 : The organization carries out ad hoc planning to achieve its objectives.	21.961
OP5 : All the organization's departments have adequate plans to improve organizational performance.	18.550
OP6 : Quality work always helps us to achieve organizational success.	21.104
OP7 : All personnel in the organization are committed to delivering quality results in order to improve organizational performance.	28.186

***: Shows significance at the 1% level.

From the results in Table 4, we see that only the statements "department staff often provided timely reports to management and line managers(OP1)" and in general "the organization always acted within budget for planned projects(OP3)" correlate significantly with the statement "CT1: I have ever participated in at least one training course organized or sponsored (authorized) by my organization" and have respectively a Chi-square (x^2) of 102.014 and 50.084 significant at the 1% threshold. The others are not significant. This shows that although respondents have participated in at least one training course at NSA, the impact is only seen at the level of reporting and consumption of the organization's budget. The contribution of training to the organization's actual performance is not directly observed. Staff submit reports, but this does not necessarily mean that the organization's objectives have been achieved. This analysis suggests that training or having staff trained may not have a direct positive impact on organizational performance.

However, to take the study further, we opted to use a composite score for continuous training (CT) and a composite score for organizational performance (OP). With these composite scores, we obtain a Chi-square value (x^2) of 720.132 significant at the 1% threshold, indicating that there is a positive relationship between continuous training and organizational performance. This prevalidates the first hypothesis of this study. However, it is insufficient to definitively conclude that continuous training predicts organizational performance. The rest of the work will be carried out using linear regression.

Table 5: Cross-tabulation of organizational culture and organizational performance

OP : Performance Organisationnelle	Chi-Square
OCP : Organizational Culture/Participation	854.414**
OCC : Organizational Culture/Consistency	1047.319***
OCA : Organizational Culture/Adaptability	1079.660***
OCM: Organizational Culture/Mission	1150.964***

***: Shows significance at the 1% level; **: Shows significance at the 5% level.

According to the results in Table 5, we can see that there is a relationship between organizational culture and organizational performance. Except for the OCP component, which has a Chi-square (x^2) of 854.414 significant at the 5% level, the other three components have Chi-squares (x^2) of 1047.319, 1079.660 and 1150.964 respectively, significant at the 1% level. This is the prevalidation of the second hypothesis of this research.

Nevertheless, the results obtained in Tables 4 and 5 show that although most organizations consider that continuous training contributes to organizational performance, it is only through the simple fact of producing and transmitting reports on time and consuming the budget that it is considered. As for culture, with the exception of the participation component, which shows a certain weakness, with a significant chi-square statistic at the 5% level, the others show a relatively high chi-square statistic, significant at the 1% level. This shows a strong predictive character of organizational culture on organizational performance. But, once again, the predictability of each organizational cultural dimension will be definitively confirmed using the linear regression results.

4.5 Regression Modeling and Analysis

This work uses a second technique, linear regression, to definitively approve or disapprove research hypotheses. This is an empirical method that is most commonly used to approve or disapprove research hypotheses.

Model specification

In our regression, the first model considered is one that incorporates the four organizational culture components (OCP,

OCC, OCA and OCM) and the continuous training (CT) composite as independent variables. The dependent variable is organizational performance, represented by the OP composite. In this model, the impact of each dimension of organizational culture is analyzed separately. Thus, the model is specified as follows:

$$OP_i = \alpha_1 + \alpha_2 CT_i + \alpha_3 OCP_i + \alpha_4 OCC_i + \alpha_5 OCA_i + \alpha_6 OCM_i + \varepsilon_i$$

Where:

OP_i = Organizational Performance;
CT_i = Continuous training;
OCP_i = Organizational Culture through Participation (or involvement);
OCC_i = Organizational Culture by Consistency;
OCA_i = Organizational Culture by Adaptability;
OCM_i = Organizational Culture by Mission;
α_i = Model Parameters; and
ε_i = Error term.

However, the second model is one in which an OC independent variable that combines all four dimensions of organizational culture is used. In the reduced model, the independent variables are defined as follows:

- CT_i = Continuous Training Composite Variable;
- OC_i = Organizational Culture Composite Variable that captures all four dimensions of organizational culture;

In this way, the second model is released as follows:

$$OP_i = \alpha_1 + \alpha_2 CT_i + \alpha_3 OC_i + \mu_i$$

Where:

α_i = Model parameters;
μ_i = Error term.

This second model helps us to test the third hypothesis of our research.

Regression results

The results of the linear regression of the first model are summarized in the following tables 6, 7 and 8:

Table 6: Summary of the first model

Model	R	R^2	R^2-adjusted	Standard error of the estimate
1	0.780a	0.609	0.589	0.43496

a. Predictors: (Constant), OCM, CT, OCP, OCC, OCA

The results in the table 6 show that continuous training and organizational culture (taken as a whole) predict organizational performance at 59% (R^2-adjusted = 0.589).

Table 1: Analysis of Variance (ANOVA)

Model		Sum of Squares	Degree of freedom (ddl)	Sum of Mean Squares	F-statistics	Significance (Probability)
1	Regression(Variability Explained)	28.009	5	5.602	29.609	0.000***
	Unexplained variability	17.973	95	0.189		
	Total variability	45.982	100			
Dependent variable : OP						
b : Predictors : (Constant), OCM, CT, OCP, OCC, OCA ***: Shows significance at the 1% level.						

Table 4 is the ANOVA table associated with R^2-adjusted. It gives the Fisher statistic, F (5, 95) = 29.609 with probability p = 0.000. This shows that the continuous training and organizational culture variables significantly predict organizational performance. Thus, the 59% of organizational performance is predicted by continuous training and organizational culture, not by chance. The continuous training and organizational culture variables are therefore relevant in explaining organizational performance. However, the nature of the prediction of continuous training and organizational culture is shown in Table 8 below.

Table 8: Regression coefficients and Hypothesis Validation

Assumptions	Bêta Values (Coefficients)	Standard Erros	t-Student values	Significance level (Probability)	Accepted ?
Constant	0.515	0.181	2.849	0.005	
H1 : CT➔OP	0.106	0.075	1.402	0.164	No
H2 (a): OCP➔OP	0.113	0.077	1.258	0.258	No
H2 (b): OCC➔OP	-0.243	0.104	-2.068	0.041**	Yes
H2(c) : OCA➔OP	0.336	0.105	2.761	0.007***	Yes
H2 (d) : OCM➔OP	0.564	0.085	5.160	0.000***	Yes
Dependent Variable: OP. ***: Shows significance at the 1% level. ** : Shows significance at the 5% level.					

The logic of the regression results of the first model, summarized in Table 8, is almost identical to that of the results found in section 3.4.2 and allow us to validate the first two hypotheses of this research. The coefficient for continuous training is positive and not significant [Beta= 0.106; t (95) = 1.402; p (> 0.01 and 0.05) = 0.164)]. This result shows that continuous training (alone) does not predict organizational performance. Consequently, we fail to validate the first hypothesis. Continuous training (alone) does not positively influence organizational performance. This suggests that there may be an indirect effect between continuous training and organizational performance. This effect will be tested in subsequent sections.

The coefficient of the composite independent variable OCP, which reflects the dimension of participative organizational culture, is positive but not significant [Beta = 0.113; t (95) = 1.258; p (> 0.01 and 0.05) = 0.258]. This result shows that one of the components referred to as organizational culture by participation(alone) does not predict organizational performance. It does not influence organizational performance. The other dimensions of organizational culture are good predictors of organizational performance. Nevertheless, the coefficient of organizational culture by consistency (OCC) is negative and significant [Beta = - 0.243; t (95) = -2.068; p (< 0.05) = 0.041)]. This result would seem surprising. However, in relation to the key question of consistency: In the organization, are there values, systems and processes in place to create a levier for a single, coherent whole? It shows that the norms of organizational culture by consistency existing in both organizations negatively influence organizational performance. The other two cultural dimensions influence organizational performance positively, as their coefficients are respectively positive and significant [for OCCA, Beta = 0.336; t (95) =2.761; p (< 0.01) = 0.007) and for OCM, Beta = 0.564; t (95) =5.160; p (< 0.01) = 0.000)] at the 1% threshold. We therefore fail to reject hypotheses H2(c) and H2 (d).

Mediation study

To analyze the mediation of organizational culture, we take up the representation of the conceptual framework and derive the following simple model:

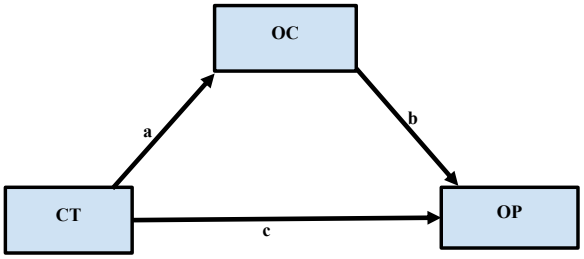

Figure 2: Basic mediation model
Source: Built by authors based on theoretical framework.

This model shows that the relationship between continuous training (CT: independent variable) and organizational performance (OP: dependent variable) can be direct or indirect. If the relationship is direct (direct effect), no other variable(s) can influence it. On the other hand, if it's indirect (indirect effect), there are other variable(s) that can influence this relationship. This means, quite simply, that there are one or more other variable(s) that play(s) the role of mediation. According to the theory, in our case, this variable is organizational culture (OC). Following Abu-Bader and Jones (2021), in Figure 2, paths "a", "b "and "c" represent the coefficients of the regression and correlation between CT and OC, OC and OP, and CT and OP respectively. While coefficient "c" represents the direct effect of continuous training (CT) on organizational performance (OP), coefficients "a" and "b" are for the indirect effect of continuous training (CT) on organizational performance (OP). According to this figure, the total effect of continuous training (CT) on organizational performance (OP) is given by (Baron and Kenny,1986 cited by Abu-Bader and Jones, 2021):
Total effect = c (direct effect) + (a*b) (indirect effect).

Our paper follows Baron and Kenny's (1986) steps to study mediation and uses the Sobel test to investigate the validity of the indirect effect of continuous training (CT) on organizational performance (OP) via organizational culture (OC). Baron and Kenny's (1986) model requires that, for the first condition, the independent variable is statistically and significantly a good predictor of the dependent variable. The results of this analysis are shown in the tables below:

Table 9: Result of regression of OP on CT: Estimation of total effect between CT and OC
Coefficientsa

Coefficients[a]						
Model		Unstandardized coefficients		Standardized Coefficients	t	Sig.
		B	Standard Error	Bêta		
1	(Constant)	1.293	0.189		6.837	0.000***
	CT	0.457	0.089	0.459	5.141	0.000***
a. Dependent variable : OP						
***: Shows significance at the 1% level.						

According to the results in the table 9 above, the coefficient of the composite independent variable continuous training (CT) is positive and statistically significant [Beta = 0.459; t (99) = 5.141; p (< 0.01 and 0.05) = 0.000)]. This proves that the coefficient "c" in figure 2 is statistically significant. This result shows that continuous training (CT) predicts organizational performance (OP). The first condition of mediation is fulfilled.

These results allow us to validate hypothesis H1: continuous training statistically significantly predicts organizational performance. However, as the multiple regression in Table 8 shows us that the coefficient associated with CT was not statistically significant, these two results lead us to the presumption of total mediation between continuous training and organizational performance via organizational culture.

The second condition stipulates that the independent variable (CT) must be statistically and significantly a good predictor of the mediator variable OC. The results the regression of the various components of organizational culture (OC, OCP, OCC, OCA and OCM) on continuous training (CE) are given in the table below:

Table 10: Result of the regression of OC on CT: Estimation of direct effects between CT and OC, OCP, OCC, OCA and OCM

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Standard Error	Bêta		
		Resultat of regression of OC on CT : H2				
1	(Constant)	1.523	0.189		8.047	0.000***
	CT	0.513	0.089	0.501	5.763	0.000***
		Resultat of regression of OCP on CT : H2(a)				
1	(Constant)	1.471	0.222		6.635	0.000***
	CT	0.524	0.104	0.451	5.030	0.000***
		Resultat of regression of OCC on CT : H2(b)				
1	(Constant)	1.764	0.220		8.020	0.000***
	CT	0.449	0.103	0.400	4.342	0.000***
		Resultat of regression of OCA on CT : H2(c)				
1	(Constant)	1.590	0.221		7.181	0.000***
	CT	0.499	0.104	0.434	4.799	0.000***
		Resultat of regression of OCM on CT : H2(d)				
1	(Constant)	1.267	0.245		5.171	0.000***
	FC	0.578	0.115	0.451	5.021	0.000***
a. Dependent variables respectively: OC, OCP, OCC, OCA et OCM						
***: Shows significance at the 1% level.						

For the second step and for hypothesis H2, we note that the estimation results show that the second condition on OC is fulfilled. This is because the coefficient of the independent variable continuous training (CT) is positive and significant [Beta = 0.513; t (99) = 5.763; p (< 0.01 and 0.05) = 0.000)]. This result shows that continuous training (CT) predicts organizational culture (OC).

For hypothesis H2(a), we note that the estimation results show that the second condition on OCP is fulfilled. Because the coefficient of the independent variable continuous training (CT) is positive and significant [Beta = 0.524; t (99) = 5.030; p (< 0.01 and 0.05) = 0.000). This result shows that continuous training (CT) predicts Organizational Culture by

Participation (OCP).

With regard to hypothesis H2(b), the estimation results show that the second condition on OCC is fulfilled. This is because the coefficient of the independent variable continuous training (CT) is positive and significant [Beta = 0.400; t (99) = 4.342; p (< 0.01 and 0.05) = 0.000)]. Continuous training (CT) predicts organizational culture by consistency (OCC).

For hypothesis H2(c), the estimation results show that the second condition on OCA is met. The coefficient linked to the independent variable continuous training (CT) is positive and significant [Beta = 0.499; t (99) = 4.799; p (< 0.01 and 0.05) = 0.000)]. Continuous training (CT) predicts organizational culture by adaptability (OCA).

For hypothesis H2(d), the estimation results show that the second condition on OCM is fulfilled. This is because the coefficient of the independent variable continuous training (CT) is positive and significant [Beta = 0.578; t (99) = 5.021; p (< 0.01 and 0.05) = 0.000)]. Continuous training (CT) is a good predictor of organizational culture by mission (OCM).

These second-stage results prove that the second condition of the Baron and Kenny (1986) method is fulfilled for all organizational culture (OC) variables. This proves that the coefficient "a" in Figure 2 is statistically significant. Continuous training (CT) predicts organizational culture (OC). Therefore, there is a presumption of the indirect effect of continuous training (CT) on organizational performance (OP) through organizational culture (OC), regardless of which component of organizational culture is taken into account

The third step consists in regressing the dependent variable OP on the independent variable CT and the mediator variable (OC). The results for all organizational culture components (OCP, OCC, OCA and OCM) and their composite variable (OC) are summarized in the table below:

Table 11: Estimated direct effects between continuous training (CT) and organizational performance (OP) and direct effects between organizational culture (OC, OCP, OCC, OCA and OCM) and organizational performance (OP)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Probability
		B	Erreur standard	Bêta		
		Resultat of regression of OP on CT and OC				
1	(Constant)	0.320	0.188		1.702	0.092
	CT	0.129	0.079	0.130	1.630	**0.106**
	OC	0.639	0.078	0.657	8.234	0.000***
		Resultat of regression of OP on CT and OCP				
1	(Constant)	0.795	0.210		3.792	0.000
	CT	0.280	0.092	0.281	3.042	0.003***
	OCP	0.339	0.079	0.395	4.281	0.000***
		Resultat of regression of OP on CT and OCC				
1	(Constant)	0.589	0.216		2.722	0.008
	CT	0.278	0.086	0.279	3.217	0.002***
	OCC	0.399	0.077	0.450	5.193	0.000***
		Resultat of regression of OP on CT and OCA				
1	(Constant)	0.475	0.187		2.540	0.013
	CT	0.200	0.079	0.201	2.527	0.013**
	OCA	0.514	0.069	0.594	7.466	0.000***
		Resultat of regression of OPon CT and OCM				
1	(Constant)	0.652	0.162		4.031	0.000
	CT	0.164	0.076	0.165	2.175	0.032**
	OCM	0.506	0.059	0.652	8.593	0.000***

a. Dependent Variable for all models: OP
***: Shows significance at the 1% level.
** : Shows significance at the 5% level.

According to the estimation results, we note that when we regress Organizational Performance (OP) on Continuous training and the mediating variable Organizational Culture (OC), mediation becomes total. The unstandardized coefficient "c" linked to the independent variable continuous training (CT) is positive, but not statistically significant [B = 0.129; t (98) = 1.630; p (> 0.01 and 0.05) = 0.106)]. Nevertheless, this coefficient is statistically significant for the other models. Its value is respectively B = 0.280 [t (98) = 3.048; p (< 0.01 and 0.05) = 0.003)]; B = 0.278 [t (98) = 3.217; p (< 0.01 and 0.05) = 0.002)]; B = 0.200 [t (98) = 2.527; p (< 0.05) = 0.106)] and B = 0.164 [t (98) = 2.175; p (< 0.05) = 0.032)]. This shows that mediation exists but becomes partial when we consider each dimension of organizational culture distinctively. These values of the coefficient "c" represent direct effects between continuous training (CT) and organizational performance (OP).

Alongside these direct effects between CT and OP, the same table above gives the coefficient "b" values representing the direct effects between the mediator variable (organizational culture: OC, OCP, OCC, OCA and OCM) and the independent variable (organizational performance: OP). The values of the "b" coefficient are respectively 0.639 for the direct effect between the mediator variable OC and the independent variable OP; 0.339 for the direct effect between the mediator variable OCP and the independent variable OP; 0.399 for the direct effect between the mediator variable OCC and the independent variable OP; 0.514 for the direct effect between the mediator variable OCA and the independent variable OP and 0.506 for the direct effect between the mediator variable OCM and the independent variable OP. These direct effects are all statistically significant at the 1% level.
With the values of the unstandardized coefficients associated with paths "a" and "b" and following Preacher and Hayes (2004), we can obtain the values of the indirect effects of continuous training (CT) on organizational performance (OP) through organizational culture (OC, OCP, OCC, OCA and OCM) according to the following formula:
Indirect Effect (IE) = Direct Effect "a" ∗ Direct effect "b"

Testing indirect effects using Sobel Test

Thus, using this formula, the values of these indirect effects are calculated and given in the table below:

Table 12: Calculation of indirect effects

Direct effect "a" between :	Standard error: S_a	Direct effect "b" beteen :	Standard Error: S_b	Indirect effect (IE) = "a" * "b"
CT and OC : a =0.513	S_a= 0.089	OC and OP : b = 0.639	S_b= 0.078	IE_{OC}= 0.327807
CT and OCP : a =0.524	S_a= 0.104	OCP and OP : b = 0.339	S_b= 0.079	IE_{OCP}= 0.177636
CT and OCC : a =0.449	S_a= 0.103	OCC and OP : b = 0.399	S_b= 0.077	IE_{OCC}= 0.179151
CT and OCA : a =0.499	S_a= 0.104	OCA and OP : b = 0.514	S_b= 0.069	IE_{OCA}= 0.230786
CT and OCM ; a =0.578	S_a= 0.115	OCM and OP : b = 0.506	S_b= 0.0509	IE_{OCM}= 0.292468

Although previous results postulate that organizational culture (OC, OCP, OCC, OCA and OCM) mediates the relationship between continuous training (CT) and organizational performance (OP), we preferred the use of a test to reinforce the results of the tests based on the correlation coefficients in subsection 3.2.4 and the Chi-square tests in subsection 3.2.4. For this purpose, given the use of the SPSS version 25 application and the study of a population found in the workplace and not a sample, we deemed it sufficient to use the Sobel test to test the significance of the indirect effects found in the last column of table 12.
The Sobel test of indirect effects is based on the calculation of the Sobel statistic called z-score which is given by the following formula (Özdil and Kutlu, 2019):

$$Z = \frac{a * b}{\sqrt{b^2 s_a^2 + a^2 s_b^2}}$$

These tests were carried out using the official website https://quantpsy.org/sobel/sobel.htm for the Sobel calculator. The results of these tests are shown in Table 13 below:

Table 13: Results of the Sobel test for indirect effects

Indirect effect	Sobel statistic : Z-score	Associated probability (= p-value)
IE_{OC}= 0.327807	4.71412002	0.00000243***
IE_{OCP}= 0.177636	3.26688348	0.00108738***
IE_{OCC}= 0.179151	3.33581805	0.00085949***
IE_{OCA}= 0.230786	3.73531767	0.00018748***
IE_{OCM}= 0.292468	4.33629992	0.00001449***
***: Shows significance level at the 1% level.		

All the results of the Sobel test reveal that the z-scores are statistically significant at the 1% threshold (all p-values < 0.01) and that organizational culture therefore has a mediating effect in the relationship between continuous training and organizational performance in the ministerial institutions studied.

Testing indirect effects using Hayes SPSS Macro Process

To further enhance the analysis of the mediating effect of organizational culture on the relationship between continuous training and organizational performance, we also used a bootstrapping method with the Hayes SPSS Macro Process. The results of the regression using model 4.2 of the Hayes SPSS Macro Process are presented in table 14 below.

Table 14: Analysis of the mediating effect of Organizational Culture (OC) on the Relationship between Continuous

Training (CT) and Organizational Performance (OP)

Variable/Effect	b	SE	t	P	95% Confidence Interval	
					Lower Limit (LLCI)	Upper Limit (ULCI)
CT➔OP	0.15	0.07	2.18	> 0.01	0.01	0.29
CT➔OC	0.47	0.09	5.24	<0.01	0.29	0.65
CT➔OC➔OP	0.66	0.07	9.38	<0.01	0.52	0.80
Effects						
Direct	0.15	0.07	2.18	> 0.01	0.01	0.29
Indirect*	0.31	0.08			0.16	0.46
Total	0.46	0.09	5.36	<0.01	0.29	0.64

5000 bootstrap samples are considered.

In table 14 are reported the results of regressions for the direct, indirect and total effects. As far as the direct effect of continuous training on organizational performance is concerned, the null hypothesis is stated as follows: there is no positive relationship between continuous training and organizational performance. The alternative assumption suggests that continuous training positively influences organizational performance. In relation to the findings presented in the table above, the estimated coefficient for the direct effect is 0.15, with a "t-statistic" of 2.18 and a p-value of 0.036 (p> 0.01, but <0.05). Similarly, by using confidence interval decision criteria, we realize that zero does not fall into the 95% confidence interval of 0.01(LLCI) to 0.29(ULCI). Consequently, we reject the null hypothesis at the 5% level. Therefore, there is a positive relationship between the continuous training and organizational performance. This is as in the Sobel test results, in which we validate the alternative hypothesis(H1) of this study that continuous training positively and statistically significantly predicts organizational performance.

The null hypothesis for testing the indirect effect is stated as there is a mediating effect of organizational culture on the relationship between continuous training and organizational performance. The results given by the bootstrapping method (results given in table 14) show that the value of the coefficient of the indirect effect is 0.31 with 95% confidence interval values of 0.16(LLCI) to 0.46(ULCI). From this result, we reject the null hypothesis and validate the alternative hypothesis (H3) of this study, which states that the organizational culture positively and significantly mediates the relationship between continuous training and organizational performance.

The overall impact of the entire model consists of both direct and indirect effects. It is calculated by adding the products of path "a"and path "b" which represents the indirect effect) to path "c" (the direct effect). The result given in table 14 indicate that the total effect is 0.46 with a "t" statistic of 5.36, which is statistically significant at the 1% level. This is also confirmed by the 95% confidence interval value of 0.29 (LLCI) and 0.64(ULCI), in which zero is not included. Thus, we confirm the hypothesis H3 of this study. That is, organizational culture, in all its dimensions, exerts a positive mediating effect in the relationship between continuous training and organizational performance in the two Burundian central ministerial institutions studied.

5 Discussion, Conclusion and Recommendations

5.1 Discussion and Conclusion

Correlation results based on chi-square statistics and multiple linear regression results show that organizational culture and continuous training predict organizational performance. This is shown by the probabilities related to chi-square statistics and the probabilities related to t-student statistics, which show, respectively, that the correla-tion and regression coefficients are positively and statistically significant at the 1% level. This leads to the valida-tion of hypotheses H1 and H2, H2(a), H2(b), H2(c) and H2(d). Therefore, organizational culture and continuous training predict organizational performance in the two central ministerial institutions studied. That being said, the correlation results also showed that although employees undergo continuous training, if the environment in which they work is not healthy (good quality of organizational culture), these trainings do not have a positive impact on organizational performance. They are limited only to budget consumption and timely report production.

Furthermore, the results of indirect effects analysis and the Sobel test and Bootstrapping method using the Hayes SPSS Macro Process model 4.2 show that there is a mediating effect of organizational culture on the relationship between continuous training and organizational performance in the two central ministerial institutions. This is be-cause all indirect effects are positively and statistically significant at the 1% level. Thus, from these results, the hypotheses H3, H3(a), H3(b), H3(c) and H3(d) are confirmed. That is, organizational culture, in all its dimensions considered, exerts a positive mediating effect in the relationship between continuous training and organizational performance in the two Burundian central ministerial institutions studied.

All in all, the results of this study show that continuous training predicts organizational performance. However, this positive effect depends on the quality of the organizational culture prevailing in the two institutions studied. This is due to the fact that the latter plays a mediating role in the relationship between continuous training and organizational performance.

5.2 Recommendations

This study shows that simply sending employees to NSA training is not enough to have positive effects on organizational performance. However, beliefs, attitudes, behaviors, leadership style, ethics, etc.—in short, elements of the organization's cultural environment—play an important role in enabling trainees to use and consolidate the training acquired.

Therefore, leaders and employees should work together to improve their cultural environment. The leaders of the two institutions studied should also increase the financial resources allocated to training so that everyone can receive training. In addition, human resources managers at these institutions should innovate and initiate training plans together with NSA so that all employees can benefit from the training.

The NSA and the two institutions studied should have a database of their trained employees that is up-to-date with the training modules they have completed. This will help in several ways. As this study covered the two central ministerial institutions and considered the training provided by the NSA, future researchers should consider working on a topic of this type and in a broader scope. This is in view of the fact that the domain is a completely for-gotten, if not ignored, area, even though it is well known that it can be the cause of either the organizational performance or the deterioration of public services provided by these institutions to citizens.

Conflict of Interest

The authors declare that they have no conflicting interests

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Ethical considerations

The article followed all ethical standards appropriate for this kind of research.

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