THE IMPACT OF TRAINING ON PRODUCTIVITY IN MASS FOOD PRODUCTION

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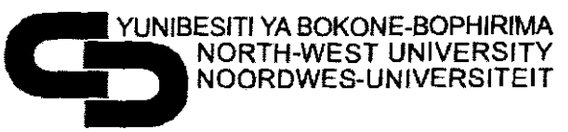

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AFRIKAANSE TITEL

Die impak van opleiding op werksverrigting in massa voedselvoorbereiding

OPSOMMING

Motivering:

Die motivering vir hierdie studie was om werkers in grootskaalse voedselvoorbereiding se kennis te verhoog in die voedseldiensomgewing waarin hulle werk en hierdeur hul produktiwiteit/werksverrigting te verhoog. Opleiding word dikwels gebruik om werksverrigting te verbeter en word as die antwoord op baie werksverrigtingsprobleme beskou. Opleiding en werksverrigtingsverbetering gaan hand aan hand. Daar is egter min navorsing oor opleiding en werksverrigting op die gebied van grootskaalse voedselvoorbereiding gedoen.

Doelwitte:

Die hoofdoelwit van hierdie studie was om met behulp van vraelyste die impak van opleiding op die werksverrigting van werkers in grootskaalsse voedselvoorbereidingsopsette te ondersoek. Om by hierdie doelwit uit te kom, is daar eerstens gekyk na die opleidingsbehoeftes van die werkers. Tweedens is opleiding volgens die behoefte gegee en derdens is opvolgvraelyste ingevul om die impak van die opleiding te bepaal.

Metodes:

Die opleidingsbehoefte van die teikengroep is eerstens bepaal aan die hand van vraelyste. Die opleidingsmateriaal is hiervolgens saamgestel en aan die teikengroep oorgedra in die vorm van 'n lesing. Opvolgvraelyste is twee maande en vier maande na die opleiding afgeneem. Die praktiese betekenis van die opleiding is bepaal deur die stelle vraelyste se antwoorde met mekaar te vergelyk.

Resultate:

Na opleiding het die werkers se kennis met 55% (toesighouers), 33% (skoonmakers), 20% (voedseldienshulpe) en 6.25% (kokke) verhoog. Hierdie resultate toon dat opleiding in die praktyk slegs vir die toesighouers van werklike betekenis sal wees indien die opleiding onder dieselfde omstandighede as tydens die studie gegee word.

Gevolgtrekking:

Opleiding, met werkverrigtingsverbetering as doel, moet op doeltreffende en sinvolle wyse aangebied word om 'n impak op die kennis van voedseldienswerkers te kan toon. Die

omgewing, tipe werker, bestuur se betrokkenheid asook die tipe opleiding, motivering van werk, korrekte opleidingsmateriaal, en of opleiding werklik 'n verandering sal toon, moet in ag geneem word wanneer opleiding aan voedseldienswerkers gegee word.

Sleutelterme: opleiding, vraelyste, voedseldiensbestuur, werkverrigtingsverbetering

ENGELSE TITEL

The impact of training on productivity in mass food production

SUMMARY

Motivation:

The motivation for this study was to increase the knowledge of foodservice personnel in mass food production in the foodservice area in which they work and by doing so, increasing their productivity. Training is often used to improve productivity and is seen as the answer to many productivity problems. Training and productivity improvement go hand in hand. Little research has been done on training and productivity in mass food production.

Objectives:

The main objective of this study was to investigate the impact of training on the productivity of workers in mass food production by means of questionnaires. Firstly, the training needs of the workers were investigated. Secondly, training was given as needed and thirdly, follow-up questionnaires were completed to determine the impact of training.

Methods:

The training needs of the target group were firstly determined by means of questionnaires. The training material was then compiled from information obtained in the questionnaires. Training was given in the form of a lecture. Follow-up questionnaires were completed two and four months after training. The practical significance of the training was determined by comparing the answers of the sets of questionnaires with each other.

Results:

The workers' knowledge increased by 55% (supervisors), 33% (cleaners), 20% (foodservice aids) and 6.25% (cooks) after having received training. These results show that training will only be of practical significance to the supervisors when it is presented in the same circumstances as in the study.

Conclusions:

Training, with productivity improvement in mind, must be presented in an effective and meaningful manner to have a significant impact on the knowledge of foodservice workers. The environment, type of worker, management's involvement as well as the type of training, motivation of the worker, correct training material and whether the training will make a difference, must be taken into consideration when planning training for foodservice workers.

Key words: training, questionnaires, foodservice management, productivity improvement

CONTENTS

ACKNOWLEDGEMENTS I
OPSOMMING II
SUMMARY IV
CONTENTS VI
Abbreviations VIII
Figures IX
Tables X
Language editing report XI
CHAPTER 1: INTRODUCTION 1
1. Background and motivation 2
2. Aims and objectives 3
3. Structure of mini-dissertation 3
4. Authors' contributions 4
5. References 4
CHAPTER 2: LITERATURE REVIEW 5
1. Introduction 6
2. Description of Productivity 6
3. Measuring Productivity 8
4. Productivity in the Foodservice Industry 12
5. Factors affecting productivity 13
6. Training and Productivity 17
7. Training 19
7.1. Types of Training 19
7.2. Factors influencing training 26
7.3. Training in the food service industry 30
8. Measuring the effect of training on productivity 30
8.1. Improvement in performance on the job 30
9. Summary 31
10. References 32
CHAPTER 3: THE IMPACT OF TRAINING ON PRODUCTIVITY IN MASS FOOD PRODUCTION 35
1. Summary 36
2. Introduction 36
3. Material and methods 39
3.1. Subjects 39
3.2. Experimental design 41

3.3. Sampling 41
3.4. Questionnaires 41
3.5. Training 41
3.6. Statistical analysis 41
4. Results 42
5. Discussion 46
6. Conclusion 51
7. Acknowledgements 51
8. References 52
CHAPTER 4 55
GENERAL SUMMARY, RECOMMENDATIONS AND CONCLUSIONS 55
1. Introduction 56
2. Summary of main findings 56
3. Shortcomings 56
4. Recommendations 57
5. Conclusions 57
ADDENDUM 58

Abbreviations

AE	Adult education
CBI	Computer-based instruction
CBT	Computer-based training
CWS	Compressed work schedule
EMH	Earned man-hours
IE	Improvement effort
OHS	Occupational health and safety
OJT	On-the-job training
WMH	Worked man-hours
rev_i	Revenue for period i
fc_i	Food cost for period i
lc_i	Labour cost for period i
doe_i	Direct operating expenses for period *i*
mi_i	Apportioned minimum investment for period i
mf_i	Management fee for period i
al_i	Amortized leasehold improvement for period i
std	Standardised
no	Number

Figures

Figure 2.1 A model for productivity measurement in service operations.....p.11

Figure 2.2 Productivity improvement strategies and techniques.....p.12

Figure 2.3 Factors that influence training effectiveness.....p.25

Figure 3.1 Conceptual framework for the study.....p.39

Tables

Table 1.1 Author's contributions.....p.4

Table 3.1 Employee satisfaction and work environment.....p.40

Table 3.2 Time spent on different work activities.....p.40

Table 3.3 Demographic information.....p.41

Table 3.4 The effect of training on the productivity of supervisors.....p.42

Table 3.5 The effect of training on the productivity of cleaners.....p.42

Table 3.6 The effect of training on the productivity of foodservice aids.....p.43

Table 3.7 The effect of training on the productivity of cooks.....p.43

Language editing report

Hiermee getuig ek dat ek, me Cecilia van der Walt, die taalversorging van me Tertia van Zyl se skripsie, getitel "The impact of training on productivity in mass food production" behartig het.

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CHAPTER 1

INTRODUCTION

CHAPTER 1: INTRODUCTION

1. Background and motivation

The aim of Chapter 1 is to motivate where this research fits into the existing knowledge on the impact of training on productivity. The motivation for this research project was to improve the foodservice workers' knowledge on the foodservice area in which they work and by doing so, increasing their productivity.

Training involves learning, but not all learning is training. The term "training" emphasizes:

- the development of a skill; and
- learning for a definite purpose, characteristically associated with the goals of an organisation.

Companies conduct training in order to assist their employees to perform better on the job. Such training activities meets both criteria, namely developing skills and promoting learning for a definite purpose.

While the emphasis in training is on skills development rather than knowledge, knowledge may be a prerequisite for developing a skill (Mayo & DuBois, 1987:2).

Training should create conditions and stimuli to accomplish four outcomes:

- to evoke responses in others;
- to develop knowledge, skills and attitudes;
- to produce changes in behaviour; and
- to attain specific objectives (Mayo & DuBois, 1987:3).

Thus, active participation is suited to attitude development; practice is appropriate for skill training; and formal presentation results in knowledge building (Mayo & DuBois, 1987:4).

The way in which productivity improvement strategies can vary is based on formal and informal criteria. These should not be taken as separate entities but as two ends of a continuum. Formal criteria include the structure of the organisation, delegation, and authority, cost allocation, remuneration policy, and other aspects of the organisation over which planning and control can be exercised. At the other end of the continuum are informal criteria that support productivity improvement, such as organisational climate and culture, involvement strategies, decision-making processes and people development. Rather than

changing the organisation to make productivity happen, these informal ideas change the attitudes and behaviour of people within the organisation (Jones, 1990:148).

In this study training is used as an informal criterion to change the behaviour of people in their work place. Changing the behaviour of foodservice workers and increasing their knowledge about their work will lead to productivity improvement.

2. Aims and objectives

The aims and objectives of this mini-dissertation are:

Main aim: To investigate the impact of training on the productivity of foodservice workers by means of questionnaires.

Objectives: To determine, by means of questionnaires, the

- training needs of the workers, and
- effect, if any, of training on the knowledge and/or productivity of the workers.

3. Structure of the mini-dissertation

This mini-dissertation is presented in article format. The experimental work consisted of a study in the field of foodservice management.

Following this introductory chapter which motivates the place of the research effort in the existing knowledge, Chapter 2 gives an overview of the literature considered to be important for the interpretation of the data in the study. This includes the concepts of training and productivity, as well as the relationship between training and productivity.

Chapter 3 consists of an article on the impact of training on productivity in two hospitals.

In Chapter 4, a general discussion and summary is provided, recommendations are made and conclusions are drawn.

The relevant references of Chapter 3 are provided at the end of the chapter according to the instructions directed to the authors by the specific journal that the article was submitted to.

The references used in the unpublished Chapters 1, 2 and 4 are provided according to the mandatory style stipulated by the North-West University, namely the Harvard style.

4. Authors' contributions

The study reported in this mini-dissertation was planned and executed by a team of researchers. The contribution of each researcher is given in Table 1.1. Also included in this section is a statement from the co-authors confirming their individual roles in the study, giving their permission that the article may form part of the mini-dissertation.

Table 1.1 Authors' contributions

Name	Role in this study
Mrs T van Zyl	Co-responsible for design, planning and execution of total study, adaptation of questionnaires, statistical analysis and compilation of the data, as well as literature searches and preparation of manuscript.
Dr. S.M. Hanekom	Promoter. Co-responsible for design, planning, approval of final protocol and execution of study. Supervised the writing of this manuscript.

I declare that I have approved the above-mentioned article, that my role in the study, as indicated above, is representative of my actual contribution and that I hereby give my consent that it may be published as part of the M.Sc. mini-dissertation of Mrs. T van Zyl.

_____

Dr. S.M. Hanekom

Senior Lecturer and Subject Head: Nutrition

5. References

JONES, P. 1990. Managing foodservice productivity in the long term: strategy, structure and performance. *International Journal of Hospitality Management*, 9(2):143-154.

MAYO, G.D. & DUBOIS, P.H. 1987. The complete book of training: theory, principles, and techniques. San Diego, CA: University Associates, Inc. 217p.

CHAPTER 2

LITERATURE REVIEW

Chapter 2: Literature review

1. Introduction

Human resource planning is the most powerful tool of any organisation's success, and the training of employees is regarded to be one of the most important functions of effective resource management. In order to obtain a competitive edge in providing the best services to the customer, training that will develop a well-trained workforce is vital to improve productivity. New professionals may require it to enable them to obtain their professional qualification. Others may need it for a specific purpose such as the development of a new service. In a situation of poor development, even more training is needed when a job becomes drudgery and can not be performed effectively. (Jain,1999:283).

Rowley (1995:5), said: *"Training and development is important for the maintenance of the human resource base of the organisation and must be viewed as an integral part of the core organisational strategy, rather than an ad hoc operation".*

A lack of training results in a lack of skill to use the knowledge that a person has, which causes ineffective services, a lack of self-satisfaction, customer dissatisfaction and ensuing lower productivity. The provision of training will foster an increase in professionalism and further exploitation of management methods, whereas a lack of training can cause frustration and lack of job satisfaction. Well-trained individuals know the scope, expectations and depth of their jobs and will be able to add building blocks to their professionalism as they progress through their careers. Training is therefore critical for human resource planning and development (Jain, 1999:283).

2. Description of Productivity

In its broadest sense, productivity refers to the efficient utilisation of resources including people, machines and money. These resources are necessary for the organisation to grow and prosper. Productivity has been defined as a measure of production, with the ratio of output to input as the numerical measurement. More recently, the concept of productivity has been expanded to cover aspects of quality management and organisational structure. Within the catering industry, a wide variety of productivity ratios has been defined. Those parameters most commonly used include labour minutes per meal or meal equivalent, meals per labour hour and unit of output per labour cost (Hong & Kirk, 1995:54).

Jones (1990:144) describes productivity as the difference between inputs (the resources used in making a product and providing a service) and outputs (the product or service itself). This description leads to difficulties in depicting the relationship quantitatively. Measuring and calculating the inputs in the food-service industry is difficult because of the tangibility of many services (for example the chef's creativity, the restaurant's ambience). Likewise, assessing the output is problematic, because part of the output is the customer's satisfaction or enjoyment of the occasion.

Ferderber (1981:193-201), as quoted by Al-Darrab (2000:98), uses a healthcare environment and gives a definition of a productivity index, which provides the manpower productivity level. It is determined by dividing the earned man-hours (EMH) by the worked man-hours (WMH).

Al-Darrab (2000:99) also quotes Lagasse (1995:108-116) who refers to two types of productivity:

- Type I productivity, defined as labour productivity, is very specific to the type of service provided and does not allow for easy comparison across different services. An example of this would be to try and compare the number of visits per hour for primary care physicians to the number of procedures performed by a surgeon.
- Type II, or multi-factor productivity, is a more generic form that transforms all outputs into a common unit of measure, making comparisons across service effective. Historically, productivity has been measured accurately in manufacturing environments and, in general, poorly in service-related fields due to the difficulties in measuring outputs and inputs of which work content varies widely (Al-Darrab, 2000:99).

Productivity is similar in many ways to the concept of quality – everyone strives to improve it, but most have difficulty defining it. It is used as an indicator of performance and as a criterion in decision-making at numerous organisational levels. Productivity enhancement is frequently referenced, at least in broad terms, in managers' training manuals and is often included in managerial performance appraisal guidelines. Productivity maximization is also featured as a goal in the strategic plans of many foodservice organisations. In its most general application, productivity is a performance measure and can be defined as the effective use of resources to achieve operational goals (Reynolds, 1998:22).

Productivity can also be expressed as a partial-factor or a multiple partial-factor statistic by selecting at least one of the listed variables (goods, services, labour, materials, energy and capital) from both the numerator (goods, services) and denominator (labour, materials, energy, capital). Partial-factor productivity statistics, however, may not be good indicators of overall performance, since they serve only as measures of isolated aspects of the operation. Problems arise when managers interpret partial-factor productivity measures as indicators of overall performance without considering the effects of related variables. Nevertheless, partial-factor productivity is often used as a surrogate for profitability, since it seems logical that the optimal use of labour, materials, energy, or capital would result in increased profits. Effective treatment of any one of those, however, does not ensure improved overall performance. Some partial-factor productivity statistics can be meaningful indicators of which operational-performance areas require attention, most commonly labour management. Poorly formulated or misunderstood measures, however, can be damaging and, if relied on as the primary indicator of performance, can even be disastrous (Reynolds, 1998:23).

3. Measuring Productivity

Traditionally, productivity measures have been categorised as either partial productivity measures or total productivity measures. Partial productivity measures present the ratio of one output to one input or some portion of inputs whereas total productivity compares all outputs to all inputs. Total productivity measures are more difficult to implement at the firm or work group level than at more aggregate levels, such as national or sectoral levels (Gupta, 1995:32).

Productivity is also often measured in financial terms – that is, as the relationship of the cost of production versus sales revenue generated (Clark, 1997:60). Given that labour costs are a substantial portion of production cost, Clark (1997:61) considers it to be more useful to measure productivity in terms of the number of chefs involved in producing a certain number of meals in a given time period.

There is a clear sub-set of tools associated with productivity and performance measurement. In productivity improvement programmes, measurement may be important as:

- part of the investigation and diagnosis stage;
- a means of comparing alternative approaches; and
- a means of benchmarking current performance (so that it may be compared with future performance or with current performance elsewhere) (McKee, 2003:138).

Measuring, as a means of benchmarking, again offers a motivating factor – especially where benchmarked performance can be set against known performance in a true comparator organisation. The range of measurement approaches and measurement tools is quite wide. As with other productivity tools, the choice of an appropriate tool depends on the nature, scale, level and phase of the investigation (McKee, 2003:138).

Productivity as an aggregate statistic can be expressed in terms of the following equation:

Total productivity = goods + services / labour + materials + energy + capitals (Reynolds, 1998:22)

This is simply an extension of the basic industrial model that defines productivity as output divided by input (Reynolds, 1998:22).

Historically, productivity in health-care food service has been examined on the basis of meals per productive hour. That single-factor measure, though seemingly straightforward, is anything but simple, owing to the segment's operational complexity. For most purposes, a better, more meaningful measure is an aggregate, total-factor productivity statistic expressed as:

Productivity = $rev_i / fc_i + lc_i + doe_i + (mi\ of\ mf)_i + ali_i$
Where
rev_i = revenue for period *i*
fc_i = food cost for period *i*
lc_i = labour cost for period *i*
doe_i = direct operating expenses for period *i*
$(mi\ of\ mf)_i$ = apportioned minimum investment or management fee for period *i*
ali_i = amortized leasehold improvements for period *i* (Reynolds, 1998:29)

In practice, the aggregate, total-factor statistic is a true indicator of performance. A number greater than one indicates that outputs (sales) exceed inputs (costs); more to the point, it indicates positive performance. Aggregate and multiple-factor measures are more robust, meaningful measures for analysing actual operational productivity (Reynolds, 1998:30).

Appropriate measurement and analysis can serve managers in various ways. Properly conceived and applied measures enable managers to evaluate the relationships between productivity and management policies. They serve as a barometer for monitoring the effectiveness of operational changes such as new production methods, integration of work teams, and implementation of new technology (Reynolds, 1998:31).

Where a service-sector approach has been used, the measurement has focused on the ratio of input to output per hour. Mayo and Olsen (1987:48-51), as quoted by Clark (1997:67), used the formula:

Servings produced per labour-hour[2] = total food produced / total labour hours.

A common measure is meals per productive work-hour. However, Brown and Hoover (1990:73-78) pointed out that there is little quantitative basis in many food-production operations for determining the time required to produce and serve a specific menu item by a trained employee working at a normal pace. Ruff and David (as quoted by Clark, 1997: 67) assessed productivity using a ratio of output person-minutes to total output, or total meal equivalents served. They also assessed relationships between labour productivity and independent variables, using correlation analysis. High counts of total meal equivalents were positively associated with factors leading to higher labour productivity.

It is difficult to create a model that comprises productivity factors that are not readily quantified. An additional complication in computing productivity is the industry's reliance on casual, often poorly trained workers to fill in for absent regular employees. Productivity measures often sidestep these difficulties by including only those elements that can be quantified (Clark, 1997:67).

Gupta (1995:32) proposed a model (Figure 2.1) for productivity measurement in service operations. This model is based on the idea that the tangible output for service operations is the quality of their services and the input is the level of skill of their employees.

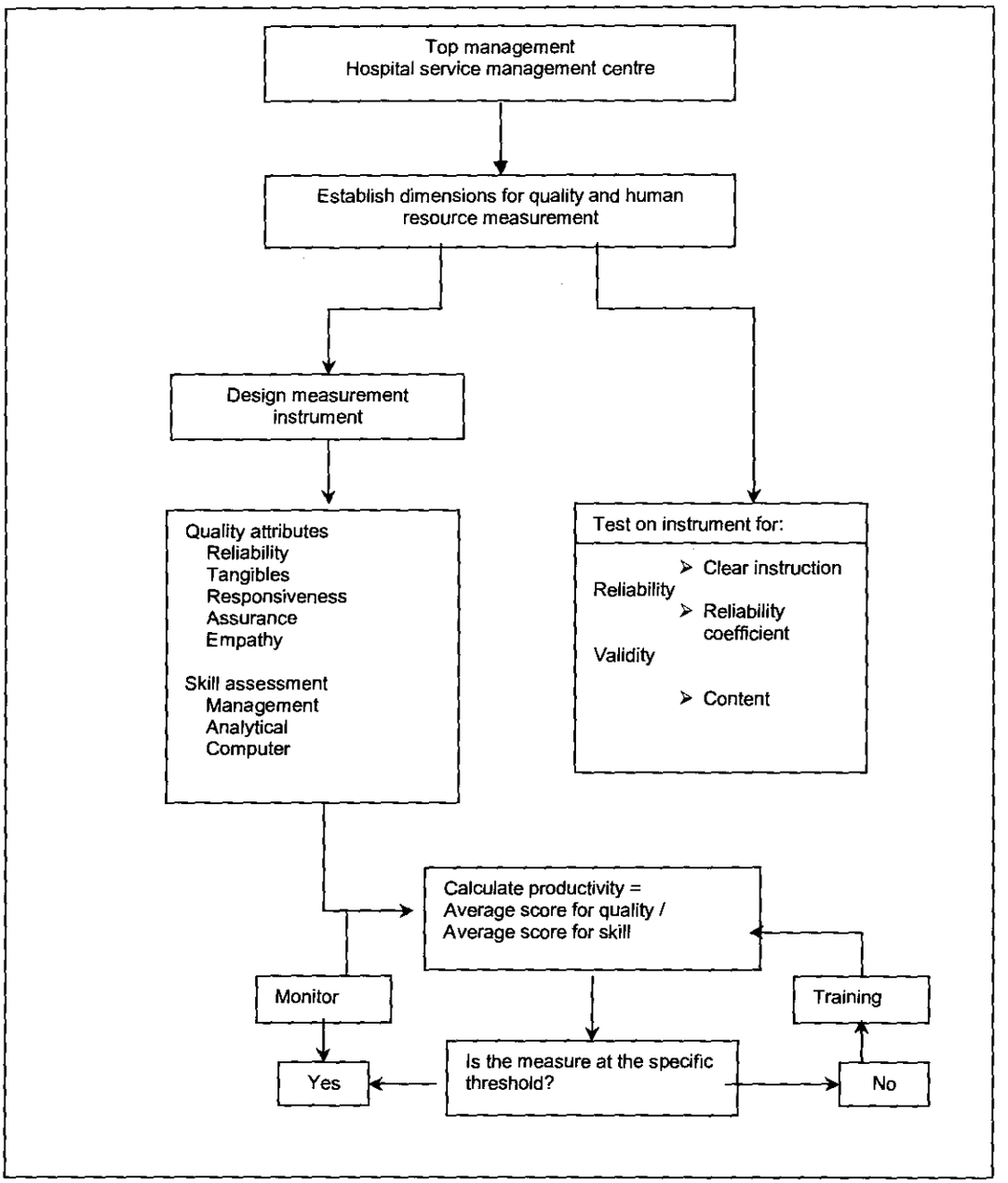


Figure 2.1 A model for productivity measurement in service operations (Gupta, 1995:32)

Figure 2.2 by Jones (1990, 148) gives a range of specific techniques that can be used to measure, monitor and identify productivity.

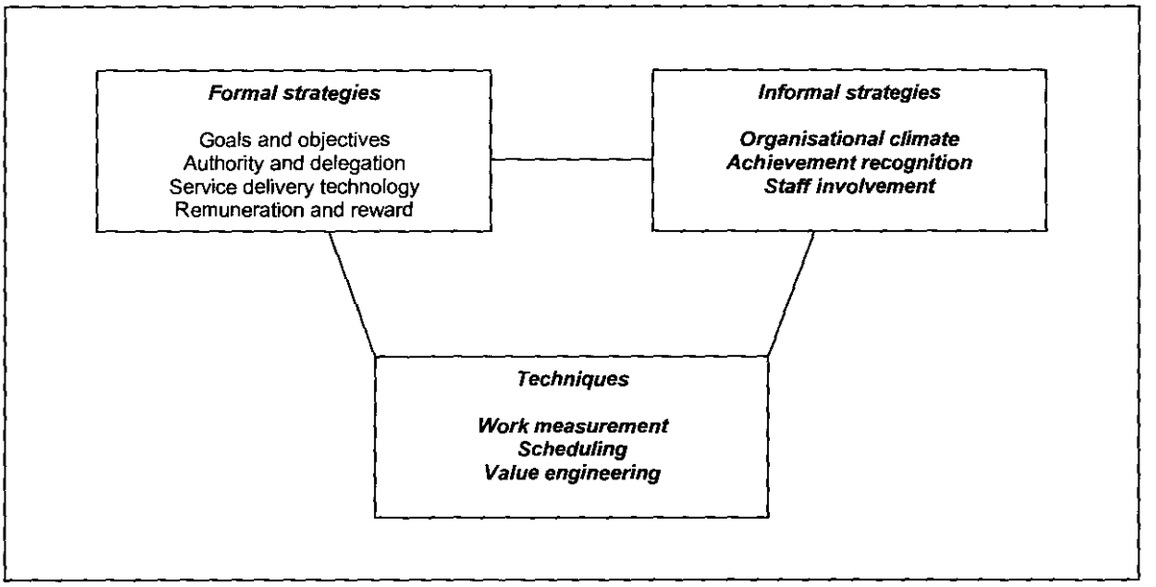


Figure 2.2 Productivity improvement strategies and techniques (Jones, 1990:145)

These formulas will, however, not be used in this study as the interpretation thereof lay outside the scope of this research study. It is only included here to show the complexity of measuring productivity.

4. Productivity in the Foodservice Industry

Many definitions have, as previously described, been designed for productivity, but essentially, in foodservice management, it is a measure or level of output of goods produced or services rendered in relation to input in terms of time (labour hours, minutes, or days), money spent, or other resources used. In foodservice organisations, productivity is measured by using indicators such as meals per worked hour, meals per paid hour, meal equivalents per worked hour, meal equivalents per paid hour, transactions per worked hour, and transactions per paid hour. When measured for successive periods, these productivity indicators show a trend. Comparisons can also be made between similar institutions (Payne-Palacio & Theis, 2001:443-444).

Of all the on-site food-service segments, none is as complex as health care. Not only are costs scrutinized, but customers' expectations of quality and value have also increased during recent years of healthcare reform (Reynolds, 1998:27).

The foodservice industry has seen major technological innovation and to maintain their competitive position, foodservice organisations must maximize on this potential for productivity gains offered by these new systems, and in particular, ensure that their organisations fit with the technology; such a 'fit' requires consideration of the service. Delivery system design and

technology, organisation structure, human resource policy and organisational culture is the context of a clear strategic direction (Jones, 1990:144).

5. Factors affecting productivity

Productivity measurements in hospital food systems are complex due to the inherent diversity of these systems. The hospital food service system can be influenced in a number of ways, but the key factors include both human resources and characteristics of the hospital system. Some resource issues are beyond the catering manager's control but nevertheless affect the system's performance. The literature is limited in this area, consequently some of the relationships discussed below are conjectural, but have been tested in this empirical research. Influencing variables within the category of human resources include the proportion of full-time staff (full-time ratio), the number of supervisors compared to staff (supervisor ratio), the labour costs and catering staff satisfaction with pay and promotion (Hong & Kirk, 1995:54).

Previous studies suggest an increase in full-time and supervisor ratio's leads to a decline in productivity due to reduced flexibility in the scheduling of staff. This outweighs the benefits of the better developed skills of full time workers. Yung *et al.* (1981:347) reported that as the ratio of full-time to part-time employees increased, labour productivity decreased. Opsahl and Dunette (1966:102) reported that workers who perceived higher personal productivity as a means to increased earnings performed more effectively than workers who did not perceive this relationship. Staff satisfaction with pay and promotion may be expected to increase patient satisfaction, productivity and staff satisfaction (Hong & Kirk, 1995:54).

System characteristics which are assumed to influence labour productivity include the total meal equivalents, food and consumable costs, the number of menu items, the number of meals produced other than those for patients (non-patient meal ratio), the number of special diets (modified meal ratio), the number of functions and special events carried out by the catering department (catering event/function ratio), the size of the hospital (number of patients and bed capacity), the proportion of occupied beds (occupancy rate) and the proportion of patient meals to profitable activities (subsidising meal ratio). It can be expected that an increase in hospital size will lead to an increase in productivity. (Hong & Kirk,1995:55).

Yung *et al.* (1981:347) found that higher counts of total meal equivalents were positively associated with labour productivity. Donaldson (as quoted by Hong & Kirk, 1995:55) reported that hospitals serving a larger ratio of non-patient meals had higher levels of productivity. Brown (as quoted by Hong & Kirk, 1995:55) found that an increase in the number of diet modifications increases the number of items to be prepared and can decrease productivity. As

the food service system involves itself in more catering functions, productivity levels may decrease because of the additional duties required of staff.

The budget allocated for food costs can influence productivity. For example, it is possible that an increase in food costs resulting from increased use of pre-processed foods can increase productivity (Hong & Kirk, 1995:55).

Ruff and David (as quoted by Clark, 1997:67) suggested that negative staff variables (for example fatigue and lack of interest) contribute to lower productivity.

With a given set of working conditions and equipment, the amount of work done in a day depends on the ability of the worker and the speed at which he/she works. The fatigue resulting from a given level of activity depends on factors such as:

- hours of work - the length of the working day and the weekly working hours;
- number, location and length of rest periods;
- working conditions such as lighting, heating, ventilation and noise; and
- the work itself (Payne-Palacio & Theis, 2001:447).

The amount of reserve energy brought to the job varies with individuals. Some workers can maintain a fairly even tempo throughout the day, whereas others tire rather quickly and need to rest periodically to recoup nervous and physical energy. Short rest periods appropriately scheduled tend to reduce fatigue and lessen time taken by employees for personal needs (Payne-Palacio & Theis, 2001:447).

One of the goals of human engineering is the prevention of fatigue. The manager of a foodservice may find that the fatigue or tiredness of some workers, with resultant drop in their energy, enthusiasm and production output, is due to external factors beyond his/her control, such as irregularities in the home situation, extraordinary physical exertion away from the job, or a nutritionally inadequate food intake. However, in the organisation, while the workers are on the job, there are unlimited opportunities to study causes of fatigue and possibly to correct them (Payne-Palacio & Theis, 2001:446). Long periods of standing have been typically associated with significant amounts of fatigue and body discomfort at the end of a workday (Zander *et.al.*, 2004:280). A hypothesized reason for the increased discomfort and overall body fatigue associated with prolonged standing conditions is reduced blood circulation in the lower legs and static muscle fatigue (Zander *et.al.*, 2004:280)

The length of a work shift can also influence the productivity of a worker as explained in the following section:

The following hours of work are specified in The Basic Conditions of Employment Act (75/1997): An employer may not require or permit an employee to work more than –

(a) 45 hours in any week; and

(b) nine hours in any day if the employee works for five days or less in a week; or

(c) eight hours in any day if the employee works more than five days a week.

Paley *et al.* (1998:293), said that a compressed work schedule (CWS) is a system in which the employees are regularly scheduled to be at the work place for more than eight hours per day and provides them with a workweek lasting less than five full days. Typical arrangements include work periods of 10 to 12 hours per day, three to four times per week, with the remaining days off. Other alternatives for scheduling possibilities exist, including compressed rotating shift schedules. In addition to longer work periods, these schedules may be characterized by faster rates of shift rotations. Longer work shifts may increase on-the-job fatigue and reduce the time available for sleep. They concluded that four 10-hour shifts were practically no more tiring than five eight hour shifts.

Periods of increased workload produced significantly greater fatigue-related effects for those on 12-hour workdays than for those on eight hour workdays (Macdonald & Bendak, 2000:413). It is suggested that employees obtain improvements in stress levels, well-being and sleep when they work longer shifts if the total number of hours they work is held constant. However, it is also suggested that longer shifts may increase fatigue and decrease safety. Any extended shifts should be instituted carefully and evaluated with respect to relevant factors such as workload, job rotation, rest breaks and commuting time. Shift duration should always be interpreted relative to the time of day at which it is occurring (Fletcher & Dawson, 2001:84).

According to Jones (1990:150), informal strategies aimed at encouraging and supporting productivity improvement can be implemented. A climate must be created for the employees of an organisation to stimulate awareness of the importance of productivity. This can be achieved through the communication channels of the organisation, such as in-house journals, posters, notices and memoranda. It can also form part of the induction process for new employees as well as on-the-job training programmes. The aim of this communication is not simply to provide information, but to create an environment conducive to productivity, that is based on trust and co-operation. It is not simply a question of asking employees to work harder, but to work more intelligently and creatively.

Quite clearly length of service, employee loyalty and possible experience curve economics can be important when employees are asked to increase their productivity by working smarter. Employees who have worked for the organisation over a period of time are much more likely to generate good ideas and adopt new working practices, as long as they feel safe about their future employment. The foodservice industry tends to have a large proportion of seasonal, casual and part-time members of staff, but nonetheless, there should be a core of fulltime staff around whom such initiatives could be based (Jones, 1990:150).

Employees should also share in the benefits of increased productivity and this could be part of a reward system. Managers and supervisors must pay attention to employees who work well and give them due praise. Recognition and a sense of achievement will greatly enhance the motivation to work productively. Where productivity has been placed high on the agenda, feedback on the levels of productivity achieved on a weekly basis may also contribute to maintaining interest and to generating enthusiasm for improved performance. The "publication" of such information can also be accompanied by a workplace meeting to discuss the issue. This can also be helped by the adoption of a "no harm" policy. That is, if an employee comes up with an idea that may not be particularly productive, but which can do no harm (Jones,1990:150).

The role of the trainer in increasing internal occupational status may be critical. Research has determined that self-esteem can be raised by directing the person to think of favourable characteristics that he/she possesses rather than focusing on the elimination of undesirable characteristics. In addition, positive experiences on the job contribute to high self-esteem while negative experiences foster low self-esteem. A supportive work environment that fosters employees' perceptions of competence sends the message that they possess the skills to succeed. Trainers then would need to create a climate that emphasises training as a method of closing gaps in employee skills rather than addressing deficiencies. The work related value of the training must be communicated to employees, and trainers must be role models in emulating a supportive organisational culture that promotes high self-esteem (Washington et al., 2003:261).

People are the key factors in improving productivity. If productivity is to be improved, the nature of both the people and the organisation in which they work must be understood. People are the highest order of resources and, as such, are responsible for controlling and utilising all other resources. If the source of improving the productivity position of an organisation is directly traceable to people, the achievement of a better bottom line of productivity must be everybody's business (Payne-Palacio & Theis, 2001:444).

Increased productivity means motivation, dignity and greater personal participation in the design and performance of work in the foodservice organisation. It means developing individuals whose lives can be productive in the fullest sense. An integrated quality of work life approach to management can help to raise productivity (Payne-Palacio & Theis, 2001:444).

The characteristic of a certain leadership style that is more effective in increasing productivity is as follows:

- General supervision, rather than close, detailed supervision of employees.
- More time devoted to supervisory activities than on doing production work.
- Much attention to planning of work and special tasks.
- A willingness to permit employees to participate in the decision-making process.
- An approach to the job situation that is described as being employee-centred.

Productivity appears to be maximised when a unity of purpose and a feeling of ownership exist among employees (Payne-Palacio & Theis, 2001:445).

Work design can also influence productivity. The overall objectives of work design are to increase productivity and employee satisfaction. The specific objectives are to improve the content of the job, to provide a safe and healthy work environment and to design a staff of fit people, an optimum work environment and effective and efficient work methods (Payne-Palacio & Theis, 2001:445).

6. Training and Productivity

Productivity improvement efforts are, for the most part, brought about through an increase in human endeavour and/or changes in the methods and processes used to produce and deliver goods and/or services. In most cases productivity improvement efforts are, by and large, designed around some form of employee involvement. Training and productivity improvement therefore are logical extensions of each other. It is improbable to produce improvement in human performance without relying, to one degree or another, on training. Also, training should not be undertaken without first determining whether it is necessary or required. Consequently, training should not be considered without having productivity improvement in mind as a principle goal. Training thus becomes an integral part of almost any productivity improvement effort. As such training and productivity improvement effort share a common objective – to improve performance on both individual and collective levels, thereby increasing efficiency, quality and output while simultaneously controlling (reducing) costs (McClelland, 1993:15).

Training is widely used and can be extremely valuable, but it is not the solution to all problems in which individuals are not performing at the desired level of proficiency. It is important to distinguish between training problems and performance problems. When an individual can perform a desired task at a satisfactory level but is not doing so, this condition is indicative of a performance problem and not of a training problem. Often, someone in authority mistakenly identifies a performance problem to be a training problem, and a training solution is prescribed. Obviously, training in a skill in which the individual already is competent will not improve the situation. Instead, the cause of the inadequate performance must be identified and corrected. Often performance problems are due to incentives favouring competing activities, distractions, or conditions that workers perceive to be inequities (Mayo & DuBois, 1987:7).

As a basis for implementation most productivity improvement programmes will, at one time or another, require training or retraining of employees. These requirements are the result of an operational audit or some other form of investigation into what needs to be done to increase productivity and, hence, efficiency and output. Traditional improvement effort (IE) audits tend to focus on an evaluation of tasks, work practices and methods in an attempt to address the following questions:

- To what extent has prior productivity IE, if any, contributed to increased output, quality and reduced operational costs?
- What specifically needs to be done to increase productivity, contain costs and continually improve the quality and/or delivery of goods and/or services?

Current and especially future needs can be vague and somewhat difficult to identify. A starting point is to evaluate the strategic as well as short-term plans and goals of the organization in an effort to determine it's current position in regard to the attainment of those goals, and further, to proceed to identify and investigate possible ways and means of meeting those objectives. Thus, the audit will generally identify operational and/or administrative obstacles while focusing on what needs to be done to facilitate further improvement. This approach, however, tends to examine tasks within processes and overlooks, to a great extent, the human involvement and contribution to each of these activities. Tasks, processes and procedures are generally more easily observed and analysed than are the behaviour, actions and reactions of an individual. Because of this employee skill and/or knowledge, deficiencies (needs) can be lightly considered or, at worst, overlooked. An oversight like this can quickly grow to become a major inhibitor to the productivity improvement process (McClelland, 1993:15).

One way in which this can be corrected is to ensure that employee training needs are measured, analysed and evaluated as part of the overall programme. This can be

accomplished through the design, administration and analysis of training needs assessment (McClelland, 1993:15).

In industry surveys, health care leaders often see that retention, process improvement, and lack of knowledge of employees rank high in problematic areas, yet training is ranked low in regard to availability, budget approval rates and perceived value. The reality is that everybody trains. New employees are informally trained through trial and error, self-study and by asking questions. Experienced employees learn from "on the job" experiences. Yet this type of training can lead to wasted time and problems in workflow. Studies show that employees who develop through unstructured training are 50 percent less productive during a developmental period than those who have formal training. This is a very inefficient approach to training, yet it is often the most common (Johnston, 2002:41).

7. Training

7.1. Types of Training

Most work-related learning occurs during the following activities: teaming, when employees with different skills work together; meetings where employees are encouraged to express opinions; customer interaction and mentoring between novice and experienced workers (Leonard, 1998:10). A detailed discussion of a more comprehensive list of training methods will subsequently be discussed.

- ***Instructor-led classes***

In instructor-led classes, employees have an opportunity to learn while receiving feedback from the instructor and sharing experiences with classmates. However, this may not be the most economical or flexible way of delivering training. Other alternatives – including CD-ROM or Web-based training – offer large measures of flexibility and ensure that learners receive a consistent message, even when they don't train together (Hernandez, 2001:84).

The classroom approach is effective in bringing people together to share experiences and learn together. This sort of training can allow people to reflect and develop away from the immediate pressures of the job (Johnston, 2002:42).

Classroom training is typically designed in a didactic fashion, in which knowledge is transferred from expert to learner. Exercises may be presented as group activities, but essentially, knowledge is imparted in the fashion of a download: instructor presents information and learners are expected to absorb it. Instructor-led training is often delivered in a concentrated format, with learners obliged to attend class all day, for one or more days in a row. This can

lead to information overload, because the learner simply cannot assimilate all the information presented in such a short time (Rising, 1998).

- ***Presentation-discussion***

The presentation-discussion format is externally directed in that the trainer is in control of the programme. It also tends to be formal in that it is planned and scheduled in advance and usually takes place in a classroom (Mayo & DuBois, 1987:64).

- ***Conference***

The conference format is widely used. It involves one or more meetings in which the conference leader and the trainees discuss pertinent topics or problems. As in the case of the presentation-discussion format, the trainer or conference leader identifies the objectives of each session and retains responsibility for the achievement of these goals. Unlike the presentation-discussion format, however, the conference depends on the socio-psychological forces in the setting to facilitate the achievement of objectives (Mayo & DuBois, 1987:67).

- ***Case study***

The case study lends strong realism to training sessions and, when used properly, greatly stimulates interest. Regardless of the medium, the case-study format involves discussion in which the trainees and the trainer participate, making effort to understand the reason for the actions taken by the people involved in the case, and the generation of an acceptable solution (Mayo & DuBois, 1987:70).

- ***Role Play***

Role playing provides a better opportunity for personal involvement and practical experience than the other formats considered thus far (Mayo & DuBois, 1987:72)

Trainees play a role in a scripted or improvised situation for a few minutes or for up to half an hour. The transformation into the role is symbolic: for a successful play, customers and makeup are not necessary. Part of the training room becomes the theatre and elements of the training room are used to create the action space. No stage is required and boundaries are invisible, yet the participants know that the reality inside the boundaries is different from the reality outside. Depending on the training subject, the reality inside the boundaries may be an office where a salesperson meets a prospect, or a hospital room where a doctor meets a patient. Its content may be a case, or even a scene from an existing theatre play, so the reality that is played is external. Trainees may play different roles within the situation, which usually contains a theme or conflict. Using actors as opposite numbers can promote effective learning. The situation is here-and-now. There is dialogue and action. The action often has strong

resemblance to the working reality of the trainees in another time and space. In role-play, people really act in an unreal situation. The aim of role-play often is to teach trainees how to show effective behaviour in interpersonal and communication situations. While the action is external, professional role behaviour may be developed by internalization in role-play (Vermeulen, 2002:371).

- ***Formal educational training***

Formal educational training is mainly theoretical, and undertaken to obtain academic diplomas and degrees, where people prove their ability academically and not practically (Jain, 1999:283).

Formal learning is structured, supported by resources, and documented in terms of participation (Rising, 1998).

Higher education is undergoing changes in many parts of the world. These changes range from organisation and funding to the growth of student background and qualifications, including increasing the combination of work and study. Universities and technikons, or polytechnic institutes, keep on examining both the methods of teaching and learning and the use of resources within their institutions. There is also a trend towards lifelong learning, leading to an emphasis on "learning to learn" and the need to accommodate different learning styles, customization and alternative learning routes (Arko-Cobbah, 2004:263).

The following points explain the new approach of outcome-based education:

- Differences between the "old" and "new" approaches:
  Old – passive learners; exam-driven; rote-learning; textbook/worksheet bound and teacher centred; teachers responsible for learning; motivation dependent on the personality of the teacher. New – active learners; learners are assessed on an on-going basis; critical thinking, reasoning, reflection and action; learner centred; teacher is facilitator; teacher constantly uses group work and teamwork to consolidate the new approach; learners take responsibility for their learning; pupils motivated by constant feedback and affirmation of their worth.

- In outcome-based education, more emphasis is place on formative assessment, which has often been neglected. But summative assessment is also important because this is what is needed to record formally – the learner's achievements at different levels. The main use of information from all assessment tasks should be formative and developmental to help the learner and the teacher, and the second use of some of the information, when appropriate, should be summative (Nakabugo & Siebörger, 2001:54).

- ***Workshop***

The workshop format is well suited to many training needs and is used extensively. There may be some confusion as to how a workshop differs from a conference or a seminar; and it is not unusual for the terms "conference," "seminar," and workshop to be used interchangeably. Although there are similarities among these three formats, the term "workshop" particularly applies to training situations that overtly seek to develop skills and that involve a great deal of supervised activity (Mayo & DuBois, 1987:76).

- ***Informal on-the-job training (OJT)***

Some of the best training is conducted on the job; conversely, it is on the job that some of the poorest training takes place. Although quality of training varies largely within all formats, its variability is more profound on the job than in any other environment. There are a number of different types of on-the-job training (OJT). Prominent among these are:

- growth contracts,
- apprenticeships,
- internships, and
- practicum (Mayo & DuBois, 1987:89).

The goal of OJT, whether for new or ongoing employees, is to ensure that there is a precise match between the requirements of the job and the skills and competencies of employees (Smalley,1997:1).

Learning does not need to be confined to the classroom or formal training course. In fact, the most effective learning often takes place through supervised training within the context of the job (Johnston, 2003:42).

OJT is mainly practical and prepares people to use the acquired academic knowledge efficiently and confidently. Academic training prepares people with sufficient knowledge for their work; OJT prepares them for the practical world. That is why it may be seen as a tool to professionalism and productivity (Jain, 1999:284).

OJT is described, as given in an employee's *"normal"* work situation, as being designed to change the knowledge, attitude and skill behaviour patterns directly appropriate to the performance of a given task or job. OJT is also *"an informal type of training given at the employee's work place, where the trainer plays the role of the immediate supervisor of the employee. The purpose is to improve the employee's working skills, efficiency and productivity".* OJT supplements all other forms of training with the additional advantage of being

provided to more people in any given year than it is possible at training institutions (Jain, 1999:284).

- ***Computer-based training***

After several decades of research, development and use of computer-based instruction (CBI), two points have become increasingly clear:

- CBI will not replace all other training formats, as some people had predicted, and
- CBI is not going to go away, as some people had hoped (Mayo & DuBois, 1987:79).

It is obvious that CBI is going to be integrated into the storehouse of training formats as one that is useful and cost effective under certain circumstances but not preferable to all others (Mayo & DuBois, 1987:79).

It has been found that computer-based training is spreading through full-service chains. Providing training programmes on floppy disk, CD-ROM, CD-I or corporate Intranet sites, lets busy employees decide when and where to *"go to school"*. Training is delivered in segments, with testing of competency at each increment (Hernandez, 2001:84).

Another form of computer-based training is a Power Point® presentation for basic training of new employees. New employees can go through the programme at their own pace, review parts of it again if they need to. The programme can also be easily updated to cover new procedures or programmes (Lang, 2003:69).

- ***Online training***

Online training involves the use of teaching materials stored in an electronic format on a central computer server or servers. That material is accessed by targeted trainee groups using an Internet or private wide-area-network (WAN) connection and Web-browsing software. As a result, online training can contribute to significantly lower travel time and expenses related to instruction. Depending on the speed of the network connection involved, content for online training may or may not include multimedia components, such as streaming audio or video in addition to text and simple illustrations or still-photo images. Because online training features content that is centralized and easily updated and because that content is accessible from virtually any computer set up to surf the Internet, including those computers at employees' homes, online training is different from computer-based training (CBT). CBT required the trainees to have instructional materials on a CD-ROM or loaded onto the hard drive of their computer, making the distribution of updated materials more challenging than when one is using an online-training infrastructure. Like CBT, online training condenses the time needed to cover course work, compared to classroom instruction. The reason is that online training permits

users to work at their own pace and eliminates unnecessary rest-room and coffee breaks. Users of online training also point out the ability of such a system to monitor and track trainee progress easily, and to *"shadow"* or electronically looking over the shoulder of trainees while they train. Among other things, shadowing provides online-training managers with insight into how targeted user groups interact with the course content and delivery system (Liddle, 2003:62).

- ***Simulators, Simulation games and Games***

Simulation in general captures certain characteristics of the real situation that are of interest in terms of training objectives and omits characteristics that are not of interest or are undesirable for one reason or another. Games specify certain rules and choices that may be made by the participants. Often games involve competition between or among individuals or groups, the outcome being influenced by the choices made, the skill of the players, and chance (Mayo & DuBois, 1987:83).

- ***Peer Training***

Most people have heard the adage *"You don't really learn a subject until you have to teach it"*. The act of teaching someone else to perform a task increases the teacher's own ability to perform that task (Mayo & DuBois, 1987:95).

- ***Programmed instruction***

The use of programmed instruction requires a degree of self-discipline on the part of the learner; therefore the trainees who tend to like it and learn best from it are those who are highly motivated (Mayo & DuBois, 1987:97).

- ***Team Training***

The Work in America Institute (WAI) defines work teams as *"small, semiautonomous, interdependent groups working toward shared goals, with a significant degree of cross-training and responsible for a relatively complete unit of work"* (Anon., 2002:5).

Team teaching or training involves more than one instructor or trainer (usually two) in the training session, but two trainers do not necessarily comprise a team. They must plan the session together, and both must participate actively throughout the session. A team effort, when properly carried out, has advantages in almost any training situation, but it is especially effective when two different areas of knowledge or skill or two different points of view are involved (Mayo & DuBois, 1987:98).

Team training includes the following:

- development of a system for allocating tasks and responsibilities,
- leadership decision-making,
- methods of communication,
- strong employee development,
- social competencies,
- participative training, and
- involvement in hiring (Anon., 2001:5).

- ***Demonstration***

The demonstration format is especially well suited for the systems approach to training design, although systematic development procedures are used less often with demonstration than with most other training modes. Demonstrations are often used in conjunction with other training formats such as:

- presentation-discussion;
- workshop; and
- conference (Mayo & DuBois, 1987:100).

Appropriate application of demonstrations includes training that is designed to develop competence in carrying out a procedure or acquiring a skill (Mayo & DuBois, 1987:100).

- ***Study Groups***

Study groups provide adult learners with a genuine educational experience, focusing on topics they have chosen. They offer timely, convenient scheduling and allow study group members to help direct their own learning. This level of involvement enables them to choose topics studied (Rising, 1998:2).

Study groups are most commonly formed as small groups of individuals who select a book to read and discuss. They are often formed in organisations where individual employees wish to improve their technical skills and are willing to take the initiative in doing so (Rising, 1998:2).

- ***Field trips***

It is more difficult to control the instruction that occurs on a field trip than on most other training formats because, as a rule, the person in charge of the site visited is not part of the training organisation. Trainees should know what objectives are expected to be achieved by the trip, and there should be a discussion or debriefing on return to ensure that the objectives were achieved (Mayo & DuBois, 1987:102).

- ***Preparatory (Short-course) Format***

The preparatory format differs from other training modes in that one of its primary functions is to predict success in subsequent courses. This format may include a relatively short course designed to foster knowledge or skills that are common to two or more follow-up courses. In such a case, performance in the preparatory course provides a good indication of the quality of performance that may be expected in the follow-up courses and may suggest the type of job in which a trainee will perform best (Mayo & DuBois, 1987:103).

- ***Benefits of training***

Johnston (2002:41) states that organisations that have formal training tend to have:

- better customer service,
- higher quality of work,
- higher productivity,
- lower customer and employee turnover,
- higher job satisfaction,
- more motivated workforce,
- increased ability to use the latest high-productivity tools, and
- less difficulty in attracting high calibre employees.

7.2. Factors influencing training

For training to be effective, various methods need to be used because adults learn in different ways. Some individuals need written materials while others need to hear the information spoken aloud. Some do well in classroom settings, and others excel through e-learning. However, all training should have one thing in common: it should incorporate applications. To read or hear about something is not enough; successful training requires theory, demonstration and application (Johnston, 2002:42).

According to Harris and Cannon (1995:81), the following are factors that affect training:

- an increased number of minorities in the workforce,
- a lack of basic literacy and maths skills and the understanding of the importance thereof among inexperienced college graduates, and
- a growing number of older people re-entering, remaining or, for the first time, entering into the workforce.

People in human resource development who make a conscious effort to apply the following generalisations will be able to conduct more effective courses (Mayo & Dubois, 1987:15):

- ***Active participation is essential***

For training to be maximally effective, the trainee should participate actively in the learning process (Mayo & Dubois, 1987:15).

- ***Satisfaction reinforces learning***

When trainees gain satisfaction from the learning experience, they are more likely to continue learning and to retain what they have learned (Mayo & Dubois, 1987:16).

- ***Achievement of goals is the trainee's responsibility***

Training objectives achievement should primarily be the responsibility assumed by the trainee (Mayo & Dubois, 1987:17).

- ***Motivation to learn is essential***

Motivation to learn is important and must be in terms of the trainee's value system (Mayo & Dubois, 1987:17).

- ***Value systems modify learning***

The trainee's values, attitudes and previous experience affect the nature and amount of what is learned (Mayo & Dubois, 1987:18).

- ***Trainees need assistance in setting goals***

Trainers should assist trainees in acquiring and practicing goal-setting (Mayo & Dubois, 1987:19)

- ***Methods must be related to content***

Trainers should develop competence in a number of training methods and use them as indicated by the type of material being taught (Mayo & Dubois, 1987:20).

- ***Methods must be based on learning research***

Trainers should give appropriate attention to the nature of the forgetting curve, the efficacy of practice at spaced intervals, and the value of drill (Mayo & Dubois, 1987:21).

- ***Individualized instruction is feasible and useful***

Various forms of individualised instructions offer attractive alternatives to more traditional methods of instruction. The trainee achieves the course objectives as rapidly as possible and is not slowed down by members of the training group who cannot learn rapidly (Mayo & Dubois, 1987:22).

- ***"Discovery" methods yield gains***

Training methods that encourage trainees to discover relationships for themselves and to apply them in a number of new situations tend to result in better retention and in transfer to similar tasks (Mayo & Dubois, 1987:23).

- ***Demands must be within the trainee's ability***

The knowledge or skill to be acquired should be within the capabilities of the trainee. Every trainee is different from the next. One of the dimensions on which trainees differ is ability to acquire knowledge on a particular topic or to acquire a certain skill (Mayo & Dubois, 1987:24).

- ***Organisation of materials requires careful attention***

Proper organisation and sequencing of instructional material should be organised in a way that is meaningful to the trainee (Mayo & Dubois, 1987:25).

- ***All aspects of training must be coordinated***

Training objectives, instructional content and measurement and evaluation must be in harmony (Mayo & Dubois, 1987:21).

- ***The planning of training should be systematic***

In essence, this generalization suggests that several facets of training development should be pulled together into a cohesive, self-correcting system (Mayo & Dubois, 1987:26).

- ***Materials must be meaningful to trainees***

Training developers should ensure that the materials to be used are meaningful to the trainees for whom they are intended (Mayo & Dubois, 1987:27).

- ***Learning varies with the surrounding***

Some training environments are more conducive to learning than others (Mayo & Dubois, 1987:28).

- ***The tone of the training situation affects learning***

The emotional tone of the training situation affects learning; this effect may be positive or negative, depending on its nature and its intensity (Mayo & Dubois, 1987:29).

- ***The effect of anxiety on training***

The degree of anxiety a trainee experience differs from trainee to trainee, even under conditions that may appear identical to an observer. The effect of the anxiety on learning will also be different for each trainee. As the degree of anxiety increases beyond the optimal point for a

particular individual, it tends to inhibit learning and other adaptive behaviour. The implication is reasonably clear-cut: The trainer should recognise that there are anxiety-producing conditions in most learning situations and that individual trainees differ in both their emotional responses and the effect that those responses have on learning. The trainer should then seek to establish an emotional tone that involves a degree of anxiety that is constructive for all trainees (Mayo & Dubois, 1987:29).

Training effectiveness is dependent on events that occur before, during and after the actual training, and is influenced largely by individual characteristics and factors related to the work environment. For example, employees might not use the information they learn in training if they are overworked or unmotivated, if managerial support of training is lacking or if the organisation fails to reward employees for transferring new knowledge to their jobs (Tracey & Tews, 1995:39).

The following figure (2.3) by Tracey and Tews (1995:39) shows the factors that influence training effectiveness.

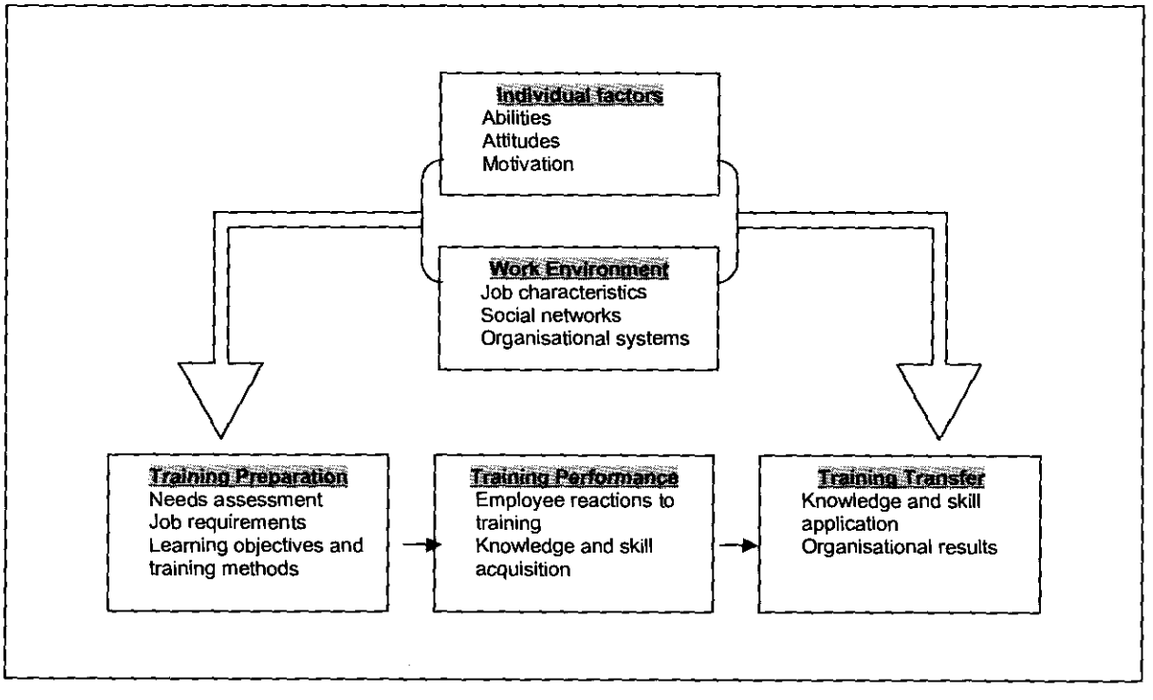


Figure 2.3 Factors that influence training effectiveness (Adapted from Tracey & Tews, 1995:39)

7.3. Training in the food service industry

Hospitality training can be defined as a systematic process through which an organisation's human resources gain knowledge and develop skills by instruction and practical activities that result in improved corporate performance (Wilson *et al.*, 1998:73).

In the study done by Harris and Cannon (1995:86), the most frequently used methods of training in the hospitality industry were group-training (lecture format), on-the-job training, videotapes, computer training and others (simulations).

Training should include a variety of methods and tools, along with improved programming and communication and the improvement of the overall management of training. Suggestions for improving training also include methods that require employee interactivity and tools that are highly stimulating. The use of video, still and animated graphics, still photography, audio and text can be included in training and are highly effective in improving communication. The use of multimedia systems or computerised systems that access a variety of media and can be designed to offer training management to both the user and the facilitator of training have been recognised as one of the most effective training tools (Harris & Cannon, 1995:94).

8. Measuring the effect of training on productivity

8.1. Improvement in performance on the job

What is meant by *"improvement on the job"* is work that can be observed to be better. After training, a salesperson or manager might feel that his or her job is going better, or a supervisor might observe performance of a subordinate to be more effective. Improvement on the job can be assessed most readily by means of rating scales, of which two distinct types exist (Mayo & DuBois, 1987:160):

- ***Type I Rating Scale***

In the Type I rating scale, the same skills are assessed at two points in time - once before training and again after training. Observations are then compared to determine the improvement that might result from training. Other explanations of the gain, such as experience on the job, can be ruled out through the use of an appropriate experimental design. Although the use of the Type I rating scale is desirable from a strictly scientific point of view, its use entails considerable effort, especially if an attempt is made to achieve a high degree of certainty in the results (Mayo & DuBois, 1987:161).

- ***Type II Rating Scale***

The Type II rating scale attempts to assess improvement directly. It assumes that the rater is familiar with the trainee's performance before training and can judge changes in it. In the development of either type of scale, the first step is to list and define the characteristics to be rated. These should cover the range of behaviour in which improvement as the result of training can be anticipated. The second step is to establish the degree of change in each characteristic. Although there is no fixed number of such degrees, too many are difficult to relate to actual behaviour, and too few result in loss of discrimination. Many investigators have found five a good compromise. In a Type I scale, each degree should be a description of behaviour. In a Type II scale, change in each characteristic can be described by a series of phrases, such as *"worse," "no change," "some improvement," "much improvement" and "very much improvement."* For performance ratings to be valid, qualified people who are knowledgeable about the work of those being rated must establish it. Generally, immediate supervisors are the best source of information. In some special situations, such as shift work in which the supervisors do not rotate, two or more foremen can rate the same workers. When this happens, rater-to-rater consistency (reliability) can be studied. Occasionally attempts are made to have the performance of sales personnel assessed by customers and the performance of managers assessed by subordinates. Such ratings, as well as evaluations made by the trainees themselves, have potential use in the study of training (Mayo & DuBois, 1987:161).

9. Summary

Training is the foundation for improved performance and productivity. Without it, improvement efforts involving people would not be effective. Fundamentally, a systems training needs assessment provides the basis for identifying and analysing areas in which skills development needs, necessary to realise human performance and productivity improvement goals, are analysed and addressed (McClelland, 1993:18).

Training is widely used and can be extremely valuable, but is not the solution to all problems where individuals are not performing at the desired level of proficiency. Inadequate performance can be due to performance problems, incentives favouring competing activities, distractions or conditions that the workers perceive as inequities (Mayo & DuBois, 1987:7).

It is clear that a thorough assessment of productivity must be made to establish whether any problems concerning the performance of an organisation exist and to what extent the problem should be addressed. Training needs and programmes should also be assessed to ensure that they are suitable for the workers and that they will receive all benefits from the performance improvement effort, that is, training. With the wide variety of training formats available, many

ways exist in which information can be related to workers in a comprehensive and interactive manner.

10. References

AL-DARRAB, I.A. 2000. Relationship between productivity, efficiency, utilization, and quality. *Work Study*, 49(3):97-103.

ANON. 2002. Team training has profound effect on productivity at 5 Cos. *IOMA's Report on Managing Training and Development*, 2(1):3-5, Jan.

ARKO-COBBAH, A. 2004. The role of libraries in student-centred learning: the case of students from the disadvantaged communities in South Africa. The International Information & Library Review, 36(3):263-271, September.

BROWN, M.D. & HOOVER, L.W. 1990. Productivity measurement in foodservice past accomplishments – a future alternative. *Journal of the American Dietetic Association*, 90(7):73-78, 81, July.

CLARK, J.R. 1997. Improving catering productivity: by using cook-chill technology. *Cornell Hotel and Restaurant Administration Quarterly*, 38(6):60-67, Dec.

GUPTA, A. 1995. Productivity measurement operations: a case study from the healthcare environment. *Managing Service Quality*, 5(5):31-35.

HARRIS, K.J. & CANNON, D.F. 1995. Opinions of training methods used in the hospitality industry: a call for review. *International Journal of Hospitality Management*, 14(1):79-96

HERNANDEZ, J. 2001. A recipe for food safety training. *Restaurant Hospitality*, 85(1):84+88, Jan.

HONG, W. & KIRK, D. 1995. The assessment of labour productivity and its influencing variables in 12 conventional hospital food service systems in the U.K. *International Journal of Hospitality Management*, 14(1):53-66.

JAIN, P. 1999. On-the-job training: a key to human resource development. *Library Management*, 20(5):283-294.

JOHNSTON, S. 2002. Investing in well-structured training programmes leads to higher productivity: developing effective training methods with diverse approaches to learning. *Journal of Health Care Compliance*, 4(3):41-42.

JONES, P. 1990. Managing foodservice productivity in the long term: strategy, structure and performance. *International Journal of Hospitality Management*, 9(2):143-154.

LANG, J. 2003. Here's the (power) point: basic training. *Foodservice Director*, 16(1):69, Jan. 15

LEONARD, B. 1998. Informal training of employees helps boost productivity. *HR Magazine*, 43(2):10, Feb.

LIDDLE, A.J. 2003. Chains upgrade to online training, downgrade teaching expenses. *Nation's Restaurant News*, 37(10):62-63, March 10.

MAYO, G.D. & DUBOIS, P.H. 1987. The complete book of training: theory, principles, and techniques. San Diego, California: University Associates, Inc. 217p.

MCCLELLAND, S. 1993. A systematic approach to determine productivity improvement training needs. *Industrial Management*, 35(4):15-18.

MCKEE, D. 2003. Productivity tools: "horses for courses". *Work Study*, 52(3):136-140.

NAKABUGO, M.G. & SIEBöRGER, R. 2001. Curriculum reform and teaching in South Africa: making a 'paradigm shift'? *International Journal of Educational Development*, 21(1):53-60, January.

OPSAHL, R.L. & DUNETTE, M.D. 1966. The role of financial compensation in industrial motivation. *Psychological bulletin*, 66(2):94-118.

PAYNE-PALACIO, J. & THEIS, M. 2001. West and Wood's: Introduction to foodservice. 9th ed. Upper Saddle River, NJ: Prentice Hall. 606p.

REYNOLDS, D. 1998. Productivity analysis: in the on-site food-service segment. *Cornell Hotel and Restaurant Administrative Quarterly*, 39(3):22-31, June.

RISING, L.S. 1998. Improving quality and productivity in training: a new model for the high-tech learning environment. *Bell Labs Technical Journal*, 3(1):p134 (10 p.), Jan-Mar. [In EBSCOHost : Academic Search Premier, Full display : http://www-sa.ebsco.com] [Date of access : 18 July 2003].

ROWLEY, R. 1995. Management development: new agendas for information professionals. *Library Management*, 16(1):5-10.

SMALLEY, L.R. 1997. On-the-job orientation and training: A practical guide to enhanced performance. Irvine, California: Richard Chang Associates, Inc. 109p.

TRACEY, J.B. & TEWS, M.J. 1995 Training effectiveness: accounting for individual characteristics and the work environment. *Cornell Hotel and Restaurant Administration Quarterly*, 36(6):36-42, December.

VERMEULEN, R.C.M. 2002. Narrowing the transfer gap: the advantages of "as if" situations in training. *Journal of European Industrial Training*, 26(8):366-374.

WILSON, M.D.J., MURRAY, A.E., BLACK, D.A. & MCDOWELL, D.A. 1998. Training and education in contract catering management. *Journal of European Industrial Training*, 22(2):73-81.

YUNG, L.S., MATTHEWS, M.E., JOHNSON, V.K. & JOHNSON, N.E. 1981. Variables affecting productivity in food service systems of nursing homes. *Journal of the American Dietetic Association*, 78:342-348, April.

ZANDER, J.E., KING, P.H. & EZENWA, B.N. 2004. Influence of flooring conditions on lower leg volume following prolonged standing. *International Journal of Industrial Ergonomics*, 34(4):279-288, October.

CHAPTER 3

THE IMPACT OF TRAINING ON PRODUCTIVITY IN MASS FOOD PRODUCTION

Chapter 3: The impact of training on productivity in mass food production

1. Summary

The impact of training on the productivity of foodservice workers in mass food production was investigated in this study. Information was collected by means of questionnaires and results were presented in the form of frequency tables to indicate the practical significance of training in practise. The effect of the training was tested in four different worker groups (supervisors, cleaners, foodservice aids and cooks). Training had a significant impact on only the supervisors' productivity. When considering training as a productivity improvement tool, it should be planned and implemented effectively, otherwise its impact will not be meaningful and all effort behind the training will be wasted.

Key words: training, questionnaires, foodservice management, productivity improvement

2. Introduction

Human resource planning is the most powerful tool of an organisation's success and the training of employees is regarded to be one of the most important functions of effective resource management. In order to obtain a competitive edge in providing the best services to the customer, training which will develop a well-trained workforce is vital to improve productivity (Jain,1999:283).

In its broadest sense, productivity refers to the efficient utilisation of resources including people, machines and money. These resources are necessary for the organisation to grow and prosper. Productivity has been defined as a measure of production, with the ratio of output to input as the numerical measurement. More recently, the concept of productivity has been expanded to cover aspects of quality management and organisational structure. Within the catering industry, a wide variety of productivity ratios has been defined. Those parameters most commonly used include labour minutes per meal or meal equivalent, meals per labour hour and unit of output per labour cost (Hong & Kirk, 1995:54).

Jones (1990:144) defines productivity as the difference between inputs (the resources used in making a product and providing a service) and outputs (the product or service itself). This definition leads to difficulties in depicting the relationship quantitatively. Measuring and calculating the inputs in the food-service industry is difficult because of the tangibility of many services (foe example the chef's creativity, the restaurant's ambience). Likewise, assessing the

output is problematic, because part of the output is the customer's satisfaction or enjoyment of the occasion.

Productivity improvement efforts are, for the most part, brought about through an increase in human endeavour and/or changes in the methods and processes used to produce and deliver goods and/or services. In most cases, however, productivity improvement efforts are, by and large, designed around some form of employee involvement. Training and productivity improvement therefore are logical extensions of each other. It is improbable to produce improvement in human performance without relying, to one degree or another, on training. Also, training should not be undertaken without first determining whether it is necessary or required. Consequently, training should not be considered without having productivity improvement in mind as a principle goal. Training thus becomes an integral part of almost any productivity improvement effort. As such, training and productivity improvement effort share a common objective – to improve performance on individual as well as collective levels, thereby increasing efficiency, quality and output while simultaneously controlling (reducing) costs (McClelland, 1993:15).

In industry surveys, health care leaders often see that retention, process improvement, and lack of knowledge of the employees rank high in problematic areas, yet training is ranked low in regards to availability, budget approval rates, and perceived value. The reality is that everybody trains. New employees are informally trained through trial and error, self-study, and by asking questions. Experienced employees learn from "on-the-job" experiences (Johnston, 2002:41).

On-the-job training can lead to problems in workflow and wasted time. Studies show that employees who develop through unstructured training are 50 percent less productive during a developmental period than those who have had formal training. This is a very inefficient approach to training, yet it is often the most common. Training effectiveness is dependent on events that occur before, during and after the actual training, and is influenced greatly by individual characteristics and factors related to the work environment. Employees might, for example, omit to use the information they learn in training if they are overworked or unmotivated, if managerial support of training is lacking or if the organisation fails to reward employees for transferring new knowledge to their jobs (Tracey & Tews, 1995:39).

Hospitality training can be defined as a systematic process through which an organisation's human resources gain knowledge and develop skills by instruction and practical activities that result in improved corporate performance (Wilson *et al.*, 1998:73).

In the study done by Harris and Cannon (1995:86), the most frequently used methods of training in the hospitality industry was group-training (lecture format), on-the-job training, videotapes, computer training and others (simulations).

Training should include a variety of methods and tools, along with improved programming and communication and the improvement of the overall management of training. Suggestions for improving training also include methods that require employee interactivity and tools that are highly stimulating. The use of video, still and animated graphics, still photography, audio and text can be included in training and are highly effective in improving communication. The use of multimedia systems, or computerised systems that access a variety of media and can be designed to offer training management to both the user and the facilitator of training have been recognised as one of the most effective training tools (Harris & Cannon, 1995:94).

What is meant by *"improvement on the job"* is work that can be observed to be better. After training, a salesperson or manager might feel that his or her job is going better, or a supervisor might notice performance of a subordinate that is more effective. Improvement on the job can be assessed most readily by means of rating scales, of which two distinct types exist (Mayo & DuBois, 1987:160):

- ***Type I Rating Scale***

In the Type I rating scale, the same skills are assessed at two points in time, once before training and again after training. Observations are then compared to determine the improvement that might result from training. Other explanations of the gain, such as experience on the job, can be ruled out through the use of appropriate experimental design. Although the use of the Type I rating scale is desirable from a strictly scientific point of view, its use entails considerable effort, especially if an attempt is made to achieve a high degree of certainty in the results (Mayo & DuBois, 1987:161).

- ***Type II Rating Scale***

The Type II rating scale attempts to assess improvement directly. It assumes that the rater is familiar with the trainee's performance before training and can judge changes in it. In the development of either type of scale, the first step is to list and define the characteristics to be rated. These should cover the range of behaviour in which improvement as the result of training can be anticipated. The second step is to establish the degree of change in each characteristic. Although there is no fixed number of such degrees, too many are difficult to relate to actual behaviour, and too few result in loss of discrimination. In a Type I scale, each degree should be a description of behaviour. In a Type II scale, change in each characteristic can be described by a series of phrases, such as *"worse," "no change," "some improvement," "much*

improvement" and "very much improvement." For performance ratings to be valid, qualified people who are knowledgeable about the work of those being rated, must establish it. Generally, immediate supervisors are the best source of information. In some special situations, such as shift work in which the supervisors do not rotate, two or more foremen can rate the same workers. When this happens, rater-to-rater consistency (reliability) can be studied. Occasionally, attempts are made to have the performance of sales personnel assessed by customers and the performance of managers assessed by subordinates. Such ratings, as well as evaluations made by the trainees themselves, have potential use in the study of training (Mayo & DuBois, 1987:161).

According to Jones (1990:150), informal strategies aimed at encouraging and supporting productivity improvement can be implemented. A climate must be created so that the employees of the organisation are made aware that productivity is important. This can be achieved through the communication channels of the organisation, such as in-house journals, posters, notices and memoranda. It can also be made part of the induction process for new employees and of on-the-job training programmes. The aim of this communication is not simply to provide information, but to create an environment conducive to productivity that is based on trust and co-operation. It is not simply a question of asking employees to work harder, but to work more intelligently and creatively.

In this study, productivity improvement was determined by means of questionnaires (before and after training) of the Type I Rating scale. An improvement in the target groups' knowledge was used as an indication that their productivity did indeed increase. No current research could be found in this area where questionnaires were used to determine the effect of training on the productivity of foodservice workers working in mass food production. No research was available that used the same methods as in this study.

3. Material and methods

3.1. Subjects

The target population of the study was foodservice workers of two government hospitals. The majority of the population was Black. The following groups were included:

- supervisors,
- cooks,
- cleaners, and
- foodservice aids (salad preparation).

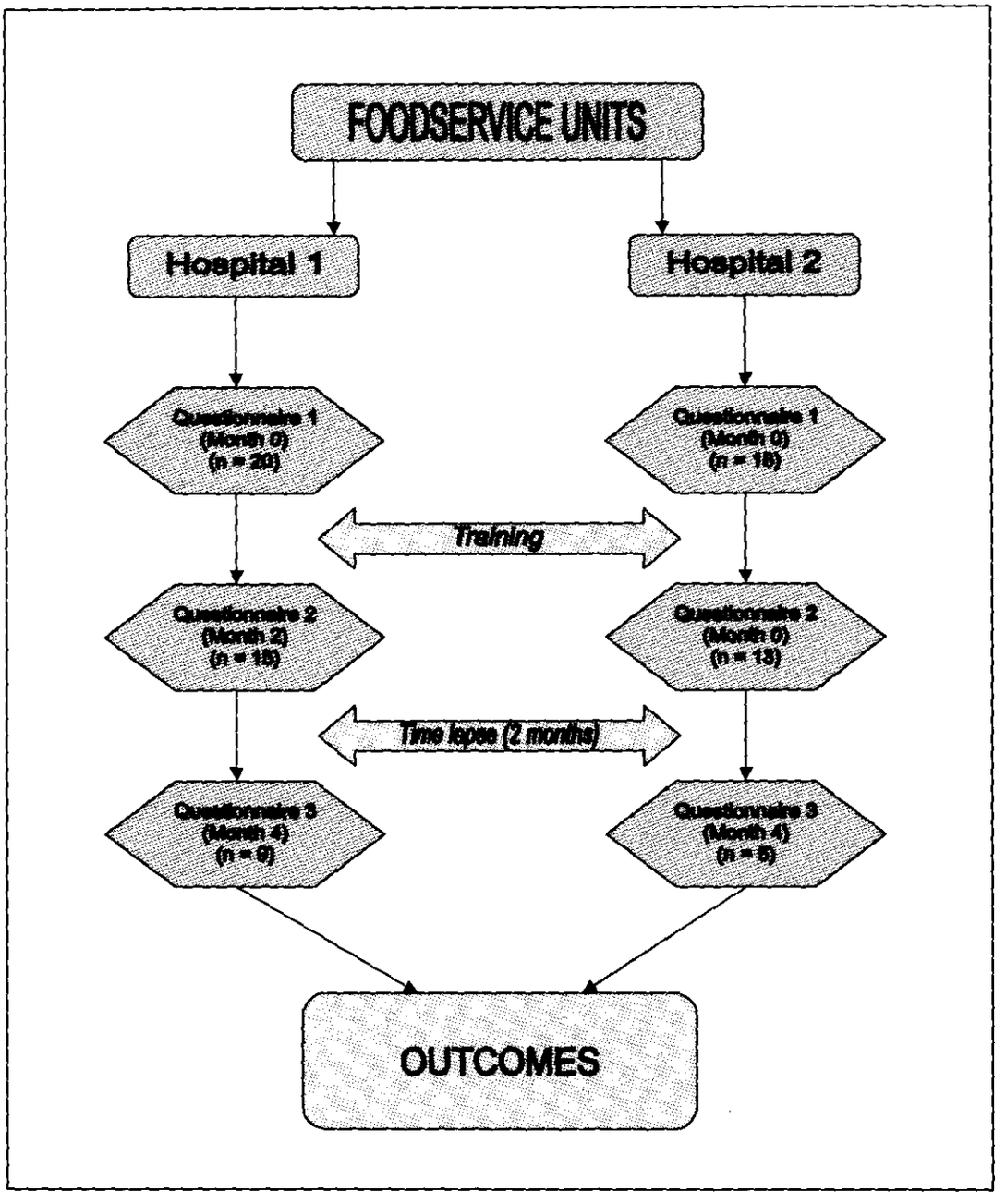


Figure 3.1 Conceptual framework for the study

Foodservice workers completed the questionnaires on their own and assistance was given when problems aroused. No incentives were offered for taking part in the study.

Initially, there were 40 participants in the study (Table 3.3) but the results of one questionnaire were discarded because less than a quarter of the questions were answered. Only 28 questionnaires were completed with the second follow-up. The questionnaires of the third follow-up were completed close to the December holidays and some of the workers were already on holiday. These questionnaires were discarded because of insufficient data.

3.2. Experimental design

Questionnaires were completed before any training was given, to determine the level of knowledge as well as the level of employee satisfaction and the condition of the work environment of the foodservice worker. Follow-up questionnaires were then presented at two and four months intervals after training. These questionnaires tested for knowledge and the improvement thereof and retention of four situations that might have changed in the time passed.

3.3. Sampling

The convenience sampling method (Steyn *et. al.*, 1999:39) was used to determine the target population. The two hospitals were chosen because they are situated nearby. All workers on duty and who were able to participate, was included in the study.

3.4. Questionnaires

The authors designed the questionnaires which were developed and tested in a foodservice unit with a target population similar to those of the hospital foodservice unit. The pre-tested questionnaires consisted of four sections, namely employment satisfaction, work environment, knowledge questions and demographic information. The knowledge questions differed for the four target groups (specified above) of the target population. Only parts of the questionnaires were used, and therefore, it was not included as an Addendum. Recommendations on the format and length of the questionnaires are made in the final chapter of this dissertation.

3.5. Training

Training was done by means of lectures and added as Addendum 1 to 4 at the end of dissertation.

3.6. Statistical analysis

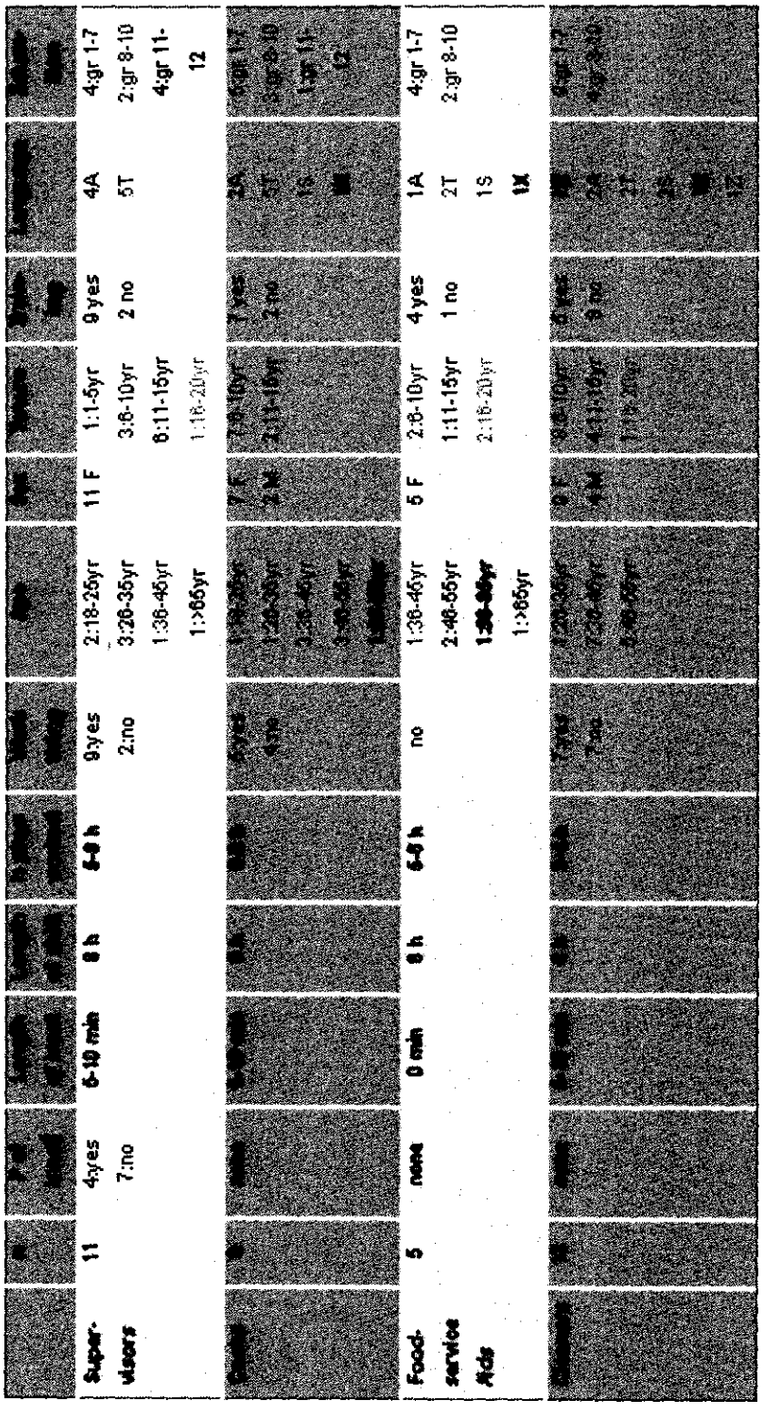
The computer software package Statistica® was used for the analyses of the data. Qualitative as well as quantitative data were collected by means of questionnaires. Demographic data of subjects were analysed, using descriptive statistics. The practical significance of the training was determined by using the standardised difference between the means ($\bar{\chi}_1 - \bar{\chi}_2$) of the two questionnaires, that is the difference between the two means divided by the estimate for standard deviation (s). The measure used is called the effect size (d), which not only makes the difference independent of units and sample size, but also relates to the spread of data.

Effect size (d) = $\left| \frac{\bar{\chi}_1 - \bar{\chi}_2}{s} \right|$

4. Results

The demographic information of the target group is summarised in Table 3.3. The average age for supervisors is thirty four years, for cooks forty three years, for foodservice aids fifty three years and for cleaners forty four years.

Table 3.1 Demographic information of the various groups



R = rest E = English S = Sotho X = Xhosa P = period h = hours Inact = inactivity phys = physically yr = year A = Afrikaans T = Tswana Z = Zulu

Employee satisfaction and the work environment of the subjects were good (Table 3.2). Cleaners reported that their supervisors would ask them to complete some of their tasks for them but more than half of the other subjects reported the opposite. Most of the workers (62.16%) work in an area where it is very noisy. Contradictory to all subjects answering yes to the question if their supervisor always knows where they are most of the supervisors had to look for their employees when questionnaires needed to be completed. Subjects also referred to heating in the foodservice unit but there was no heating system visible and some of the subjects warmed themselves at the stoves.

Table 3.2 Employee satisfaction and work environment

Questions:	CLN n=14	Cooks n=9	SPV n=11	FSA n=5	Total n=39
Employee satisfaction:					
Do you like your job?	14:yes	9:yes	11:yes	5:yes	39:yes
Are you happy in your work environment?	14:yes	9:yes	11:yes	5:yes	39:yes
How are you treated by *co*-workers?	14:yes	9:yes	11:yes	5:yes	39:yes
How are you treated by your supervisor?	14:yes	8:yes 1:no	11:yes	5:yes	38:yes 1:no
Are you asked for inputs when decisions are made?	13:yes 1:no	7:yes 2:no	11:yes	4:yes 1:no	35:yes 4:no
Are you asked for inputs when changes are made?	13:yes 1:no	9:yes	8:yes 3:no	3:yes 2:no	33:yes 6:no
Would your supervisor ask for your help in completing some of his/her tasks?	12:yes 2:no	7:yes 1:no	8:yes 3:no	5:yes	32:yes 6:no
Would your supervisor ask you to complete some of his/her tasks on your own?	14:yes	6:yes 3:no	7:yes 4:no	3:yes 2:no	29:yes 9:no
Does your supervisor always know where you are during your shift?	14:yes	9:yes	11:yes	5:yes	39:yes
Does your supervisor check on you to make sure you are doing your work?	13:yes 1:no	7:yes 2:no	10:yes 1:no	5:yes	35:yes 4:no
Does your supervisor know what tasks you should perform during your shift?	14:yes	8:yes 1:no	11:yes	5:yes	38:yes 1:no
Do you receive any type of reward when your performance is outstanding?	13:yes 1:no	8:yes 1:no	8:yes 3:no	2:yes 3:no	31:yes 8:no
Do you receive any type of reward when a good idea of yours can be used?	8:yes 4:no 2:NA	6:yes 2:no 1:NA	8:yes 3:no	2:yes 3:no	24:yes 12:no 3:NA
Work environment:					
Is there proper lighting in the area where you work?	14:yes	9:yes	11:yes	5:yes	39:yes
Are the areas where you work very noisy?	7:yes 6:no	3:yes 5:no	10:yes 1:no	3:yes 2:no	23:yes 14:no
Is there enough ventilation in the foodservice unit?	12:yes 2:no	7:yes	9:yes 2:no	5:yes	33:yes 4:no
Is there heating in the foodservice unit during winter?	12:yes 2:no	5:yes 2:no	7:yes 4:no	1:yes 4:no	25:yes 12:no

CLN = cleaners SPV = supervisors NA = not applicable FSA = foodservice aids

A summary of the times allocation associated with the subjects' work environment can be found in Table 3.3. Most of the subjects (92%) (Table 3.3) responded that there were no periods of inactivity during working hours but contradictory to this, later on indicated periods of 5-10 minutes of inactivity. The days worked per week depended on the shifts the subjects worked. One week they would work for four days with one day off and the next week they would work for seven days with two days off. The number of rest periods includes lunch or breakfast and contradictory to the 15 minutes per rest period given by the subjects, lunch and breakfast is at least a half an hour each. The two tea breaks are 15 minutes each.

Table 3.3 Time spent on different work activities.

Variables	Total
Number of rest periods per shift?	2-3 times
Length of rest period	15 minutes
Hours worked per shift	8 hours
Hours worked per week?	40 hours
Days worked per week	4 to 7 days
Visits to bathroom per shift	1-3 times
Periods of doing nothing	None
Length of periods doing nothing	5-10 minutes

n = 38

Tables 3.4 to 3.6 show the significant changes in knowledge of subjects before and after training.

From the data in Table 3.4, it is clear that the effect of training for five out of nine (55.5%) areas were significant (d $\geq$0.8) while four out of nine (44.5%) were not significant (d $\leq$0.8) in the case of supervisors.

Table 3.4 The effect of training on the knowledge levels of supervisors

Question	x_{diff}	S_{diff}	$d=x_{diff}/S_{diff}$
Are std recipes helpful?	0.54	0.31	1.77
Std recipes help with predictions?	0.09	0.30	0.30
Std recipe for rice?	0.09	0.70	0.13
When is a recipe standardised?	0.55	0.31	1.77
Importance of std recipes?	0.27	0.51	0.53
First step in standardising a recipe?	0.36	0.50	0.72
How to increase the no. of portions?	0.32	0.25	1.26
Information on recipe?	0.73	0.47	1.56
What is the max batch size?	0.82	0.41	2.02

n = 11
*d = 0.8 means that effect of training was significant (d $\geq$0.8 is considered as practically significant)
std = standardised
x_{diff} = mean difference between after and before
S_{diff} = estimate for standard deviation
$d=x_{diff}/S_{diff}$ = effect size

Only five out of fifteen (33.3%) areas (Table 3.5) showed a significant effect after training (d $\geq$ 0.8) while ten out of fifteen (66.7%) showed an insignificant (d $\leq$0.8) effect (cleaners).

Table 3.5 The effect of training on the knowledge levels of cleaners

Question	x_{diff}	S_{diff}	$d=x_{diff}/S_{diff}$
What is used for cleaning?	0.06	0.57	0.11
Are cleaning and sanitising the same?	0.44	0.73	0.60
Cleaning means?	0.69	0.60	1.14
Sanitising means?	0.38	0.72	0.52
What is a detergent?	0.38	0.62	0.61
Amount of detergent added to water?	0.38	0.72	0.52
Factors influencing cleaning?	0.58	0.49	1.18
What should you do after sanitising?	0.63	0.62	1.01
Are utensils sterile after cleaning?	0.5	0.63	0.79
What can you use to rinse with?	0.13	0.72	0.17
Why scrape food off plates?	0.44	0.63	0.70
Is there a need to sanitise?	0.06	0.57	0.11
Must dishes be immersed in water?	0.19	0.54	0.35
Is the type of detergent important?	0.13	0.72	0.17
Two steps in cleaning?	0.44	0.51	0.85

n = 16
*d = 0.8 means that effect of training was significant (d ≥0.8 is considered to be practically significant)
std = standardised
xdiff = mean difference between after and before
Sdiff = estimate for standard deviation
d=xdiff/Sdiff = effect size

Very little significant effect was found (one area out of five) (20%) (d ≥0.8) after training of foodservice aids (Table 3.6).

Table 3.6 The effect of training on the knowledge levels of foodservice aids

Question	x_{diff}	S_{diff}	$d=x_{diff}/S_{diff}$
Time needed to peel a melon?	0.20	0.45	0.45
Do you peel an avocado with a knife?	0.40	0.55	0.73
Do you take off only an avocado's skin?	0.20	0.45	0.45
What type of knife do you use?	0.60	0.55	1.10
Amount of ingredients used for salad?	0.20	0.45	0.45

n = 5
*d = 0.8 means that effect of training was significant (d ≥0.8 is considered to be practically significant)
std = standardised
xdiff = mean difference between after and before
Sdiff = estimate for standard deviation
d=xdiff/Sdiff = effect size

Almost no improvement of knowledge was found after the training of cooks was done (one) area out of ten (10%), d ≥0.8) (Table 3.7).

Table 3.7 The effect of training on the knowledge levels of cooks

Question	x_{diff}	S_{diff}	$d=x_{diff}/S_{diff}$
Why are std recipes important?	0.45	0.44	1.03
When would you weigh a menu item?	0.40	0.52	0.77
Why is portion size important?	0.20	0.39	0.52
Amount of pasta?	0.50	0.71	0.71
Does baking time influence quality?	0.43	0.61	0.71
Does extended baking time cause shrinking?	0.10	0.57	0.18
Mass of a dish after baking?	0.30	0.48	0.62
What to do before preparing a dish?	0.30	0.54	0.56
Time needed to cook 5kg of rice?	0.30	0.67	0.44
Time needed to fry 100 steaks?	0.30	0.48	0.62
Time to cook frozen vegetables?	0.20	0.63	0.32

n = 10
*d = 0.8 means that effect of training was significant (d ≥0.8 is considered to be practically significant)
std = standardised
xdiff = mean difference between after and before
Sdiff = estimate for standard deviation
d=xdiff/Sdiff = effect size

5. Discussion

- *Employee satisfaction and work environment*

From Table 3.2 it is clear that the workers are satisfied with their jobs as well as their work environment although it is very noisy where they work.

Improving worker productivity and occupational health and safety (OHS) are major concerns of industry, especially in developing countries. Some of the common features of these industries are improper workplace design, ill-structured jobs, mismatch between the abilities of the worker and job demands, adverse environment, poor human-machine system design and inappropriate management programmes. This leads to workplace hazards, poor worker health, mechanical equipment injuries and disabilities, and in turn this reduces worker productivity and product/work quality and increased cost. An ergonomically deficient workplace can cause physical and emotional stress, low productivity and poor quality of work (Shikdar & Sawaqed, 2003:563-564).

- *Shifts*

According to the results of the time spent on different work activities, the workers work in 8-hour shifts per day and 40 hours a week. These hours of work are prescribed by law and the foodservice workers do not work more hours than specified.

Most of the participants (92%) agreed that there were no periods of inactivity but contradictory to this, in a further question, indicated periods of 5-10 minutes of inactivity. The number of rest

periods differed from 2 to 3 times per day with lengths of 15 minutes each. This is also contradictory to information acquired from management, because each shift has a meal time of at least 1 hour. These smaller rest periods might be times in which they drink tea.

According to Anon (1997) an employer must give an employee who works continuously for more than five hours a meal interval of at least one continuous hour.

- *Fatigue*

Twenty one (55%) of the participants said that their work is tiring, of which the largest percentage was supervisors (44%).

- *Training significance*

The effect of training on the knowledge of the supervisors was practically significant in five areas (55%). Cleaners had five areas (33%) of practical significant improvement in knowledge. There was only one area of practical significant improvement of knowledge for the foodservice aids (20%) and the cooks (10%) each. The training for cooks and foodservice aids was not successful, or, these groups could already have had specified knowledge before training commenced. This could explain why no improvements were found after training.

The training package described by Kuri (1996:73-76) deems pre-testing to be important because knowing an individual's beginning skill level increases efficiency.

Training effectiveness is dependent on events that occur before, during and after the actual training, and is influenced greatly by individual characteristics and factors related to the work environment. For example, employees might not use the information they learn in training if they are overworked or unmotivated, if managerial support of training is lacking or if the organisation fails to reward employees for transferring new knowledge to their jobs (Tracey & Tews, 1995:39).

The continued use of traditional training methods in the hospitality industry is contributing to inadequate presentation of subject matter, lowered comprehension levels of employees, and less than achievable levels of service quality. As more innovative training methods and tools have come available, an increase in effectiveness and efficiency of training delivery, employee performance and customer service has been reported by industries using it. Unfortunately, the hospitality industry as a whole has been hesitant to incorporate innovative, technological training techniques through which the benefits can be realized. As the hospitality industry becomes more heavily dependent upon globally for employment and service, the desires and level of quality expectations are broader and more in-depth than in the past. Therefore, training

to meet these expectations will have to become more individualised and educational in format, using methods and tools that are targeted toward diverse needs. In addition, training will have to be strategic by nature, tracked on consistent and longitudinal basis, and evaluated. According to professionals in the field, training in general for this industry needs to become more proactive in format. Several participants in this study stated that all too often, training is done 'by the seat of the pants' fashion in reaction to a problem, a demand from superiors, or a trend in the industry. Currently available are new training strategies and delivery tools that can expedite the training process while increasing the effectiveness of the communication to employees and customers. These new methods and tools can also assist in tracking customer desires, and employee performance and evaluation. In addition, some of the technological tools can be used to predict the need for retraining and schedule this retraining on an individual basis (Harris & Cannon, 1995:79-80).

Traditional training approaches such as lecture-to-group, videotapes that do not permit guided practice and demonstration techniques that require immediate performance after observation, cannot keep up with the rapid demand for skills and knowledge. In addition, learning theories emphasise that continuous learning communicated in a variety of formats enhances instruction (Harris & Cannon, 1995:81)

Training should include a variety of methods and tools; along with improved programming, communication and the overall management of training. Suggestions for improving training also include methods that require employee interactivity and tools that are highly stimulating. The use of video, still and animated graphics, still photography, audio and text can be included in training and is highly effective in improving communication. The use of multimedia systems or computerized systems that access a variety of media and can be designed to offer training management to both the user and the facilitator of training has been recognized as one of the most effective training tools (Harris & Cannon, 1995:94).

- *Motivation*

Motivation to learn is important and must be formatted in terms of the trainee's value system (Mayo & Dubois, 1987:17). The participants in the study were mostly unmotivated to take part in the study. There was no incentive for them to take part. These factors could have influenced the training in such a way that it had no effect. Management had no involvement in the training and no support was shown for the study. Managers requested the workers to co-operate on a voluntary basis, but because many of the workers did not understand what the study was about, they were not interested in helping or learning anything.

It is not possible to motivate a person to do anything he/she does not want to do. Motivation thus must come from within a person. It is only possible to create an environment in which one can motivate oneself. To do this, a leader must understand the concept of human motivation (Payne-Palacio & Theis, 2001:526). A distinction needs to be made between positive and negative motivation. Motivation can be either a driving force towards some object or condition (positive motivation) or a driving force away from some object or condition (negative motivation) (Spears & Gregoire, 2004:413).

- *Training environment*

Some training environments are more conducive to learning than others (Mayo & Dubois, 1987:28). The environment in which the training was conducted in this study was not conducive to learning. Workers had to leave for meetings or they wanted to get back to work, before the training sessions were completed. The surroundings were noisy most of the time and workers who were not taking part in the study distracted participants. Some workers had to leave for a meeting during the completion of the follow-up questionnaires and that could also have influenced the outcome of this questionnaire.

Many employees might need extensive training before they can perform effectively and maintain standards in a foodservice operation. Foodservice, because of its low-skill and low-paying jobs attracts large numbers of functionally and marginally illiterate employees. Training sessions may need to be held at the end of the workday or at the end of one shift and the beginning of another if the workday routine does not allow time. Several conditions for effective learning should be taken into account in employee training:

- acceptance that all people can learn,
- the individual must be motivated to learn,
- learning is an active, not passive, process,
- the learner must have guidance,
- time must be provided to practice the learning, to internalize, to give confidence,
- the learner must secure satisfaction from learning, and
- the learner must get reinforcements of the correct behaviour (Spears & Gregoire, 2004:505-506).

- *Adult education*

In the adult education (AE) context, the primary social role of adults is defined with reference to their occupational specification and their interactions with people (of different ages) operating in the same and/or other professional environments. Adults are claimed to be primarily workers and secondarily learners, acquiring knowledge mainly from experience rather than from books and the media (Sifakis, 2003:198).

Notwithstanding whether students pay for their own lessons or are sponsored, adult students/participant are, in most cases:

- voluntarily involved in learning,
- conscious of the learning process as a necessary step towards their personal and/or academic/vocational fulfilment, and
- to a considerable degree, conscious of and reflective on their own learning preferences and difficulties (Sifakis, 2003:204).

For training to be maximally effective, the trainee should participate actively in the learning process (Mayo & Dubois, 1987:15), and various methods must be used because adults learn in different ways. Some individuals need written material while others need to hear the information spoken aloud. Some do well in classroom settings, and others excel through e-learning. However, all training should have one thing in common: it should incorporate applications. To read or hear about something is not enough; successful training requires theory, demonstration and application (Johnston, 2002:42) (Spears & Gregoire, 2004:505-506). The training in this study was given as a lecture and could have been more successful if participants actively took part in the training.

Theories on adult learning also stress that the backgrounds and experiences of adults influence the effectiveness of training both positively and negatively. In incorporating adult learning theories and the needs of changing workforce, present and future employees will require training to:

- be delivered in their own language,.
- be delivered at their own pace,
- be convenient and efficient,
- provide immediate feedback,
- be communicated at their learning level,
- be interactive, stimulating, and culturally sensitive, and
- be continuous over the period of employment (Harris & Cannon, 1995:83).

- *Trainee capability*

The knowledge or skill to be acquired should be within the capabilities of the trainee. Every trainee is different from the next. One of the dimensions in which trainees differ is the ability to acquire knowledge on a particular topic or to acquire a certain skill (Mayo & Dubois, 1987:24). Adults learn for immediate application or to solve a present problem. For this reason, they require practical results from the learning experience (Spears & Gregoire, 2004:405).

Kuri (1996:73-76) describes a training package (pre-testing, training, certification) which presents a positive step toward greater job security, increased earnings capability and the potential to move up the career ladder. The training package focuses on basic skills to improve communication skills and maths. Gaining confidence with the tools of communication affected production efficiency in unexpected ways: absenteeism decreased, cross-cultural communication became a reality and morale improved, leading to fewer workman's compensation claims. Communication between workers and management also increased, improving individual productivity and quality.

The increased number of minorities in the hospitality workforce will present special challenges to training. Such challenges include the 'deprived educational background' of foreign-born minority workers, their limited understanding and use of the English language and the variety of cultural and experiential backgrounds. These challenges will demand that training programmes include a variety of instructional strategies and goals. Goals that will be necessary for some will include instructions on the basic language, writing, maths and reading in addition to technical skills training. Trainers will also have to consider the correctness and multiple interpretations of material presentation (Harris & Cannon, 1995:81).

In the case of cooks and cleaners, the training material might have been too technical. Therefore the training was not within the capabilities of the trainees.

6. Conclusion

Foodservice managers have a responsibility of determining the standards of time, quantity, quality and cost of their product. Information must be provided to workers if any degree of competence and high productivity are to be achieved. Otherwise, employees develop their own standards and may never reach their potential or produce at an acceptable level. Although workers learn proper techniques and procedures through training programmes, actual work experience is usually necessary for them to develop speed and accuracy in completing a given task (Payne-Palacio & Theis, 2001:447-448).

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8. References

ANON (1997) The Basic Conditions of Employment Act (Act No. 75 of 1997)

COHEN, J. 1988. Statistical power analysis for the behavioural sciences. Second Edition. Hillsdale, NJ: Erlbaum. (p20-27 for means and p222-225 for cross tabulations).

FLETCHER, A. & DAWSON, D. 2001. Field-based validations of a work-related fatigue model based on hours of work. *Transportation Research Part F*, 4(2001):75-88.

HARRIS, K.J. & CANNON, D.F. 1995. Opinions of training methods used in the hospitality industry: a call for review. *International Journal of Hospitality Management*, 14(1):79-96.

HONG, W. & KIRK, D. 1995. The assessment of labour productivity and its influencing variables in 12 conventional hospital food service systems in the U.K. *International Journal of Hospitality Management*, 14(1):53-66.

JAIN, P. 1999. On-the-job training: a key to human resource development. *Library Management*, 20(5):283-294.

JONES, P. 1990. Managing foodservice productivity in the long term: strategy, structure and performance. *International Journal of Hospitality Management*, 9(2):143-154.

JOHNSTON, S. 2002. Investing in well-structured training programmes leads to higher productivity: developing effective training methods with diverse approaches to learning. *Journal of Health Care Compliance*, 4(3):41-42.

KURI, F. 1996. Basic-skills training boosts productivity. *HR Magazine*, 41(9):73-76.

MACDONALD, W. & BENDAK, S. 2000. Effects of workload level and 8- versus 12-h workday duration on test battery performance. *International Journal of Industrial Ergonomics*, 26(2000):399-416.

MAYO, G.D. & DUBOIS, P.H. 1987. The complete book of training: theory, principles, and techniques. San Diego, California.: University Associates, Inc. 217p.

MCCLELLAND, S. 1993. A systematic approach to determine productivity improvement training needs. *Industrial Management*, 35(4):15-18.

National Gender Policy, The *see* SOUTH AFRICA.

PAYNE-PALACIO, J. & THEIS, M. 2001. West and Wood's: Introduction to foodservice. 9th ed. Upper Saddle River, NJ: Prentice Hall. 619p.

PALEY, M.J., PRICE, J.M. & TEPAS, D.I. 1998. The impact of a change in rotating shift schedules: a comparison of the effects of 8, 10 and 14 h work shifts. *International Journal of Industrial Ergonomics*, 21 (1998):293-305.

SHIKDAR, A.A. & SAWAQED, N.M. 2003. Worker productivity, and occupational health and safety issues in selected industries. *Computers & Industrial Engineering*, 45(2003):563-572.

SIFAKIS, N.C. 2003. Applying the adult education framework to ESP curriculum development: an integrative model. *English for Specific Purposes*, 22(2003):195-211.

SOUTH AFRICA. Office on the Status of Women. 2000. South Africa's National Policy Framework for Women's Empowerment and Gender Equality. [Web:] http://www.info.gov.za/reports/2000/genderold.pdf [Date of access: 27 Aug. 2004].

SPEARS, M.C. & GREGOIRE, M.B. 2004. Foodservice organizations: a managerial and systems approach. 5th ed. Upper Saddle River, NJ: Prentice Hall.

STEYN, A.G.W., SMIT, C.F., DU TOIT, S.H.C. & STRASHEIM, C. 1999. Modern statistics in practice. 3rd ed. Pretoria: J.L. van Schaik Publishers. 764p.

STEYN, H.S. (jr.). 1999. PRAKTIESE BEDUIDENHEID: Die gebruik van Effekgroottes. Wetenskaplike Bydraes, Reeks B: Natuurwetenskappe nr. 117. Publikasiebeheerkomitee, PU vir CHO, Potchefstroom.

STEYN, H.S. (jr.). 2000. Practical significance of the difference in means. *Journal of Industrial Psychology*, 26(3), 1-3.

STEYN, H.S. (jr.). 2002. Practically significant relationships between two variables, *SA Journal of Industrial Psychology*, 28(3), 10-15.

TRACEY, J.B. & TEWS, M.J. 1995 Training effectiveness: accounting for individual characteristics and the work environment. *Cornell Hotel and Restaurant Administration Quarterly*, 36(6):36-42, December.

WASHINGTON, K., FEINSTEIN, A.H. & BUSSER, J.A. 2003. Evaluating the effect of traning on perceptions of internal occupational status. *Hospitality Management*, 22(2003):243-265.

WILSON, M.D.J., MURRAY, A.E., BLACK, D.A. & MCDOWELL, D.A. 1998. Training and education in contract catering management. *Journal of European Industrial Training*, 22(2):73-81.

ZANDER, J.E., KING, P.H. & EZENWA, B.N. 2004. Influence of flooring conditions on lower leg volume following prolonged standing. *International Journal of Industrial Ergonomics*, 34(4):279-288, October.

CHAPTER 4

GENERAL SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

Chapter 4: General summary, recommendations and conclusions

1. Introduction

In this final chapter, a summary of the main findings from the study reported in this dissertation will be given. As the results of the study are discussed, interpreted, elucidated and compared to the relevant literature in the preceding chapters, only general conclusions will subsequently be made. This will be followed by general recommendations regarding this study, as well as recommendations to managers planning to introduce performance improvement strategies.

2. Summary of main findings

- The effect of training on the knowledge of the supervisors was practically significant in 5 (55%) instances. This means that training was only successful for 55% of the questions posed. When the training material in this study would be presented to trainees under the same circumstances only 55% of the training would be of practical significance.

- For cleaners there were five (33%) instances of practical significance. Training was successful for only 33% of the questions posed.

- There was only one instance of practical significance with the foodservice aids (20%).

- The effect of training on the knowledge of the cooks was practically significant in one (6.25%) instance.

- The training for the cooks and foodservice aids was not successful. Under the same circumstances as in this study, training would be of no use.

3. Shortcomings

- The questionnaires were too lengthy and took up too much of the respondents time to complete.
- The time of training was not optimal and this lead to unreliable information later on. Training should be done at a time that is conducive to learning, not when trainees are tired and in a hurry.
- Lectures are outdated and do not keep up with the demands of nowadays employees' training needs. Managers must be aware of new methods of training, and not get stuck on old, outdated methods.

- Lack of motivation to participate in this study was encountered. Motivational programmes must be presented to employees.
- Employees were not informed of the importance of this training session and did not take part in the decision to participate in the study. Employees must take part in decision-making and management processes. In this manner they will learn the importance of training in foodservice.

4. Recommendations

- The author recommends that management should be involved in any training programme aimed at performance improvement.
- Participants in studies like these should be given some kind of incentive to partake fully in the study.
- Participants should be fully informed as to what the study requires of them, also what the study is about, and why it is being done.
- The target population should receive questionnaires and training material in the language best understood by them.
- Training should be done under optimal conditions

5. Conclusions

Improving productivity of foodservice workers has always been a challenge to foodservice managers. Training is one of the tools managers turn to when deciding on productivity improvement strategies and to some it is the only answer. Considering the results of this study, one notices that training must be given under certain conditions to be of any use. It is imperative that every effort be made to study work design and to perfect efficient operation if high standards of productivity are to be maintained.

The need to raise productivity has been called the first social responsibility of management in a knowledge society. Research conducted during past years confirms that productivity can be raised, provided that foodservice manager uses the information on how this can be accomplished correctly. Simply stated, it is a matter of defining the task, concentrating work on it, defining the performance, continuously working on improvement and learning, and making the employee a complete partner in the performance improvement program.

ADDENDUM

Addenda 1

Training – Cleaners

Introduction

Keeping a food service operation clean and safe ensures the well-being of both employees and customers. A clean and safe environment makes the customer feel safe and confident to dine at your facility. Cleaning is thus one of the important tasks in the food service operation. Cleaning can be a challenge and every worker should know what they are doing.

What is cleaning?

Cleaning is when you physically remove the visible soil and food from a surface.

Clean means free of physical soil and with an outwardly pleasing appearance.

A glass that sparkles

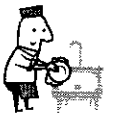
Silver that shines

A floor free from dust

There are still germs on the cleaned object. 

Cleaning has two steps:

1. Putting soap on a dirty dish, scrubbing the dish to loosen the soil and
2. Rinsing the dish (Clean, clear hot water is usually effective for rinsing)



What is a detergent?

It is a cleansing agent, solvents, or any substance that will remove foreign or soiling material from surfaces. Specifically listed are:

Water

Soap 

Soap powders
Cleansers
Acids
Volatile solvents
Abrasives

When you use a detergent you must read the instructions for use carefully. You can not use any amount of detergent with just any amount of water.

Factors that influence the cleaning process:

1. Type of water 
2. Water temperature – the hotter the better – be careful not to burn yourself 
3. Surface – different surfaces, especially metals, vary in the ease with which they are cleaned 
4. Type of cleaner 
5. What is being cleaned – fats and oils, egg or sugar (Is it fresh, dry, baked, grounded in?) 

What is sanitizing?

Immediately after cleaning, all food contact surfaces must be sanitized.

Sanitary means an object is free of disease-causing organisms – germs that make you ill. Sanitizing reduces micro-organisms on the surfaces of utensils.

There are two types of sanitizing:

With heat – use water, steam

With chemicals – use a sanitizer

What is sterilization?

A sterile surface has no micro-organisms on it. There are no germs that can cause illness.

Procedure for manual dishwashing

1. **Scrape and pre-rinse**

   The purpose of this step is to keep the wash water cleaner longer.

2. **Wash**

   Use warm water at 43 to49°C and a good detergent. Scrub well with a brush to remove all traces of soil and grease.

3. **Rinse**

   Use clean, warm water to rinse off detergent residues. Change the water frequently, or use running water with an overflow.

4. **Sanitize**

   Place utensils in a rack and immerse in hot water at 77°C for 30 seconds. (A gas or electric heating element is needed to hold water at this temperature)

5. **Drain and air dry**

   Do not towel dry. This may contaminate utensils. Do not touch food contact surface of sanitized dishes, glasses, and silverware.

Addenda 2

Training – Cooks

Always use standardized recipes – WHY?

- Ingredients can be assemble before hand in a central ingredients room
- You know what ingredients to use
- You know what amount of ingredients to use
- You know what steps to follow in the cooking process
- You know what garnish to use
- You know how big a portion should be
- You know how many portions there should be

When you use standardized recipes the control of ingredients will save time and money.

When should you weigh a dish?

Before and after cooking

WHY?

- To make sure you have the correct weight in a pan
- You can make adjustments before you bake the dish
- By weighing the dish after cooking enables you to determine the percentage weight the dish looses during baking.
- Remember to subtract the container in which you weigh the dish!

What is the effect of baking on a dish?

- Dish looses moisture
- Weight of the dish is reduced
- Thickness of each portion is reduced

What happens when you bake a dish for too long a period?

- The dish shrinks more in size than when normally baked.
- The dish dries out and becomes unacceptable
- The portion weights shrink more than when baked for the right amount of time

What happens when you bake a dish at a higher temperature?

- It dries out and becomes unacceptable
- It shrinks in size
- The portion weight shrinks more than when baked at the right temperature

How to determine the amount of ingredient mixture that should go into a G-pan?

Multiply the portion size by the amount of portions needed in the pan.

e.g. 20 portions x 200g portion size = 4kg 

How to increase your productivity?

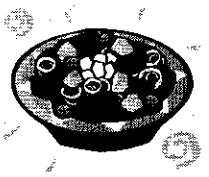
1. Plan your day
   - Decide what is important and start with that task.
2. Get all your ingredients and utensils that you will need together before starting production.
3. Use standardised recipes at all times.
4. Clean as you work – it will be easier in the end and it is more hygienic.

Addenda 3

Training – Food Service Aids

- **Always use standardized recipes when available.**

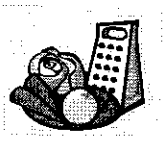
WHY?



- You know what ingredients to use
- You know how much of the ingredients to use
- You know what utensils (knives, bowls) to use
- Preparation will thus be easier and faster because you know exactly what to do

Get everything you need together before you start making salads or menu items

- You will not waste time walking around looking for things
- You will work faster



Plan your work area:

- Make sure your work area is clean and sanitised before you start working
- Keep all your knifes, bowls, spoon etc. in the area where you work
- Plan the days work – don't just start with something. When you start something finish it before you start another task

Use the correct knife for the task

Use a vegetable knife when working with vegetables

Peeling vegetables and fruit

- Ripe vegetables and fruit peel easier than green ones.
- You can peel the item thinner when it is ripe.
- A green vegetable or fruit has a harder skin which means that you will have to peel it thicker to avoid the green pieces of the fruit or vegetable.
- When you use a ripe item you will waste less because you peel it thinner.
- Using ripe fruit and vegetables will taste better than green items.

- A ripe pawpaw can be peeled very thinly – 2mm.
- A ripe melon can be peeled 5mm or even less
- A ripe avocado pear can be peeled by hand were only the skin is removed.

Addenda 4

Training – Supervisors

Standardizing recipes

Introduction

It is helpful to know what the reasons are for using standardized recipes. When we understand the objective, the importance and the advantages of standardized recipes it makes more sense to use them and it makes using them easier. It is also helpful to know how to standardize recipes yourself for when you want to add knew recipes to the menu.

Objectives of standardized recipes

By using standardized recipes a food service unit will ensure that they constantly produce a highly acceptable product and yield and a given number of portions of a particular size.

A standardized recipe is thus used to ensure that a menu item always looks the same, taste the same and that the size and number of portions are the same.

Characteristics of a standardized recipe

Reproducible
Easily prepared
Concise
Interesting
Pleasing to the senses
Economical

Advantages of using standardized recipes

1. Standardized recipes are the basis for planning a food service unit's floor layout, the size, number and type of equipment and utensils needed, as well as the staff required for the particular food service operation.

2. When carefully followed, standardized recipes are one of the essential components for successful food preparation as they enable the manager to predict and control the quality, quantity and portion cost of the final product.

3. It will result in a happier customer because food of a high quality is constantly served.

4. Food cost is lowered because of better control over the yield and number of portions produced.

5. Purchasing is simplified – amounts and ingredients are specified on the recipe.

6. Standardized recipes are important for the logical assembly of ingredients (in a central ingredient room).

7. Delivers high quality menu item when followed meticulously.

8. Job security and job satisfaction will increase due to fewer problems during production.

9. Rapid training of new or part-time food service personnel is possible. Unskilled personnel have a better chance of producing a quality product.

10. Standardized recipes increases labour efficiency.

11. The risk of food borne illness is limited.

How to standardize a recipe for mass catering?

1. Analyse the recipe
   Read through the recipe and make sure it is suitable for your food service operation. Will you get the same quality product when you increase the batch size and keep the item warm for some time before serving it.?
   Also consider: How much will it cost?
   How easy is it to make?

2. Rewrite the recipe on a work sheet
   Include all the recipe data to be recorded
   Convert all household measures to gram or volume 1 cup = 250ml etc.

Check type, quantity and proportion of ingredients, procedures and their logical sequence (the order of work), equipment and utensils needed.

3. Assemble ingredients and utensils

4. Prepare the menu item carefully by following the instructions accurately

5. Record all the production data obtained on the recipe test sheet, e.g.
   - Extent, speed and time of mixing
   - Exact times and temperatures used in cooking and baking
   - Type, size, volume and number of pans used and amount weighed into each pan.
   - Yield, in weight or volume, of specific food items during various stages of preparation where applicable.
   - Total yield of recipe in weight, volume or count
   - Any adjustment made to ingredients, equipment or utensils
   - Cost of ingredients

6. Decide on a suitable portion size
   The portion size determines the number of servings (portions) expected from the particular recipe or menu item.

7. Evaluate the menu item for suitability and quality
   Sensory quality
   Ease of preparation and serving in large quantities
   Availability of ingredients
   Suitability for the menu
   Cost and
   Special precautions that should be taken in preparing the product

8. Adapt the recipe in terms of one or more of the following changes, if necessary:
   Proportion of ingredients
   Elimination or addition of an ingredient
   Preparation procedures
   Portion size
   Suggested garnishing

9. Rewrite the revised recipe on a new test sheet and retest. Continue in this way until the quality is acceptable. Only make one change at a time.

10. Increasing the recipe in steps or stages is more likely to be successful than increasing it from a small amount to a large amount without intermediate steps.

11. Increase the recipe about 10 times to a practical batch size, using the factor or the percentage method.

12. Calculate quantities and prepare the recipe.

13. Record any changes that may be needed for the increased amount. e.g. proportions of ingredients, procedures, mixing and cooking times.

14. Evaluate the product as before and record the cost, yield, portion size, number and acceptability of portions obtained by both the in-house taste panel and consumers.

If the menu item is acceptable, continue to increase it by increments of 20 to 40 portions at a time. Follow the same procedures as described above.

A maximum batch size of 240 portions for a standardized recipe is best because it will give a product of excellent quality. If the predicted demand exceeds the maximum batch size for a recipe e.g. 1000 portions, the recipe should not be multiplied by a factor to increase it, but the increased demand should be met through separate or individual repetition of the maximum batch to the nearest of 1000 portions, plus a smaller part thereof, e.g.

4 repetitions x 240 portions = 960 portions plus 1 x 40 portions = 1000 portions

15. Finally check the recipe for:
    - The actual yield in weight, portion size and resultant batch size (number of portions)
    - Cost
    - Mixing, preparation and cooking times and
    - Preparation methods that should be consistent for similar products

A final evaluation of the menu item must be made by the manager and acceptance by the consumer determined, before it is permitted to become part of the permanent recipe file.

Regardless of the source, all existing new recipes for mass catering must be analysed, tested, evaluated and adapted for use in a particular food service operation, before the recipes can be considered to be standardized for the given situation.