

**East Africa Collaborative Ph.D. Program
in Economics and Management**

**Job-Rotation, Utilization of Workshops and
Performance of Entrepreneurial Firms
in Rwanda: An Empirical Study
of SMEs in Gasabo District**

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Preface

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Job-Rotation, Utilization of Workshops and Performance of Entrepreneurial Firms in Rwanda: An Empirical Study of SMEs in Gasabo District

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Abstract

This study addresses an important aspect of building SME entrepreneurial success through human resource development. We specifically study the experiences of manufacturing SMEs in Rwanda to demonstrate the performance implications of using workshops and job-rotation among small entrepreneurial firms. Given its unique commitment in the region for building necessary support for developing enterprises, Rwanda is a particularly interesting context to study this. One hundred and one firms were included in the study drawn from Gasabo, a district in capital Kigali. With the help of a regression analysis, we found support for a positive direct link between job-rotation and SME performance. We, however, did not find a similar result regarding workshops and SME performance. In order to examine the effects of job-rotation and workshops more deeply, we tested for the combined effect of these two practices. Our findings demonstrate the value of workshops when combined with job-rotation among SMEs in our study setting. With these findings, our study demonstrates how local firms and advocates of workshops can effectively use this method to enhance SME performance.

Keywords: Performance, training practices, job-rotation, workshops, small-and medium-sized enterprises.

JEL Classification Numbers: J21; J62; N37;

1. Introduction

In a world of increasing competition, employee training has become an important strategic activity in a contemporary firm (Dyer and Reeves, 2006; Grant, 2014; Mark et al., 1996; Nelson, 2007). Extant research has gone a long way in enhancing our understanding of training strategies (Huang, 2001), costs (Kotey and Folker, 2007) and benefits (Devins et al., 2004).

The focus in existing scholarly efforts has by and large been on training practices and their strategic implications in the context of multinational corporations (MNCs) (Ferner, 1997; Kostova, 1999; Kostova and Roth, 2002; Zellmer and Gibson, 2006). A number of pertinent questions regarding small and medium enterprises' (SMEs) adoption of training as a strategic activity still remain unanswered especially in the developing-country context (Cook, 2001; Robertson, 2003).

It is, therefore, not known whether training practices that create advantages for large firms are likely to offer the same competitive benefits to SMEs. And if so, under what circumstances can these practices be optimally adopted in the context of a SME (Moy and Lee, 2002; Thassanabanjong et al., 2009). This study contributes to this area of academic debate by examining the experiences of SMEs in a developing country in Africa.

In the last few decades, firms in developing countries have increasingly been exposed to an environment of economic and regulatory reforms geared towards free market ideologies (Dasgupta et al., 2002; Luthans et al., 2000; Porter and Linder, 1995; Vogel, 1997). In this environment, SMEs in particular have to compete not only with local competitors but also with foreign firms that come with superior talent and unique skill development practices. In light of this trend, it becomes imperative for SMEs within these liberalized market and regulatory regimes to pay close attention to employee training as a strategic activity for their survival (Beaver and Hutchings, 2005).

This view is echoed in the growing number of support programs by governments and their development partners in these countries aimed at encouraging SMEs to nurture and develop their skill and talent base (Chaston et al., 1999; Collins and Clark, 2003; Jennings, 1997). Local SMEs can optimally benefit from these programs when there is knowledge about the relative performance implications of different training strategies on their performance.

We contribute to this knowledge base by studying manufacturing SMEs in Rwanda with regard to their utilization of workshops and job-rotation practices. Given its current unique and strong commitment to improving the business environment in the region, Rwanda is a particularly interesting country to study in this context. Studying the impact of workshops represents an interesting opportunity to guide practice given the increasing utilization of this mode of training support for SMEs in the region. We also focus on job-rotation especially because of its strategic role in integrating knowledge and enhancing the learning capacities of firms.

The rest of the paper is organized as follows. The next section presents a literature review, which is followed by a research methodology and, thereafter, an analysis of the findings.

The last section has a discussion and also provides a conclusion.

2. Literature review

In comparative terms, extant literature demonstrates less preference for formal training (Clarke et al., 1999; Ramsay and Scholarios, 2000), pays limited attention to the analysis of training needs (Salas and Cannon, 2001; Winfred et al., 2003) and generally shows low commitment to employee training among SMEs vis-a-vis their MNE counterparts (Beaver and Hutchings, 2005; Kotey and Folker, 2007; Lepourte and Heene, 2006; Shen and Darby, 2006; Smallbone et al., 1995). A number of factors have been advanced to explain the unique training behavior among SMEs.

Some studies have identified and found support for SMEs' skepticism regarding the benefits of training at the firm level (Arendt, 2008; Panagiotakopoulos, 2011; Stokes, 2001) and the increased pre-occupation of these firms with day-to-day activities of the establishment as a result of which they fail to pay attention to broader strategic issues such as training (Beaver, 2003). In the same vein, ignorance about available training opportunities has also been addressed (Gritz, 2002; Moreland, 2002; Patton et al., 2000).

Some existing studies point to the lack of proactive behavior among SMEs related to conducting training needs analyses which deters them from considering employee training in their strategies (Jayawarna et al., 2007; Pansiri and Temtime, 2008). Beyond factors that are internal to a firm, ample evidence also exists delineating the external barriers that SMEs face in their quest for training employees (Okpara and Kabongo, 2009; Quader, 2007; Tiwari and Buse, 2007).

For instance, a number of studies have demonstrated lack of training programs appropriate for SMEs (Ibrahim and Soufani, 2002; Storey and Westhead, 1996), the wide occurrence of poaching of trained employees by competitors (Birdthistle, 2006; Lange et al., 2000) and the cost of available training opportunities in the market (Almeida and Aterido, 2010; Bryan, 2006) to explain the limited intensity of training among SMEs.

Along similar lines, the question of which training methods can be appropriate for SMEs has also attracted considerable academic interest. The discussion in this area has specifically revolved around issues related to cost (Huang, 2001; Ladzani and Van Vuuren, 2002), nature of formality (Gibb, 1997; Jameson, 2000) and flexibility (Aguilera et al., 2011; Rigby, 2004) of the prevailing training opportunities in the market. This stream of research has specifically argued for a need of developing training programs and methods that can be appropriate to the unique context of SMEs.

In addition, training as a strategic activity has also been discussed in previous literature (Achanga et al., 2006; Gray and Mabey, 2005; Montesino, 2002; Smallbone et al., 1995). Empirical studies on the topic have, however, largely yielded mixed results (Heraty et al., 2008; Jayawarna et al., 2007; Storey, 1994). For instance, while some studies have found support for a positive relationship between training and SME performance (Bryan, 2006; Fening et al., 2008; Mehmet et al., 2006; Zeng et al., 2010), others demonstrate counteractive evidence (Freel and Robson, 2004; Namjae et al., 2007).

In order to address this problem, a number of studies investigated underlying contingent

factors that complicate the direct relationship between training commitment and performance (Chi et al., 2008; Macpherson and Jayawarna, 2007). Notwithstanding the contributions made by previous studies, it can be observed that most of the conceptual and empirical contributions have focused more on large firms (Ballot et al., 2001; Brah et al., 2002; Gilley et al. 2004; Laursen and Foss, 2003).

A second limitation of this literature is that there are relatively few empirical studies on SMEs, especially in the context of developing countries (Karaev et al. 2007; Ruzzier et al., 2006). There is therefore room to contribute to extant literature by advancing explanations for employee training practices among SMEs in a developing-country context.

3. Methods

3.1 Research design and study setting

In this study we adopted a survey methodology. The survey was conducted between August 2013 and April 2014. The survey methodology has been widely applied in previous research addressing issues related to the topic of interest (Anderson and Sohal, 1999; Fabi et al., 2007; McMahon, 2001). This research design has specifically been found to be useful in studies where publicly available secondary data on the variables of interest are missing (Jansen et al., 2003). Our interest was in studying the role and performance implications of workshops and job-rotation among SMEs in the manufacturing sector.

In our study context, there were no publicly available relevant data on these variables. Consequently, the survey methodology was the most appropriate for studying the variables of interest. The survey consisted of manufacturing SMEs in capital Kigali. Kigali comprises of three districts: Nyarugenge, Kicukiro and Gasabo. Compared to the other districts, Gasabo is where most SMEs in the manufacturing sector can be found (Ndamage, 2013). As result our survey concentrated on manufacturing SMEs in Gasabo district.

3.2 Study sample and data collection method

Our study sample comprised of manufacturing SMEs in the following sectors: furniture, crafts, metal works, brick making and juice processing. The SMEs included in the study were not randomly selected. Instead, we considered SMEs whose owners or managers were present at the time of the survey so that they could participate in the study. Following this approach, we visited 113 of the 228 SMEs in Gasabo district. Out of the 113 SMEs approached and who were requested to participate in the study, 12 declined bringing our sample to 101 firms. This constituted 44 per cent of the total population, and a response rate of 98 per cent. The high response rate can be attributed to the approach adopted in data collection.

For each of the firms contacted, the second author personally administered the survey instrument. He visited the SMEs, requested a meeting with the key informant and conducted a personal structured interview in accordance with a prepared survey instrument. The characteristics of SMEs included in the study are presented in Table 1.

Insert Table 1 about here

3.3 Study variables

Dependent variable. The dependent variable in the study was firm performance. Performance is a wide construct and has been measured in different ways. In this study, six measurement items were used to tap into different performance aspects at the firm level: (1) achievement of the SME's firm-level targets, (2) accomplishment of departmental targets, (3) level of creativity, (4) team work among staff members, (5) quality, and (6) business growth level. The items were adopted from studies addressing similar constructs (Baker et al., 2006; Francis and Collins, 2004; Maurel and Hadley, 2007; Tierney, 2002); they were adapted to suit our study context. The responses were evaluated on a 5-point Likert scale where 1 was strongly disagree and 5 strongly agree. The Cronbach alpha coefficient for this scale was .93 representing high level of reliability.

Independent variables. The independent variables included job-rotation and utilization of workshops by SMEs. Job-rotation measurement items were adapted from Mohd et al. (2013) and Stevens and Campion, (1994). The items included the extent to which a SME favored job-rotation over other methods, the frequency of use of job-rotation, the importance attached to frequently rotating employees as a strategic activity, an understanding of job-rotation by the employees in the organization and the SME's ease in employing job-rotation. The measurement items were assessed on a 5-point Likert scale (where 1=strongly disagree and 5=strongly agree). The reliability coefficient for this scale was .87 thus demonstrating a high level of reliability.

The variable of utilization of workshop was based on the following three items adapted from Houkoku (2007): (1) preference given to workshops over other training methods, (2) importance given to this method of training, and (3) level of participation and enjoyment from participating in seminars. The responses on these items were also assessed on a 5-point Likert scale (where 1=strongly disagree and 5=strongly agree). The reliability coefficient for this scale was 0.70, which is within the expected level of reliability of the .70 cut-off (Nunnally, 1978).

Control variables. Three control variables were included in the study: (1) ownership by gender, (2) age of the firm, and (3) size of the firm. Ownership by gender was operationalized as 1 for female and 2 for male. Age of the firm was established by counting the number of years a SME had been in existence and was later categorized into 5 groups (1= <1 year, 2=1 to 5 years, 3=6 to 10 years, 4=11 to 15 years and 5= >15 years). Following earlier studies, the size of the firm was captured by the number of employees. This variable was categorized into three groups (1=1 to 3 employees, 2= 4 to 30 employees and 3=31-40 employees).

3.4 Validity and reliability

A number of steps were taken to strengthen the validity and reliability of our study

findings. First, the data were collected by the first author who was well versed with the empirical setting. We ensured that the key informants in the study were well versed with the strategic and operational activities of the establishment and therefore could provide accurate answers to the issues under study. These included owners (85 per cent) and managers of SMEs (15 per cent) (See Table 1).

After ensuring that the data met all the properties of conducting a factor analysis,¹ we used this method to conduct a post-hoc statistical test to examine the likelihood of a common methods' bias and to confirm convergent and discriminant validity of the study constructs. To test for the problem of a common methods' bias, we specifically followed Harman's one-factor test. Following this procedure, the problem of common methods' variance will be present when the un-rotated factor solution of the study measures result in a one-factor solution. Our study did not reveal this problem as the un-rotated factor analysis solution resulted in three factors.

An examination of factor loadings also revealed that the data reasonably satisfied the conditions of discriminant and convergent validity. This is because the different items loaded well to their respective constructs and discriminated well across the scales of other constructs (see Table 2). In addition, Cronbach alpha for each scale was computed to test for the reliability of the scales. As expected all the scales of the study constructs met the threshold cut-off of 0.7 (Job-rotation, .87; Workshop and seminars, .70 and Performance, .93).

Insert Table 2 about here

4. Data analysis and results

We used a multiple regression analysis to analyze the data. We specifically employed the ordinary least squares (OLS) technique. This analysis was done in SPSS version 17.0. In addition to the descriptive statistics presented in Table 3, we also carried out a number of tests to ensure that the data was suitable for a regression analysis.

As can be seen in Table 3, the correlations among the independent variables were within the acceptable level of 0.6. The only exception was the correlation involving the interaction variables which was 0.79. In the consequent regression analysis this problem was addressed by centering the variables before multiplication. The VIF of each independent variable included in the model was also computed. All the variables, including interaction terms, had VIF values below the threshold of 10. Estimates of mean and standard deviations were supplemented with tests of kurtosis and skewness.

Insert Table 3 about here

These measures also indicated that the data met the required assumption of normality. We also examined the variance and normality of residuals and did not find evidence of

¹ The KMO measure of sampling adequacy was 0.85 (above the 0.60 threshold) and the Bartlett's test of Sphericity was significant ($p < .001$) which indicates that the data matrix met the expected condition for a factor analysis to be conducted (Hair, 1998).

violation of these assumptions in the data. Given that we included categorical variables in the analysis, it was also required that we test for the problem of heteroscedasticity of the relationship between our metric dependent variable and the categorical independent variables. We specifically employed the Levene test. Based on this test, all the categorical variables satisfied the condition of homoscedasticity at the 95 per cent level of significance.

Collectively, these tests supported the use of the OLS regression analysis in the study. The hierarchical regression analysis procedure was employed. This procedure involves addition of variables to the analysis in steps in order to examine their incremental contribution to the dependent variable. In this study, three models were estimated representing the unique contribution of the control variables (Model 1), focal independent variables (Model 2) and combined effect of the two independent variables (Model 3). The results are presented in Table 4.

Insert Table 4 about here

Model 1 gives the results pertaining to the contribution of control variables. The model is statistically significant with adjusted R^2 of .30 ($F=15.10$, $P<0.001$). Out of the three control variables only the contribution of 'age of the firm' was found to be statistically significant ($B=.53$, $P<0.001$). This means that older firms in the sample demonstrated higher levels of performance. In Model 2 the differential contributions of workshops and job-rotation to SMEs' performance is presented. The collective contribution of the two variables over and above the effect of the control variables on firm level performance is significant ($\Delta F=7.99$, $P<0.001$).

Model 2 is also statistically significant and with an adjusted R^2 of .39 ($F=13.56$, $P<0.001$). Based on the coefficients of this model, the relationship between utilization of workshops in the study context is not supported ($B=0.042$, $P>0.05$). On the other hand, the findings offer evidence of a positive and significant relationship between a job-rotation practice and performance of SMEs (0.361, $P<0.001$). Specifically, the coefficients reveal that for a 10 per cent increment in an effort towards job-rotation, the SME in the sample would on average realize an increment in performance of 3.6 per cent, other factors held constant.

While we did not find a significant relationship between workshop utilization and firm performance, Model 3 offers unique additional insights into this relationship. This model demonstrates a combined effect of workshops on SME performance. The model's statistics show that it is well fitted. As was the case in the earlier models, this model is also statistically significant with adjusted R^2 of 0.41 ($F=12.35$, $P<0.001$). The change in F-statistic is also high and significant implying that the addition of the interaction term to the analysis contributes meaningfully to the variance in SMEs' performance ($\Delta F=4.08$, $P<0.05$).

In Model 3 the combined effect of utilization of workshops and job-rotation is positive and significant ($B=0.16$, $P<0.05$). This means that in the firms of interest, combining workshops and job-rotation will contribute meaningfully in enhancing firm-level performance.

5. Discussion and conclusions

The findings of the study support the positive role that job-rotation plays in uniquely contributing to the performance of small entrepreneurial firms in the study context. Drawing on learnings from literature, we conjecture that the value of job-rotation among the studied SMEs comes from the opportunities created by this practice for the employees to gain a holistic understanding of the organization and thus make more effective contributions to the firm.

Job-rotation in particular has been found to be associated with empowering employees with the right skills and knowledge that are tailored to a firm's context (Jansen et al., 2003; Patterson et al., 2004; Wood and Wall, 2007). We argue that this is particularly important in a highly dynamic environment where collective effort and broad knowledge and skills are necessary in order to effectively respond to emerging challenges and opportunities. Lack of support for the effect of workshops is rather interesting in the study setting.

In Rwanda, just like in many other countries in the region, there has been a growing trend of encouraging off-the-job training programs to support human resource development among firms in the SME sector such as the Hanga Umurimo Program (HUP) and the Akazi Kanoze Program. Previous research has even supported the benefits that these activities can bring to firms, including but not limited to, provision of new knowledge on current practices prevailing in the industry (Commerce, 2014; Dawes et al., 2014).

Our findings, however, reveal that such practices on their own can be ineffective unless the beneficiaries have the right mechanisms to absorb this knowledge. Job-rotation can be seen as an important aspect of the absorptive capacity of a firm for supporting such learning (Jansen et al., 2003). In our sample, SMEs that simultaneously practiced higher levels of job-rotation and used workshops more frequently were also found to register higher levels of performance. Overall, these findings offer interesting insights to guide practice.

Specifically, we observe that efforts towards helping SMEs' acquire new skills and knowledge through the medium of workshops can be of help when efforts are made to help firm-level integration of this knowledge. In our study, we see this realization more for SMEs which have adopted job-rotation. It is thus imperative for stakeholders to extend these particular programs to address the question of how SMEs can integrate knowledge and skills that are advanced within workshops and seminars into actual job performance. The findings of the study also offer empirical evidence justifying managerial action on job-rotation.

This evidence is particularly critical in the study context where limited empirical research exists. Based on our findings we highlight one area for future research: future research can address the question of why utilization of workshops on its own does not contribute to improved performance among SMEs in the study context. This null finding points to a need for more refined studies on understanding how different types of workshops enhance or impede SMEs' performance. This disaggregation was not done in the current study.

We are, however, aware of the following limitations which should be taken into

consideration while interpreting the findings of this study. The study is based on manufacturing firms and as such, these findings may not be directly applicable to the services sector. The sample of manufacturing firms included in the study is for SMEs located in the capital. These SMEs may therefore enjoy location advantages that are different from the rest of the country. In addition, the study is majorly exploratory and theoretical in nature.

But notwithstanding these limitations, we consider this effort to be important in laying a foundation for more rigorous future research on training practices and their performance implications for SMEs in the unique context of Africa. We also believe that the study provides timely empirical insights into current practices and sheds some light on the appropriate course of action regarding the relevance of workshops and job-rotation support within the SME sector in Rwanda and in the region which is experiencing growing entrepreneurial activities.

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Table 1. Characteristics of SMEs included in the study

Variables	Categories	Frequency	%
Type of business	Sole proprietor	94	93.1
	Partnership	7	6.9
Ownership by gender	Female	50	49.5
	Male	51	50.5
Manufacturing Sector	Furniture	44	43.6
	Crafts	45	44.6
	Metal works	10	9.9
	Brick making	1	1.0
	Juice processing	1	1.0
Age of the firm	<1	6	5.9
	1 to 5	29	28.7
	6 to 10	43	42.6
	11 to 15	10	9.9
Firm size	15+	13	12.9
Firm size	1 to 3	58	57.4
	4 to 30	43	42.6
Key informants	Owner	86	85.0
	Manager	15	15.0

Table 2. Results of a factor analysis results dependent and independent variable scales

Scale and measurement items	1	2	3
a. Job-rotation			
In this organization, we favor job-rotation in comparison to other forms of training	0.232	0.810	-0.265
In this organization, job-rotation is frequently Practiced	0.108	0.871	-0.195
In this organization, in order to have a better understanding of the organization, employees are rotated quite often	0.190	0.838	-0.303
In this company, job-rotation is well understood by all employees	0.470	0.512	0.123
In this organization, it is very difficult to use job-rotation (R)	0.050	0.813	-0.033
b. Workshop utilization			
In our organization, it is preferred that seminars and workshops should take place at work	-0.099	-0.206	0.867
In our organization, we consider seminars and workshops to be more effective in enhancing our skills	0.160	-0.187	0.685
In our company, the employer does not like to take employees for seminars and workshops (R)	-0.122	-0.063	0.719
c. SME performance			
In our organization, the training strategies that have been adopted have facilitated the accomplishment of our performance targets	0.921	0.148	0.000
In our organization, we have been able to achieve our departmental goals because of the training approach adopted	0.921	0.108	0.034
The training approach in our organization has contributed a lot towards the level of team spirit	0.856	0.217	-0.093
In our organization, the training approach adopted has improved work quality	0.890	0.157	0.088
In our organization, costs incurred have decreased significantly as a result of the employee training approach employed	0.864	0.029	-0.148
With the training approach adopted, employees in this organization have become more creative	0.600	0.426	-0.313
Eigen value	6.00	2.80	1.41
per cent of variance explained	42.86	20.00	10.05
Cumulative per cent of variance explained	42.86	62.85	72.91

Note: Extraction method: Principal Component analysis. Rotation method: Varimax with Kaiser Normalization. The high factor loadings for the respective constructs are indicated in bold. The items with R in parentheses were reverse coded before the analysis.

Table 3. Mean, standard deviations and correlations

Variables	Mean	S.D.	1	2	3	4	5	6	7
1. Ownership by gender	1.50	0.502	1						
2. Age of the firm	2.95	1.07	0.251*	1					
3. Firm size	1.43	0.50	0.052	0.021	1				
4. Job-rotation	2.77	1.07	0.103	0.249*	0.387**	1			
5. Workshops	3.79	0.89	-0.113	-0.140	-0.303**	-0.365**	1		
6. Workshop*Job rotation	10.16	4.03	0.021	.214*	0.228*	0.793**	0.242*	1	
7. SME Performance	3.20	1.11	0.218*	0.551**	0.102	0.450**	-0.149	0.418**	1

Note: N=101, ***p<0.00, **p<0.01, p<0.05.

Table 4. Results of the hierarchical regression analysis

Variables	Model 1 ^a			Model 2 ^a			Model 3 ^a		
	β	t	VIF	β	T	VIF	β	t	VIF
<i>Control variables</i>									
Ownership by gender	0.081	0.935	1.07	0.075	0.925	1.08	0.097	1.197	1.09
Age of the firm	0.529	6.109***	1.07	0.449	5.367***	1.14	0.404	4.731***	1.23
Firm size	.087	1.032	1.00	-0.038	-0.439	1.23	-0.061	-0.711	1.25
<i>Independent Variables</i>									
Job-rotation				0.361	3.962***	1.35	0.366	4.076***	1.35
Workshops				0.042	0.493	1.21	0.039	.460	1.21
<i>Interaction terms</i>									
Seminars and workshop*Job-rotation ^b							0.163	2.020*	1.10
R ²	0.32			0.42			0.44		
Adjusted R ²	0.30			0.39			0.41		
F value	5.10***			13.56***			12.35***		
Change in R ²				0.10			0.02		
Change in F				7.99***			4.08*		

Note: N=101, *P<0.05, **P<0.01, ***P<0.001, ^a dependent variable: SME performance, ^b interaction terms computed after mean centering each variable.