

# **TRAINING INTERVENTIONS AND EMPLOYEE PERFORMANCE IN THREE SELECTED FOOD PROCESSING COMPANIES IN TEMA, GHANA**

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## **Abstract**

*For training to help improve employees' performance in an organisation, the trainees should possess the basic skills and adequate learning abilities to understand the concepts taught, participate and retain information and also be provided with opportunities at the workplace to transfer the acquired knowledge and skills. This paper examined trainees' levels of participation in training programmes, the opportunities available for the transfer of acquired knowledge and skills on the job and the effect of training on employees' performance in three food processing companies in Tema, Ghana. Sample included 231 respondents comprising three training coordinators, 14 line managers, 16 shift supervisors, and 198 permanent employees. The study was both cross-sectional and comparative. Interviewing and administration of questionnaires were used to collect data while Statistical Product Service Solutions (SPSS) version 16 was used for data analysis. The study revealed that trainees' participation in training programmes was high, transfer of learning was positive, employees had opportunities at the workplace to*

*apply the acquired knowledge and skills, and training interventions were effective to improve employees' performance. These are lessons for other food processing companies to emulate to help bring about performance improvement through training activities.*

*Keywords: Training interventions, food processing, employee performance, human capital, multimedia learning*

## **INTRODUCTION**

In order to improve and sustain food processing activities in the Sub-Saharan African countries including Ghana, there is the need to develop the human resources (Röttger & Da Silva, 2007). The human resources of an organisation can be improved through employee training (Goel, 2009). Training interventions help employees learn (McGoldrick, Stewart & Watson, 2002), update their knowledge and skills to enable them to be task competent, and increase their outputs for improved performance (Clardy, 2008; McNamara, 2008; Haslinda; 2009; Jain & Premkumar, 2011).

Effective training takes place when learners possess basic skills and adequate learning abilities to understand the training (Chermack, Lynham & Ruona, 2003; Mathis & Jackson, 2004) and are able to retain information and use them in new situations (Mayer & Moreno, 2003). In addition, employees should be able to transfer the acquired knowledge and skills from training to their jobs (Holton, 2005). Food processing companies in Ghana are known to provide training activities for their employees.

The specific objectives of this paper are to: (a) examine the level of the learning abilities of employees for training programmes in one public and two private food processing companies in Tema in Ghana; (b) analyse the opportunities trainees had to transfer the acquired knowledge and skills from the training received to their jobs; and (c) explore the effect of training interventions on employees' performance. The paper is structured into seven sections: introduction, literature review, study context and methodology, results and discussion, conclusions, limitations, and the way forward.

## **LITERATURE REVIEW**

Literature is reviewed to offer a comprehensive overview and recapitulation on the concepts and theories used in the study to give both the researchers and readers a sense of focus as to which direction the paper is headed. Issues reviewed under this section are the concepts of employee

training and employee performance as well as human capital theory and cognitive theory of multimedia learning.

### **Employee training**

Employee training in an organisation focuses on the provision of certain activities to employees to help learn and enhance their knowledge, skills and abilities so that they can add value to their current jobs and improve their performance (McGoldrick, Stewart & Watson, 2002). According to Armstrong (2006) and Clardy (2008), employee training is a planned learning process through which learners acquire specific knowledge and skills. Training empowers employees to perform better on their current jobs. Training enables employees to have the ability to make efficient use of resources and get the opportunity to progress in their careers, thereby developing themselves (Bhattacharyya, 2007). Through training, employees are able to learn about their strengths and weaknesses (Mathis & Jackson, 2004) and are able to update their knowledge and skills to increase their output (McNamara, 2008). When individuals invest in training they make themselves more productive, receive higher earnings and help their organisations to increase their performance (Swanson & Holton, 2001; Zidan, 2001).

Cole (2004) explains that interventions are activities that aim at improving situations. Thus, training interventions in firms are the organised activities that are provided to help improve performance. Training interventions can be provided on-the-job or off-the-job. The on-the-job training methods involve having employees in actual job situations at the workplace which include coaching, counselling, delegation, apprenticeship, job rotation, and employee orientation (Mathis & Jackson, 2004; Laakso-Manninen & Viitala, 2007). They are informal (Lloyd, 2002) and the most commonly used (Sadler-Smith & Lean, 2004). The off-the-job training methods require employees to stop work for a while and learn either at the workplace or outside their workplace to improve performance. These methods include lectures, simulation, self-study, seminars, workshops, case study, role playing, group training, and e-learning (Mathis & Jackson, 2004). Effective training interventions require that both on-the-job and off-the-job methods are employed.

### **Employee performance**

Employee performance focuses on what an employee does at the work place (Mathis & Jackson, 2004). Performance is related to output of goods and services and behaviour (Armstrong, 2009) or the achievement of goals (Latham, Sulsky & Macdonald, 2007). Performance is also about employees' efforts in relation to the amount of inputs used to create outputs (Asare-Bediako, 2008). Employee performance is multidimensional since it can be seen

as the work output of an employee, or the time used by an employee to do a specific task or an employee surpassing his or her set targets (Armstrong, 2006). Several human and structural factors are known to influence employees' eagerness to perform including support from management, access to information, resource, incentives, and employees' knowledge, skills, and abilities (Harney & Jordan, 2008; Armstrong, 2009).

Both objective and subjective performance measures could be used when measuring employee performance (Mathis & Jackson, 2004). Objective performance measures are those that can be directly counted such as the number of finished products, while subjective measures require an assessor's opinion on employee's attitude as well as reduced turnover, improved team work and improved communication. This paper focuses on employee performance as the work output, the time used by employees to perform certain tasks, employees' behaviour and how these areas are impacted through training.

### **Human capital theory**

Human capital is human capabilities such as people's skills, knowledge, abilities, attitudes, creativity, innovations in addition to their mental and physical state used on the job (Mathis & Jackson, 2004; Laakso-Manninen & Viitala, 2007). Human capacity can be acquired and improved through education, training, health activities, and any shared services that help to improve the productive capacities of people (Lynn, 2002; Adamu, 2003). The human capital theory is considered as an economic theory (Swanson & Holton, 2001) and notable among the developers of the theory are Schultz (1961) and Becker (1964).

Human capital theory stresses that when individuals spend time and money to improve themselves in education and training, they make themselves more productive, earn more and help their organisations to perform better (Zidan, 2001). Investing in people through education and training is "the change that is manifested at the individual level in the form of improved performance, and at the organisational level in the form of improved productivity and profitability" (Nafukho, Hairson & Brooks, 2004: 549).

Even though human capital theory emphasises the acquisition of knowledge and skills enhancement through the provision of training and educational interventions, the theory has received many criticisms. According to Bronchi (2003), as employees invest in training with the aim of improving their performance, their incomes are also increased and this situation may create social classes. This is because it is not every employee who might receive the training interventions (Bierema & Cseh, 2003; Mathis & Jackson, 2004) and those employees who receive them have the chance to enhance their incomes as a result of improved performance through the application of the knowledge and skills from training.

Despite these criticisms, the theory is used to explain how improvement in one's knowledge, skills, and abilities through training and learning can contribute to improved productivity. Countries that invest in the skills training and education of their citizens on the average are seen to have higher levels of output and economic growth (Olaniyan & Okemakinde, 2008). Several studies have been conducted to show that when employees invest in their human capital, it leads to enhanced performance. Among these studies are those of Huslid (1995) and Black and Lynch (1996) in the USA, Jain and Premkumar (2011) in India, Haslinda (2009) in Malaysia and Katou and Budhwar (2009) in Greece.

### **Cognitive theory of multimedia learning**

One purpose of training is to support and facilitate learning of individuals, groups and organisations (Delahaye, 2000; McGoldrick et al., 2002). Learning is "the process of acquiring new knowledge and expertise in people" (Swanson & Holton, 2001: 208). Cognitive domain emphasises thoughts and information (Sorden, 2005) and multimedia relates to the combination of pictures and text (Mayer, 2005). The cognitive theory of multimedia was developed in 1989 by Mayer and the theory dwells on the issue that learning is effective when spoken or written words and pictures are used in an instructional approach (Mayer, 2009). The theory emphasizes that learners' working memory can be limited (Baddeley, 2002) and their ability to process information can decline with age (Paas, Van Gerven & Tabbers, 2005). Using different instructional approaches such as pictures, illustrations and simulations in multimedia learning help to make learning effective (Mayer, 2005; Swanson & Holton, 2009).

The cognitive theory of multimedia learning has its roots from the cognitive theories (Sorden, 2005) with its focus on the learner (Mayer, 2009). To make learning essential and help people to learn, certain learning principles such as prior knowledge, feedback, and individual differences should be considered (Malone, 2003). Chermack et al. (2003) argue that employees should be knowledgeable and trainable and should possess at least a college or university education so that they can participate effectively in human resource development interventions to bring about improved performance.

Employees can have the ability to learn but meaningful learning can occur when learners are given the needed resources so that they can have the opportunity to apply knowledge and skills acquired in training on their jobs (Naquin & Holton, 2003). Effective learning takes place when learners are able to retain information and use them in new situations (Mayer & Moreno, 2003). In addition, employees should be provided with the opportunities that would enable them to transfer the acquired knowledge and skills from training to their jobs (Holton, 2005), implying that transfer of learning is very crucial.

Transfer of learning is the effective and regular application of the knowledge and skills trainees have acquired on their jobs (Broad & Newstrom, 1992). Transfer of learning “is the application of knowledge learned in one setting or for one purpose to another setting and/ or purpose” (Gagne, Yekovich & Yekovich, 1993: 235). The outcomes of transfer of learning can be either positive or negative. Positive transfer of learning is said to have taken place when the acquired knowledge in one context is applied in another context and there is an improvement in performance. On the other hand, when a previous learning is applied in a new context and it inhibits performance, a negative transfer is said to have occurred (Bransford, Brown & Cocking, 2000). Transfer of learning is essential for the personal growth and employability of the individuals as well as an organisation’s survival (Broad, 2005). Cognitive theory of multimedia learning can therefore be used in training programmes to help employees learn effectively.

## **STUDY CONTEXT AND METHODOLOGY**

The study involved three large food processing companies namely; Cocoa Processing Company Limited (CPC), MYROC Food Processing Company Limited (MYROC) and Pioneer Food Cannery Limited (PFC). CPC was a public cocoa processing company, MYROC was a local fish processing company and PFC was a multinational fish processing company and each company had been in operation for more than 12 years. The companies were purposively selected from the Tema Metropolis, a coastal area in Ghana which has the nation’s largest harbour. The harbour served as the main import entry into the country. Tema was also one of the nation’s fastest growing cities and a leading industrial area with over 500 factories. Tema Metropolis was one of the four export processing zones in Ghana designated for agro-processing industrial activities and it offered investors a favourable environment for manufacturing export activities. Firms located in the export processing zones benefited certain incentives including tax exemptions (Ghana Free Zones Board, 2012; Ghana Investment Promotion Centre, 2011).

The study employed both cross-sectional and comparative study design. The benefit of this design was that it allowed us to compare many different variables at the same time and record information about their subjects without manipulating the study environment. The study used a mixed-method approach comprising both quantitative and qualitative approaches to research.

As noted by Bryman (2007) and Creswell and Clark (2011), quantitative approach includes hard numbers and provable results such as experiments and surveys while qualitative research is more subjective focusing on observation and interpretation of data via ethnography and personal interviews. Most mixed-methodology research begins with a qualitative

observation of an event or phenomenon. Qualitative study offers the opportunity to provide subtle details that outline a problem. The research then uses a quantitative tool, like a survey, to validate or invalidate observations made during the qualitative phase. A mixed-approach design uses the strengths of both methodologies to provide a broader perspective on the overall issue.

Mixed-method design expands the research in a way that a single approach cannot. The process combines a statistical analysis and observation to make the research more comprehensive with a broader landscape. Quantitative analysis inherently looks for one answer while qualitative research is inherently focused on multiple answers as interviews reveal a variety of information that may be different but true at the same time (Bryman, Becker & Sempik, 2008; Malina, Nørreklit & Selto, 2011).

Our study employed purposive sampling procedure to select 33 key informants comprising three training coordinators, 14 line managers and 16 shift supervisors from the three companies. Simple random and stratified sampling procedures were used to sample 285 respondents from 1123 permanent employees from nine different departments of the three companies. This sample size was close to the 285 respondents for a population size of 1100 as prescribed by Krejcie and Morgan (1970). These departments were the production, finance, quality assurance, engineering, human resource, logistics, marketing, administration, and research and development. While the training coordinators were interviewed based on the interview guides to collect qualitative data, the rest of the respondents (i.e. line managers, shift supervisors and permanent employees) were given questionnaires to complete as a means of gathering quantitative data.

All questionnaires given to the line managers and shift supervisors were completed and retrieved but with the 285 permanent employees, 198 usable questionnaires were received which represented 69% response rate. Thus, a total of 231 respondents were involved in the study. Primary data collection was conducted from 13<sup>th</sup> August to 30<sup>th</sup> November, 2012. Secondary data obtained from books, journals, periodicals, the internet, newspapers and reports from the relevant organizations were used to support the primary data collected from the respondents. SPSS version 16 software and a constructed qualitative analytical framework were used to analyse quantitative data and qualitative data respectively.

## **RESULTS AND DISCUSSION**

### **Trainees' knowledge and level of participation in training programmes**

The highest educational levels of the various categories of the respondents are presented in Table 1. The majority (71.1%) of the respondents had obtained Advanced Level, Higher National Diploma, Bachelor's Degree and Master's Degree while only 1.7 percent had

elementary education. This suggests that the respondents were literate and knowledgeable enough to understand concepts taught and able to effectively participate in the training programmes, confirming the assertion of Chermack et al. (2003) that employees should be knowledgeable and should possess the needed literacy skills to effectively understand and participate in training programmes to bring about improved performance. Among the major training programmes mentioned were employee orientation, coaching, job rotation, group training, field trips, lectures and workshops. The areas of focus during training were safety practices, resource efficiency, task competency, and quality and quantity production.

Table 1: Educational levels of respondents

Educational level	Companies			Total	
	CPC	MYROC	PFC	Frequency	Percent
Elementary	0	0	4	4	1.7
Senior High School	5	36	3	44	19.0
Ordinary Level	10	3	6	19	8.2
Advanced Level	7	10	6	23	10.0
Higher National Diploma	10	9	27	46	20.0
Bachelor's Degree	34	22	29	85	36.8
Master's Degree	7	1	2	10	4.3
Total	73	81	77	231	100.0

CPC= Cocoa Processing Company Limited,

PFC= Pioneer Food Cannery Limited

MYROC= Myroc Food Processing Company Limited

When asked the level of employees' participation in training interventions, on a five-point scale (1 = "very low", 2 = "low", 3 = "average", 4 = "high" and 5 = "very high"), all the three trainers recorded a "high" rating. Similarly, the majority of the permanent employees (CPC= 87%, MYROC= 83%, PFC= 82%) rated the level of their participation in training programmes as "high". The reason given for the high participation was that most of the employees could understand the concepts taught, able to retain the lessons and transfer them to their jobs due to their relatively high literacy skills.

### **Transfer of knowledge and skills acquired from training to jobs**

Employees could acquire new skills and update their knowledge, but being able to transfer them to their jobs is critical. When asked whether trainees could transfer the knowledge and skills acquired from training to their jobs, all the trainers, line managers, supervisors and the majority (88.4%) of the permanent employees responded in the affirmative. Among the reasons given for their responses were that after training, most trainees became more task competent, resource



efficient and increased their output. The finding implies that the training programmes were effective and learning has taken place. According to Mayer and Moreno (2003), effective learning takes place when learners are able to retain information and use it in new situations. Most of the respondents indicated that the use of different instructional approaches (multimedia) such as the use of pictures, words and videos helped them to remember what was taught at their training sessions.

### **Employees getting the opportunities to apply acquired knowledge and skills on their jobs**

Trainees could acquire new information from their training, but getting the opportunity to apply the acquired skills and knowledge on their jobs is another issue. The study revealed that all the three trainers, 71.4 percent of the line managers and 75 percent of all the supervisors indicated that trainees were given the chance at the workplace to apply their acquired knowledge and skills. The majority (83.8%) of the permanent employees comprising 52 out of 60 CPC employees, 54 out of 70 MYROC employees and 60 out of 68 PFC employees reported that they were given the chance to apply what they had acquired from training interventions to their jobs as shown in Table 2.

The employees mentioned that mock sessions were organised for them to facilitate and apply the concepts. Additionally, some of the trainees became coaches for colleagues who could not attend the training programmes. New productivity targets were also set for employees after receiving training interventions and meeting the new targets was a means of applying what had been acquired. This finding is in line with Holton's (2005) argument that it is necessary for organisations to provide enabling environment for employees after training to apply their knowledge and skills. By so doing, the employees may be encouraged to stay in their companies, work, improve their performance and help them to achieve organisational goals.

Table 2: Permanent employees getting the chance to apply acquired knowledge and skills on the job

Companies	Yes		No		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
CPC	52	26.2	8	4.0	60	30.2
MYROC	54	27.3	16	8.1	70	35.4
PFC	60	30.3	8	4.0	68	34.3
Total	166	83.8	32	16.1	198	*99.9

Note:\* Not up to 100% due to rounding up of decimal places.

CPC = Cocoa Processing Company Limited, PFC = Pioneer Food Cannery Limited, MYROC = Myroc Food Processing Company Limited

## Effect of transfer of knowledge and skills from training activities on employee performance

On a five-point Likert scale where 1= “very low” and 5 = “very high” (see Table 3), the training coordinators, line managers and supervisors were asked to rate employees’ performance before and after receiving training interventions. All training coordinators rated employees’ performance as “average” before receiving the interventions but as “high” after the interventions. At CPC, 57.1 percent of the line managers and 60 percent of the supervisors rated employees’ performance as “average” before interventions, but all the line managers and 80 percent of the supervisors rated “high” after interventions.

At MYROC, 50 percent of the line managers and 66.7 percent of the supervisors rated employees’ performance as “average” before interventions, but 80 percent of the line managers and all the supervisors rated employees’ performance as “high” after the interventions. Similarly at PFC, 66.7 percent of line managers and 80 percent of the supervisors rated employees’ performance before training interventions as “average”. After the interventions, all the line managers and the supervisors rated employees’ performance as “high”.

The permanent employees also rated their performance before and after receiving training interventions as shown in Table 3. The majority (52.5%) of them rated their performance as “average” with none being “very high” before intervention. However, only 10.6 percent, 54 percent and 34.8 percent of the respondents rated their performance as “average”, “high” and “very high” respectively after the training. Employees attributed the performance improvement to their ability to transfer the acquired knowledge and skills from training programmes such as good manufacturing practices and managing resource efficiently. For instance, most of the MYROC and PFC permanent employees within the production department indicated that they were taught faster and easy ways of cleaning fish during training sessions, and this helped them to clean the amount of fish required of them within the specified periods.

Table 3: Permanent employees’ performance ratings before and after training interventions

Rating	Before Training					After Training				
	CPC	MYROC	PFC	Total	%	CPC	MYROC	PFC	Total	%
Very Low	0	4	0	4	2.0	0	0	0	0	0.0
Low	0	9	11	20	10.1	0	1	0	1	0.5
Average	29	33	42	104	52.5	1	13	7	21	10.6
High	31	24	15	70	35.3	29	33	45	107	54.0
Very High	0	0	0	0	0.0	30	23	16	69	34.8
Total	60	70	68	198	*99.9	60	70	68	198	*99.9

Note:\* Not up to 100% due to rounding up of decimal places. CPC = Cocoa Processing Company Limited; PFC = Pioneer Food Cannery Limited; MYROC = Myroc Food Processing Company Limited

The application of the acquired knowledge and skills leading to improved performance implied that a positive transfer of learning had taken place and this supports the argument of Bransford et al. (2000) on a positive transfer of learning. The finding is also consistent with the human capital theory that through training, the individuals enhance their capacities to improve performance (Zidan, 2001).

To examine the extent to which training interventions had improved employees' performance, a Wilcoxon Signed Rank Test was conducted on the permanent employees' performance ranking (before and after training interventions) and Table 4 shows the results. The median score before training interventions for CPC respondents was 4.0, and this increased to 4.5 after the training. The Z value for the test was -6.998 and its associated significance level was 0.000. The pre-intervention median score for MYROC was 3.0, the post intervention median was 4.0, the Z score was -7.373 and the significance level was 0.000.

Similarly, PFC had pre-intervention median score of 3.0 which increased to 4.0 after the intervention, a Z score of -7.469 and significance level of 0.000. Since the significance level was 0.000 in all the three companies and this is less than 0.05, it was concluded that the test revealed a statistically significant improvement in employee performance after receiving training interventions. In each company, the effect size which is the influence of the independent variable (training interventions) on the dependent variable (performance) was calculated. The effect sizes were 0.64, 0.62 and 0.64 for CPC, MYROC and PFC respectively. According to Cohen (1988), an effect size of 0.1 indicates small effect, 0.3 shows medium effect while 0.5 implies large effect. Since an effect size of more than 0.5 was obtained in all the three companies, it could be concluded that the training interventions had large effects on the trainees' performance. The finding is consistent with the findings of Haslinda (2009) and Katou and Budhwar (2009) that training interventions provided in Malaysia and Greece manufacturing firms respectively improved employee performance.

Table 4: Employees' median scores before and after training interventions

Item	Companies		
	CPC	MYROC	PFC
Median scores for employees before training interventions	4.0	3.0	3.0
Median scores for employees after training interventions	4.5	4.0	4.0
Sample size	60	70	68
Z value	-6.998	-7.373	-7.469
Significance level	0.000	0.000	0.000

CPC = Cocoa Processing Company Limited,

PFC = Pioneer Food Cannery Limited

MYROC = Myroc Food Processing Company Limited, n = 198

Concerning the extent to which employees' performance improvement could be attributed to only training activities, the findings showed that the training coordinators indicated between 41-50 percent and 83.3% of the line managers and all the supervisors indicated 31-40 percent. The majority (67.7%) of the permanent employees also indicated between 21 and 50 percent. Black and Lynch (1996) had a similar finding in US organisations that showed that employee training interventions raised subjective productivity and performance measure by 16 percent. These findings therefore confirm Black and Lynch's (1996) findings, but show a higher subjective performance level.

## CONCLUSIONS

Based on the specific objectives of the paper, the following conclusions are made. First, most of the trainees had higher education than elementary education that enabled them to understand the basic concepts and participate effectively in their training programmes. Thus, it is essential for top management in other food processing companies to engage employees with the required qualification during their recruitment and selection period.

Second, the combination of different instructional methods such as the use of words, photographs and videos during training sessions helped the trainees to understand the concepts faster, retain the lessons longer and enabled transfer of knowledge and skills to their jobs. Third, employees were given the opportunity to apply the acquired knowledge and skills from training programmes on their jobs.

Fourth, training interventions were seen as effective and beneficial to employees and had large effects on improved employee performance. Knowledge and skills gained from training had enabled employees to be resource efficient, task competent and had increased their output. As a result, training coordinators, top management, line managers and shift supervisors in food processing enterprises should aim at sustaining the training interventions to benefit the employees for improved performance.

## LIMITATIONS

As with most researches, this study has some limitations. The main limitation related to the geographical scope of the study which was limited to one metropolis, considering the fact that there were four export processing zones in Ghana designated for agro-processing industrial activities. The choice of one metropolis as the study area and the selection of three food processing companies indicate a limitation in terms of size and composition of sample size. This might affect the representativeness and generalization of the study. This means more related studies are needed in a Ghanaian context. However, despite the limitations the samples were

considered substantially representative of employees and key informants of the food processing companies. The sampling techniques used also helped in arriving at reasonable and reliable conclusions.

## THE WAY FORWARD

This study focused on three food processing companies in Tema Export Processing Zone which have benefited certain incentives, thereby having the potential advantage of using some exempted tax monies to organise training programmes for their employees. There was the possibility that the study companies' effective and beneficial training interventions resulting in improved employee performance could be attributed to their location within the export processing zone. It is therefore, suggested that future research should be conducted on training interventions and employee performance in food processing and non-food processing companies outside the zone. The study also involved cosmopolitan companies that have well developed structures and policies so it is suggested that further research should be conducted on non-cosmopolitan companies for comparison.

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