

# **THE RELATIONSHIP BETWEEN TRAINING EFFECTIVENESS AND BUSINESS SUCCESS: A STUDY OF SOME INDUSTRIAL FIRMS IN *PORTUGAL***

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## **Abstract:**

This paper presents the results of training evaluation programmes attended by sixty workers but assessed by twenty four managers in twelve small metallurgical firms in the Lisbon area of Portugal in 1999. In addition, the model used to assess training effectiveness was the well-known Kirkpatrick's four-level model. Besides, this paper shows the results of business performances of the above twelve small firms via a set of six variables. Finally, a correlation analysis performed to establish a relationship between training effectiveness and business success. The findings support such a strong relationship based upon Spearman correlation index, as carried out by SPSS.

**Key-words:** training, training effectiveness, small firms, business performance, relationship between training evaluation and business performance.

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SUCCESS: A STUDY OF SOME INDUSTRIAL FIRMS IN *PORTUGAL***

**0. INTRODUCTION**

Preliminary research suggested that there is a link between results of training and business performance, indicating therefore that business performance and training go hand in hand. This has recently been confirmed by the Small Firms Survey (1986), conducted by the Manpower Services Commission. In addition, Peters and Waterman (1982) conducted a study about the “excellence” of U.S. large firms, by employing a model that emphasized a series of eight attributes, aimed at characterizing the excellent firms, in a sample of 62 industrial organizations of various sectors. The results showed that the excellent (successful) industries were those that appeared to have achieved innovative performance, that is those firms which constantly are prepared to respond to change of any type in their environments, in the sense that they innovate, as a whole culture.

Also, the set of attributes used to define excellent firms give relevance to important variables which are seen to account for the performance of the business, namely risk taking, challenge to experience new ideas and suggestions, encouragement to innovation and experimentation, respect for and commitment to employees as individuals and participation in the decision-making process, among others.

These findings show that business success does not come by chance and it is the result of a human resource policy that gives importance to abilities and manpower potential, via training. Moreover, none training is effective if it is not evaluated and properly related to the general performance of the firm, for the simple reason that there is no investment without return.

This paper attempts to show the relationship between training effectiveness and business performance as assessed by managers of small metallurgical firms in the Lisbon area of Portugal, in relation to the training administered to workers, on a before-and after basis.

**1. TRAINING DEFINITION**

On the basis of the specific literature, training is mainly defined in terms of managerial personnel

and consequently, the examples and proposals of evaluation of training are geared to supervisors, foremen and managers, rather than to non-managerial personnel. Taking this into account and considering the fact that industrial firms in Portugal put a great deal of importance and concern on training of non-managerial personnel (workers), the main focus of the evaluation of training here will be in terms of non-managerial personnel. Training, then, is defined for our purposes as a short-term educational process, by which workers acquire and maintain the technical knowledge and skills and the development of attitudes necessary to increase effectiveness in attaining organizational goals. This training definition implies that through training, workers gain skills, knowledge and attitudes that help them perform more effectively in their present and future jobs, and as such, training is seen to be an investment in human resources that will, to a certain extent, benefit the industry organizations. In addition to this, Hoyler(1970) says that training is a business investment aimed at building up capacity to a teamwork to either reduce or eliminate the gap between the present work performance and the proposed and achieved goals by workers. In order to reinforce this, Nery(1999) suggests a model of human resources management and training based upon competencies, by stressing that business strategies depend upon organizational and desired functional/professional competencies. On the other hand, Mager(1976) proposes an integration of content and planning and implementation of training programmes to expectations, needs and gaps of potential trainee's professional competencies and an integration to the strategies of small and medium sized firms, as well as managerial and entrepreneurial profile of managers according to the programmes carried out by such small and medium size firms, based on cost/benefit criteria. Besides, Boog(1980) affirms that professional development is based on professional education(training) which amplifies, upgrades and improves trainee in relation to his/her professional growth, either in an specific job career or to be more effective and more productive in his/her job or even in his/her own personal development. Also, Bomfin(1998) emphasizes that training is important because, among other reasons, it contributes to professional competence in technical, human and political fields aimed at always improving productivity of the firms concerned and he also highlights that training actually plays an important role in building up essential competencies in the organizations that seek to amplify their corporate competitiveness through the development of workers' professional competencies. Finally, Tolentino(1999) puts forward two types of professional competencies required by the managers of small and medium sized firms, namely managerial competencies and entrepreneurial competencies.

## 2. EVALUATION OF TRAINING

Employees are mainly seen by managers as human assets of an organization and like other assets, they need a reinvestment on a regular basis, so as to keep them adequately maintained and capable of performing in a satisfactory and productive way. In addition, employees, like plant, machines and other equipment, may become obsolete in terms of productive capabilities over time and, as a consequence, become less productive. Taking this into consideration, it is suggested, on the basis of the relevant literature (Milkovich & Boudreau(2000), Whitelaw(1972), Hamblin(1974 and Boog(1980) that to prevent this kind of problem arising, management in general, and human resource management in particular, have to evaluate constantly their specific training needs and, on the basis of that, try to design and implement training programmes accordingly.

Training is regarded as successful if the objectives of the training programmes are met because the programmes are largely designed to achieve specific training objectives. Consequently, the evaluation of training is valuable only if it provides feedback that will help the training process and the evaluation procedure is seen as building up to the “outcomes” in terms of expected workforce behavior. In addition, all the purposes of training evaluation contain an element of feedback control. The standards employed for comparison are the results or intended results of training, in terms of practical action to be taken by trainers, so as to control the activity in order to reach the intended results derived from training.

Taking into account the importance and need to evaluate training and considering the amount of money spent in personnel training and the benefits derived from such an investment, Wexley and Lathan(1981) properly point out that around \$100 billion dollars are spent annually in the U.S.A. on training, but the majority of companies do not know what practical benefits they receive from their expenditures. Also, Clement (1981) concludes that American business use to spend billions of dollars on training programmes but little is done to assess the effectiveness of the training effort.

### 2.1 PREVIOUS RESEARCH ON EVALUATION OF TRAINING

Despite the Portugal legislation to stimulate firms to invest in training, little has been done to assess the results of personnel training in Portugal. According to Marques(1992) between 1986 and 1991, as a result of a huge injection of European community funds, there was an economic boom. Simultaneously, the first MBA courses were inaugurated, as business organizations soon realized

that the incumbent managers were not prepared, in terms of managerial skills, to face this new and thrilling economic development. Many firms did not know how to properly use the community funds to bring about structural change, and so, naturally, there was mismanagement of these funds by some firms and, similarly, the expected and desired modernization of the firms themselves did not lead to the developments envisaged.

A recent two-year survey requested by the Portuguese Industrial Association and carried out by Lança(1998), which surveyed a significant and sound sample of 1157 manufacturing firms, found that Portugal is currently not only an open industrial economy focusing on overseas markets, but also that it specializes in its own traditional firms industries, such as ready-to-wear clothes, cork and shoes. This survey gives an overall profile of Portuguese industrial firms, assesses their financial situation and finally analyses the competitiveness of the firms. This is the first study of its kind to be conducted in Portugal since its affiliation to the European Union.

In short, Lança's findings reinforce and confirm the concerns over Portuguese manufacturing firms, namely that they still rely on a strong family management style, based mainly upon confidence and trustworthiness rather than on professional competence. Moreover, managers are deemed to have a low educational profile, namely less than six years of formal schooling. The manufacturing organizations in which they work have not, during the last two decades, presented any sound organizational structure, nor having they shown any relevant modernization practice. Likewise, the productivity of workers is very low indeed and, consequently, the compensation policies for workers are very low, too.

Although we see Portuguese industry specializing in the traditional areas of shoes, textile and cork, it is important to stress that even this specialization is still very weak indeed, mainly because its competitiveness is based upon low labour costs. Also, the organizational structures of these sectors are poor and workers' formal education, generally speaking, is limited: 65 per cent of workers have only primary school level education.

Based on the literature review on this issue, it can be said that although evaluation of training has a long history, the end result is not encouraging in the sense that little has been done so far to enhance the methodology and practice of the evaluation of training. To begin with, the first studies about this issue are reported by Kendall (1956), who points out that there are a few experimental studies reporting evaluative data on the outcomes of training programmes but that little research has been

done on the benefits derived from training. Dunnette (1962) affirms the same, Catalanello and Kirkpatrick (1968) conclude that there was no systematic and controlled evaluation of training. In addition, similar observation is made by Cote (1969), Campbell et al (1970), Campbell (1971), Roy and Dolke (1972), Wolfe (1973), Ball and Anderson (1975), Wagel (1977), Coffman (1979), Neider (1981), Clement (1981) Dopyera and Pitone (1983), Wexley (1984), Smith (1985), Bell and Kerr (1987) and Clegg (1987).

In conclusion: the bulk of the literature on the evaluation of training clearly indicates that more research is needed to explain why training programmes are carried out.

## 2.2 THE STRATEGY TO BE ADOPTED TO EVALUATE TRAINING

The strategy suggested to evaluate the results of workers training programmes on an "ex-post facto" basis is Kirkpatrick's (1967, 1968, 1969, 1976, 1978 and 1983) model, which is essentially the same as proposed by Warr et al (1970), Whitelaw (1972), Hepworth (1972) and Hamblin (1974). In addition, this model has been employed in a significant number of studies about evaluation of training and has also been cited in the literature concerned with this matter since the end of 1960s.

According to Kirkpatrick (based on his writings), evaluation of training is the determination of the effectiveness of a training programme in terms of four levels: reaction, learning, behavior change and final results. The scheme can be employed in nearly any organization in terms of procedures and techniques.

The four levels in the model can be seen as links in a chain of cause and effects (Hamblin, 1974), which means this chain can be split at any point, that is a trainee may react favorably but learn nothing; also, a trainee may learn something but fail to apply the learning to the job situation and finally, a trainee may modify his/her job behavior but this fact may have no effect whatsoever on the functioning of the firm.

Kirkpatrick's four-level framework presupposes that the transfer of learning to the job performance depends not only upon the training given but also the existence of a climate in which workers are asked to apply their training on return to on-the-job setting.

Taking into consideration that evaluation of training at levels three and four are more important, in terms of practical outcomes where changes are expected to occur, no attempt will be made to

evaluate workers' training programmes at levels one and two, reaction and learning, respectively. Thus, level three attempts to measure trainee's behavior changes that have occurred as a result of training, whereas level four aims at measuring the impact of training upon organizational objectives in relation to practical and measurable results, namely quality and quantity of units produced, level of motivation, increased sales, job satisfaction, safety records, grievances and complaints, profits achieved, reduction in costs and so on.

It is assumed here that the evaluation of training at levels three and four do normally have to be based upon the assumption that all other influencing factors are to remain constant and nothing would have changed, had the training programme taken place, as a point of reference only, in terms of training effectiveness.

Next, it is presented the development of the instruments (methodology) to be employed to measure the results of workers training, in terms of behavior change and final results, as assessed by managers of the firms concerned, and business performance, taking into account that the final results of workers' training programmes will be assessed according to the stated objectives as declared by managers of the industries concerned.

### 3. RESEARCH METHODOLOGY

In order to analyze the relationship between training effectiveness and business performance, it was decided, on the basis of the relevant literature review, to employ structured interview in the form of a normal questionnaire, on the basis of the Kirkpatrick's model, to assess the results of workers training, as assessed by managers and deputy managers of the firms concerned.

This instrument has thirteen items (questions) related to evaluation of training programmes administered to workers and assessed by managers.

The predominate purpose in designing structured interviews to assess the results of workers training programme, was to evaluate the results of training at levels three (behavior change) and four (final results), geared at assessing these two distinct aspects of the results of training programmes attended by workers.

This instrument employs closed questions, and it uses a five-point Likert-type scale, ranging from 1(low) to 5(high), where a high grade means a favorable and positive answer to each question

asked, whilst a low grade, on the other hand, reflects a negative and unfavorable response to each question within the instrument. By administering this questionnaire to managers and deputy managers (respondents), on a before-and-after basis, in relation to the last training programmes attended by workers, and then averaging the corresponding scores, an overall profile can be formed of the results of workers training courses. Again, this provides an important starting point to undertake a further and more specific analysis.

Managers and deputy managers were chosen to assess the results of training programmes attended by workers on a before-and-after basis, bearing in mind the fact only managers and deputy managers are prepared to keep records of this kind of required information. To conclude, the structured interview with managers and deputy managers have six questions regarding business performance, in relation to the last training programmes attended by workers, and as assessed by managers. It was expected that, by interviewing managers and deputy managers and then averaging the corresponding scores, a general profile could be found, in terms of a general business performance score, so that, on the basis of such a score, further and more relevant analysis can be undertaken.

### 3.1 RESEARCH STRATEGY

In order to collect, analyze and interpret the relevant information, the following research strategy was adopted, bearing in mind the kind and nature of the instrument employed to gather the data and taking into account the previous discussion of the instrument (structured interview)

The research strategy adopted for this study had the three steps:

1. To identify a SAMPLE of small metallurgical firms in the Lisbon area of Portugal

The area covered in the survey comprised the capital of Portugal, Lisbon in the south of Europe, with a population of around 1.000.000 people.

2. To INTERVIEW the sample using adequate and suitable instruments (structured interview), in order to obtaining the necessary information to assess the relationship between training effectiveness and business success.

3. To check and compare the answers of the respondents in order to ANALYSE the type of relationship identified by this study. This research strategy is explained in more detail, taking into



account the three previous steps as follows:

### 3.2.1 The Sample

In choosing the sample, and bearing in mind the specific purpose of this study, the following three criteria were adopted, namely homogeneity, common experience in training and sample size. These are explained in more detail, as follows:

A. Homogeneity: it is important to achieve a high level of homogeneity in the sample, in order to ensure statistical reliability.

B. Common Experience in Training: in order to study the relationship between the results of training (training effectiveness) and business performance, the type of training programmes to be assessed should be, as far as possible, the same for all the subjects involved. Bearing this in mind, the sort of training to be assessed, will focus on workers who attended regular training courses, ranging, on average, from three to five day in length. In addition, such training courses were aimed at teaching workers to improve their abilities and skills with respect to how to operate machines and equipment properly so that the production targets can be achieved, and the firm's goals met at the appropriate time. Furthermore, the assessment of the same kind of training for all the subjects (workers) appears to be the most appropriate procedure for controlling the dependent variable of this study, i. e. business performance.

C. Size: for statistical purpose, the sample must be sufficiently large to permit significant and reliable inferences to be drawn from the population as a whole.

Taking into consideration the sample size, in pure statistical terms, the sample used in this study comprised a proportion of firms classified by the IAPMEI (the official body dealing with small and medium sized firms in Portugal). In addition, the sample took into account the small metallurgical firms which have administered training programmes to workers in the production process during the period of 1999, in the most concentrated industrial setting of the region of Lisbon, capital of Portugal.

The characteristics of this sample are as follows.

A. Homogeneity: the sample included only small metallurgical firms as defined and accepted by

IAPMEI.

B. Common Experience in Training: there are three distinct types of training in the field of small and medium sized Brazilian firms, namely training oriented towards quality control, training for regular and normal maintenance of machines and equipment and training for people directly involved with the production process. Consequently, for the purpose of this study, the sample used in this study comprised only firms which have carried out any type of training for workers in the production process at least once during the period under study, i. e. during the period of 199

C. Size: the sample is drawn from a population of 86 metallurgical small firms which invested in training during the period under study, with an average number of 83 employees in each firm. Given the specific purpose of this study, it was felt that the intentional sample method would be the most adequate and suitable to achieve the objectives pursued by this research.

Taking into account the above considerations, and with respect to the practicalities of this research, and also questions of time and money, the sample was dictated by the availability of firms to collaborate with the study and by the willingness of persons concerned to cooperate, rather than by principles of sampling selection. The sample in the research is therefore a non-probabilistic sample, i. e. it involves personal judgment in the selection process. However, this kind of purposive sample contains the necessary elements for our research purposes. According to this method of sample selection, 12 small metallurgical firms that carried out any kind of training to workers at least once during the period comprised by this study, were chosen. In each firm, a selection of five workers is made at random and by the supervisors in terms of availability and, in addition, one manager and his deputy manager were selected for interview in each firm, to assess the results of workers training programmes.

By employing the above sample method, it is felt that the sample is quite representative of the population and therefore, twenty four structured interviews were administered to managers and deputy managers,

#### 4.2.2 Data Collection

##### 3.2.2.1 The Instrument Employed

The data on which the research findings are based, are obtained from a survey of managers and

deputy managers, who evaluate the results of workers training, within firms that have administered training to workers.

The data related to the research hypothesis was collected through the use of structured interviews, in the form of a normal questionnaire, with managers and deputy managers, having two questions geared to obtaining information concerning the results of training programmes in terms of behavior change and final results, and six questions aimed at obtaining information regarding business performance, as assessed by managers and deputy managers, in relation to the last training programmes administered to workers.

#### 3.2.2.2 Timing of Data Collection

It was estimated that a period of five months was required and this period of time comprised the initial steps to be carried out by the researcher himself, arranging for access to the set of firms and a minimum period of time to undertake the pilot test(one month). The pilot study proved worthwhile because it contributed significantly to the achievement of the purpose of this study and contributed to the development of the final and decisive version of the structured interview which managers and deputy managers could easily understand.

Finally, the survey itself was conducted within the scheduled time, (it lasted four months) and as such, twelve small firms were chosen to take part in the survey comprising 60 workers (five per firm), 24 managers/deputy managers (two per firm) and the procedures adopted were the same as applied in the pilot study, in terms of interview appointments, presentation, covering letter and practicalities.

### 3.3 Analysis: Procedures and Techniques

#### 3.3. 1 Introduction

The objectives and data on which training is based, are those stated by the managers of the firms surveyed, that is, corrective training, slanted towards meeting specific needs of the firms concerned and as such, the information contained in the interviews is aimed at achieving such stated objectives.

According to Kerlinger (1973: 134), survey analysis is the "categorization, ordering, manipulation and summarizing of the data to obtain answers to research questions". The same author adds that the

main objective of analysis is to make data understandable meaningful and interpretable, so that the nature and kind of relationships revealed by the data can be studied and tested accordingly. Also, Malhotra(1996) points out a similar definition of survey as proposed by Kerlinger(1973).

The purpose of this study is to test the hypothesis that results of training and business performance are related such that, the more positive and effective the results of training, the better the performance of the business.

In order to test this hypothesis it is, first of all, necessary to devise some procedures whereby the raw data collected through interviews can be systematically organized and consistently analyzed in an objective and a quantified way. In addition, by coding the raw data into categories which lead to a clear description of the respondent's views, in terms of training effectiveness and business performance, a useful and important step is taken towards achieving the objective of this analysis.

### 3.3.2 Analytic Procedures

Taking into account the purpose of this study, the analytic procedures to be undertaken, have these three steps, which are presented in detail below.

(A) Selection and definition to the categories to be used.

(B) Designation of the units of analysis to be coded.

(C) Selection of a workable system of enumeration of be used.

(A) The categories used in this study were developed after a careful and detailed appraisal of the relevant literature and they are: small firms, industrial training, strategy for evaluating training, evaluation of results of training and business performance.

The complete list of operational definitions of the categories used in this study are described in detail, as follows

1. Small Firm: according to the APMEI criteria, Small Firm is one whose number of employees ranges from 21 up to 100, having a turnover ranging from US \$100,020 up to US \$400,000.

2. Industrial Training is a short-term educational process by which workers acquire and maintain the technical knowledge and skills and the development of attitudes necessary to increase effectiveness in achieving organizational targets.

3. Strategy for Evaluating Results of Training is the method of determining the effectiveness of a training programme at four levels: reaction, learning, job behavior change and final results, These four levels form a chain of cause and effect, whose details are described as follows

a) reaction: this measures how much the participants liked the programme including its content, the trainer, the methods used and the surroundings in which the training took place;

b) learning: this measures the application of principles, facts and skills which were understood and absorbed by the participants and is based upon the trainee's knowledge/skill performance in the training environment itself;

c) job behavior change: this is intended to measure the behavior change of trainees on the job, by measuring the transfer of training from the training experience to a work experience situation. Furthermore, job behavior change presupposes a specific organizational climate in order to be effective;

d) final results: this last level attempts to measure the impact of training upon organizational objectives, such as safety, productivity, profits, reduction of costs and turnover, among others.

4. Evaluation of Results of Training is any attempt to obtain information (feedback) on the effects of a training programme.

5. Business Performance is a set of six variables which together refers to business success, namely increase in the number of employees, increase in output, introduction of new products or services, a significant increase in the number of employees needing high-tech skills, the current level of company's profits and the expected annual increase in turnover and profits.

(B) Designation of the units of analysis to be coded: this step was chosen by identifying SCORES as the specific segments of the interviews being placed in a given category. Conversely, the units of analysis to be coded are SCORES and as such, they were to be considered in relation to all categories. With respect to this, SCORES can be considered as low, middle or high, considering an

ordinal scale ranging from 1 to 5, for all the categories, and a summary of frequencies distribution related to the categories used in this research.

(C) Selection of a system of enumeration to be used: the appropriate system of enumeration had these main features: in the whole set of questions, frequencies measures were used by counting the total number of individual grades attributed to any one category, and by recording the frequency of appearance of grades in answer to questions in interviews. This procedure was carried out by employing the computing routine techniques of the Statistical Package for the Social Sciences – SPSSX.

In order to analyze the results, the whole set of categories were coded into variables, bearing in mind the whole set of questions and for each organization, information was checked and each item "scored" in accordance with the respondent's reply to the particular question. Next, the responses were organized and processed, by using processing formats, conventions and routine techniques inherent in the SPSSX package.

To analyze the final set of information, a co relational analysis technique was used to assess the cause-effect relationship between the two variable under consideration, namely evaluation of results of workers training and business performance. In addition, the above cause-effect relationship was based upon the final mean SCORES of results of training and business performance.

In order to perform this kind of co relational analysis, the information related to managers and deputy managers were put in the form of mean SCORES so as to enable a practical and effective analysis. Bearing this in mind, two different mean SCORES were computed: MAN (mean score of managers evaluation of results of workers training and BUS (mean score of managers assessment of business performance, in relation to workers training programmes carried out).

With regard to the association between the results of training and business performance, the analysis was performed by relating the overall mean score of evaluation of results of workers training, MAN, with the corresponding mean score of business performance, i. e. BUS, in order to establish the likely relationship. In addition, a positive link between results of workers training and high business performance, in terms of positive business financial outcomes of the firms surveyed is expected.

In the next topic are discussed and presented the main findings of the survey, taking into account the

analytical procedures and techniques explained and presented in the final part of this section in more detail.

#### 4. RESULTS: PRESENTATION AND DISCUSSION

The information concerning training evaluation took into account levels three and four of the Kirkpatrick's model.

This part outlines the main findings of training programmes attended by workers, but assessed by managers, with respect to the complete turnout of the twenty four interviews administered to managers and deputy managers, comprising a total of twelve small metallurgical firms.

The thirteen variables in this topic were transformed into an average score, MAN, to analyze the results of workers training at levels three and four of Kirkpatrick's model.

Taking levels three and four into account, in fact managers and deputy managers assessed the results of workers training on a before-and-after basis, because, among other reasons, only managers and deputy managers usually keep records of this type of information. Furthermore, for the purpose of this present analysis, only the results AFTER training were taken into account. Below, in Table I, is outlined an overall picture of these above results.

On the basis of Table 1, it is quite evident that trainees performance improved significantly (79,2%), things done on schedule had a good increase (79,2%), whereas trainees work quality seems to be higher (62,5%). Based on the overall responses from the managers, the relationships among trainees are now higher (58,3%), whereas supervisors/workers relationships are good/very good (50,0%) and (41,7%) and the amount of work accomplished seems to have increased (75,0%). Similarly, the present situation, in terms of grievances and complaints, seems to be good indeed (50,0%), new ways to work are very good now (91,7%) and safety records seem to have improved (66,7%). On the other hand, it appears that time to perform tasks is now higher (50,0%), whereas workers production, as a whole, has, improved (91,7%). With regard to the reduction in costs, the situation appears to have improved (62,5%) and finally, workers level of motivation appears to be somewhat good (83,3%).

NOTE:\* 1. Undesirable

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- 2. Tolerable
- 3. Satisfactory
- 4. Good
- 5. Very good

Source: Survey Data, Lisbon 1999.

TABLE 1: ANALYSIS OF THE GENERAL SITUATION OF WORKERS TRAINING AS ASSESSED BY MANAGERS (N=24)

	# V	N	%	# V	N	%
Trainees Performance	1	0	0%	1	0	0%
	2	14	58.3%	2	0	0%
	3	10	41.7%	3	4	16.7%
	4	0	0%	4	1	4.1%
	5	0	0%	5	19	79.2%
Things done on Schedule	1	0	0%	1	0	0%
	2	20	83.3%	2	0	0%
	3	4	16.7%	3	4	16.7%
	4	0	0%	4	1	4.1%
	5	0	0%	5	19	79.2%



Trainees work quality	1	2	8.3%	1	0	0%
	2	21	87.5%	2	0	0%
	3	1	4.1%	3	2	16.7%
	4	0	0%	4	15	58.3%
	5	0	0%	5	7	25%
Relationship among Trainees	1	3	12.5%	1	0	0%
	2	18	75%	2	0	0%
	3	3	12.5%	3	2	16.7%
	4	0	0%	4	15	58.3%
	5	0	0%	5	7	25%
Supervisors/Trainees Relationships	1	0	0%	1	0	0%
	2	19	79.2%	2	0	0%
	3	5	20.8%	3	12	50%
	4	0	0%	4	2	8.3%
	5	0	0%	5	10	41.7%
Amount of work Accomplished						
	1	0	0%	1	0	0%

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	2	20	83.3%	2	0	0%
	3	4	16.7%	3	3	12.5%
	4	0	0%	4	3	12.5%
	5	0	0%	5	18	75%
<hr/>						
Reduction in grievances and complaints	1	2	8.3%	1	0	0%
	2	16	66.7%	2	0	0%
	3	6	25%	3	3	12.5%
	4	0	0%	4	9	37.5%
	5	0	0%	5	12	50%
<hr/>						
New ways to work	1	2	8.3%	1	0	0%
	2	18	75%	2	0	0%
	3	3	16.7%	3	1	4.1%
	4	0	0%	4	1	4.1%
	5	0	0%	5	22	91.7%
<hr/>						
Safety Records						
	1	0	8.3%	1	0	0%
	2	21	75%	2	0	0%
	3	3	12.5%	3	4	16.7%

	4	0	0%	4	4	16.7%
	5	0	0%	5	16	66.6%
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Downtime and Stoppage	1	2	8.3%	1	0	0%
	2	12	50%	2	0	0%
	3	10	41.7%	3	4	16.7%
	4	0	0%	4	12	50%
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Trainees Production	1	0	0%	1	0	0%
	2	12	50%	2	0	0%
	3	12	50%	3	0	0%
	4	0	0%	4	2	8.3%
	5	0	0%	5	22	91.7%
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Reduction in Cost	1	0	0%	1	0	0%
	2	21	87.5%	2	0	0%
	3	3	12.5%	3	6	25%
	4	0	0%	4	15	62.5%
	5	0	0%	5	3	12.5%
<hr/>						
Trainees level of						

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motivation to work	1	0	0%	1	0	0%
	2	20	83.3%	2	0	0%
	3	4	16.7%	3	2	8.3%
	4	0	0%	4	20	83.4%
	5	0	0%	5	2	8.3%

NOTE: \* 1. Undesirable

2. Tolerable

3. Satisfactory

4. Good

5. Very good

Source: Survey Data, Lisbon, 1999.

In the next section the results related to business performance that might have some effects on the results of workers training, are presented and discussed.

Regarding the results of business performance, the six variables were transformed into an average score, BUS, whose main purpose average is to analyze the relationship between the previous average score, MAN.

Below, in Table 2, is outlined an overall picture of these above results.

TABLE 2: RESULTS OF BUSINESS PERFORMANCE AFTER WORKERS TRAINING (N=24)

	*V	N	%
Increase in the number of employees	1	12	50,0
	2	12	50,0
Output increase	1	20	83,3
	2	4	16,7
Introduction of new products/services	1	16	66,7
	2	8	33,3
Significant increase in the number of employees needing high-tech skills	1	16	66,7
	2	8	33,3
Company profits now	1	16	66,7
	2	8	33,3
Turnover and profits expected to improve next year	1	11	45,8
	2	13	54,2

NOTE: 1. Yes

2. No

Source: Survey Data, Lisbon, 1999.

Taking into account the six variables as shown in Table 2, employed to assess business success after workers training and, based upon the replies from the managers, the findings showed that there seems to be a significant increase in the number of workers (50,0%), whilst the company output has also shown a good increase (83,3%). Similarly, new products have been introduced (66,7%), the number of employees needing high skills also increased (45,8%). In addition, it appears the

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industries are more profitable now than before (66,7%) and it seems there is a positive expectation in terms of a better turnover and better profits (45,8%).

Next, the relationship between the results of workers training, as assessed by managers and deputy managers, and business performance, are presented and discussed.

This part presents the main outcomes of correlational analysis carried out in this study aimed at testing the hypothesis according to which the results of workers training and business performance are closely related

## 5. CONCLUSION

In order to analyze the relationship between the results of workers training and business performance, as assessed by managers of the firms concerned, it was computed an index (score), as previously explained in the section called Analytic Procedures and Techniques, so as to enable a practical and effective analysis. Taking this into account, the thirteen variables related to the results of workers' training were transformed into a mean score, called MAN, whereas the six variables employed to assess business performance were put in the form a mean score, too, called BUS. In addition, these two mean scores were associated, in order to establish the co relational analysis, on a before-and-after basis

Based upon the computation of the two scores, it was performed the co relational analysis by employing Spearman's correlation coefficient ( $\rho$ ), taking into consideration the significance levels of the two-tailed test (Toledo, 1983).

Table 3, below, shows the main results of the correlational analysis performed, involving business Performance (BUS) and workers training evaluation index (MAN), before and after training.

TABLE 3. RELATIONSHIP BETWEEN THE RESULTS OF WORKERS TRAINING (MAN) AND BUSINESS PERFORMANCE (BUS)

		BEFORE	AFTER	BUS
MAN	Level of Significance	.8267	.9867	.4563
		.10	.00	.0701

To conclude, it is quite apparent that the findings of this study confirm that there is a strong and positive relationship between training effectiveness and business performance, as assessed by managers and deputy managers of the firms concerned. Also, it is reasonable to assume that there is a close similarity between the findings of Peters and Waterman, the "Small Firms Survey" and these of the present survey. This similarity can be seen in terms of the relationships found between successful business performance in small and medium-sized British firms and training effectiveness, and the relationships found between excellent big industrial firms and Innovative performance achieved by the American companies surveyed.

The findings of this study can be used to improve working practices and procedures in small and medium sized firms. Moreover, based upon this statement, the following Portuguese cultural working practices could improve performance and competitiveness of small firms:

1. *Relationships among colleagues*: as a result of the collective society in Portugal, workers display strong group loyalty and their personal relationships tend to become more restricted to their own groups. This means that workers tend to develop professional relationships, to have a restricted number of friends, to be well disciplined and that each group has a common goal.
2. *Attitude towards time*: there is a sense of urgency, workers want to do more rather than have more time to work. Therefore, time, in their view, is unrepeatable, finite and rare and, consequently, to come first means to have more opportunities, although it is recognized that to be first can involve risk.
3. *Attitude towards the working environment*: self-interest and money do come first in the Portuguese mind, but this could be utilized by encouraging each individual to adapt to or to

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change the work environment, in order to reduce waste, recycle and re-utilize.

This discussion of the cultural characteristics and management practices and procedures, based as they are on old management models and on a protected market, would seem to call for new ideas and models as a way to better prepare managers, as trainers, to face the rapid and unparalleled world changes taking place, as a result of globalization, by stressing the principle that more competent and well trained workers have to be seen as the main strategic advantage of the small and medium sized Portuguese manufacturing firms.

The *new* manager in Portugal has to be, above all, a manager of people, whose main task is to improve the links between workers, organization culture and goals, so as to guarantee the success and effectiveness of the firm itself, by investing more in training and by assessing, as a natural consequence, training results as a practical way to relate this investment to viable and concrete results(return).

Managers of the new Portuguese small and medium sized firms, in order to face the challenges imposed by globalization, will have to adopt new ways of carrying out training and development strategies. Taking into account this new scenario, Portuguese managers believe that the new professional training policy should have a twofold focus: on the one hand, to promote the learning of professional skills as required by society for the future, on the other hand, to enable workers to achieve autonomy, self-confidence, self-management and, above all, initiative and creativeness, deemed to be the main requirements for overcoming the adversities of an uncertain future.

The new training policies should provide answers to the problems presented by the global society, considering that the role of training is not only to give the workers the skills they need simply to perform their role more effectively, but also to make them more aware of the relevance of the new technologies used to improve productivity/competitiveness and understand the need for self-training and development.

To finally conclude and in order to achieve the desired goal of such new professional training policy, all Portuguese managers of small and medium sized firms, as trainers, should have, as their main tasks, the transmission of professional knowledge, the engendering of curiosity and research, and teaching the arts of creative survival, autonomy and professional competence in an adverse, stringent and competitive work environment. In doing so, managers small and medium sized firms



in Portugal will change their management philosophy from a survival strategy to an optimization strategy. This means that to be successful, managers will have to employ a more professional and expert training policy and management style in order to be more effective and competitive in a global and non-protected market.

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