

# MEASURING THE EFFECTIVENESS OF THE WOMEN ENTREPRENEURSHIP PROGRAMME ON POTENTIAL, START-UP AND ESTABLISHED WOMEN ENTREPRENEURS IN SOUTH AFRICA

Melodi Botha, Gideon Nieman and Jurie van Vuuren  
*Department of Business Management, University of Pretoria*

## Abstract

The Women Entrepreneurship Programme (WEP) was developed after a need had been identified for such a training intervention. The WEP provides entrepreneurial and business management training to women entrepreneurs. This empirical paper measures the effectiveness of the WEP after the respondents had been through the training intervention. The sample consists of 180 women entrepreneurs, where 116 respondents form the experimental group and 64 respondents the control group. Factor analysis is presented and several statistical tests executed to present the statistically significant differences between the two groups in the sample. The findings highlight the WEP delegates' acquisition of new entrepreneurial skills and knowledge. Furthermore, the respondents reported an increase in the number of employees, turnover, productivity and profit. It was statistically proven that the WEP is effective in training potential, start-up and established women entrepreneurs in South Africa.

JEL J16, M13

## 1 Introduction

Worldwide, entrepreneurship is seen as one of the most important solutions to unemployment, poverty and low economic growth. The creation of new ventures and the growth of existing businesses are vital contributing factors to any economy. Orford, Wood, Fischer, Herrington and Segal (2003: 17) conducted a study on the main obstacles faced by several South African entrepreneurs, the results of which indicated that the most recurrent weakness is lack of education and training among entrepreneurs. It is therefore imperative to focus on the training of entrepreneurs, particularly the development of previously-disadvantaged individuals, specifically women entrepreneurs (Van der Merwe, 2002: 48). According to Timmons and Spinelli (2004: 256), a significant difference between men and women is the under-representation of women pursuing higher education in business, engineering and science.

Although education is not mandatory for new venture creation, it provides the skills, contacts and opportunities vital to most successful businesses.

Henry, Hill and Leitch (2003: 12) maintain that entrepreneurship training can complement the early stage awareness-raising function of entrepreneurship education, as it provides the practical skills required by entrepreneurs when they are ready to set up their business. Ladzani and Van Vuuren (2002: 156) agree to a certain extent, maintaining that organisations wishing to develop entrepreneurship by education presuppose that the lack of entrepreneurial training is the main reason for SME failure. Pretorius, Nieman and Van Vuuren (2005: 424) add that transfer of the requisite knowledge and skills is the easiest part of training and is incorporated into most training programmes. Changing the behaviour necessary to engage in the start-up process is what really matters but is absent as a pronounced outcome of most programmes.

Deakins (1996: 21) states that:

We do not understand how entrepreneurs learn, yet it is accepted that there is a learning experience from merely establishing a new enterprise. The learning process that is involved in business and enterprise development is poorly understood, yet programmes have been devised and interventions are made in business development...There is now a need for re-focusing research away from the emphasis on picking successful entrepreneurs or picking winners, to identifying key issues in the learning and developmental processes of entrepreneurship.

It is thus evident that, while research in the area of entrepreneurship education and training is growing, a little-researched aspect is that of assessing the effectiveness of training interventions. This is surprising, given the fact that the development and running of courses and programmes is potentially expensive in terms of time and money, for both participants and sponsors. Indeed, many training initiatives do not appear actually to address the real needs of entrepreneurs. This paper therefore addresses the training needs of women entrepreneurs by introducing the Women Entrepreneurship Programme (WEP). It also indicates how the effectiveness of this training intervention is measured.

## 2

### **A training programme for women entrepreneurs**

The literature on female entrepreneurship suggests that, in terms of both entrepreneurial options (e.g. occupational choices) and entrepreneurial resources (e.g. sources of capital and training), women are more disadvantaged than men, and minority women are more disadvantaged than white women (Smith-Hunter & Boyd, 2004: 20). In their study on how entrepreneurship can be promoted, Lenker, Dreisler and Nielsen (2003: 385) found that information and education are problems for most women entrepreneurs. A continuous debate on the development of start-up training programmes and services for women has been

concerned with the need for single-sex provision (Carter, 2000: 330; Richardson & Hartshorn, 1993: 43). The key issue in single-sex provision is that some women may require greater nurturing in self-confidence and esteem, as well as business skills.

A study by O'Neill and Viljoen (2001: 41) on how support, including training, could be improved for women entrepreneurs in South Africa gave the following findings and suggestions:

- There must be specially developed entrepreneurship development programmes,
- Training should be linked to services like mentoring and after-care,
- Training must be skills- and sector-based, and
- Training in life skills (planning and budgeting skills) for the less educated should be considered.

### **2.1 The WEP design, content and framework**

The development of the WEP was based on the training needs of women entrepreneurs as well as on the work done by O'Neill and Viljoen (2001) and Stanger (2004), the phases of a business life cycle, and several training models and other entrepreneurship programmes.

#### *2.1.1 Training needs of women entrepreneurs*

A needs analysis highlighted the fact that women want a training programme structured specifically for them. For this reason, it seems clear that if there is a demand for such services, there should also be provision (Carter, 2000: 330). Van der Merwe and Nieman (2003: 54) conducted a study on 174 women entrepreneurs in South Africa to establish the areas in which they require training. The results of the study showed that women wanted guidance and advice on compiling a business plan, market research, identifying business and market opportunities; marketing and advertising, entrepreneurial skills training, financial and cash-flow planning, empowerment and enrichment opportunities for women, networking opportunities, relationship-building programmes, including mentoring, counselling and advice on managing a business, and risk management and taxation issues.

### 2.1.2 Business life cycle

The explanation of the business life-cycle model on which the WEP is based falls outside the scope of this paper. The design and content of the six-day WEP demonstrate the different stages through which an entrepreneurial venture goes, in which each day represents a different stage. It begins with the start-up stage and ends with the growth, maturity and maintenance stages. Course material used during the various days and stages of the business life cycle is relevant to women's lives, with case study experience and guest visits from businesswomen and female business professionals.

### 2.1.3 Training models

Two existing models were independently developed for entrepreneurship programmes in South Africa, each for its own and other contextual outcomes. An entrepreneurship training model can be defined as a structure or layout of constructs that form the framework of an entrepreneurship training intervention. A model includes all the training elements presented during training. Several other entrepreneurship training models exist worldwide, but for the purpose of this paper only the following integrated model will be discussed. Pretorius et al. (2005: 422) integrated the two models (Entrepreneurial Performance Education Model and Entrepreneurial Education Model) to introduce the newly-developed model: Educate for Entrepreneurial Performance Model (E for E/P).

The integrated model can be formulated as:

$$E \text{ for E/P} = f[aF \times bM (cE/S \times dB/S) \times (eA + fB/P)]$$

Where:

E for E/P	=	Education for improved Entrepreneurial Performance
F	=	Facilitator's ability, skills, motivation and experience
M	=	Motivation
E/S	=	Entrepreneurial skills
B/S	=	Business skills
A	=	Approaches to learning used by facilitator(s)
B/P	=	Business Plan utilisation
a to f	=	Constants

Education for E/P, therefore, is a linear function of the facilitator's ability and skills (aF) to enhance motivation (bM), entrepreneurial skills (cE/S) and business skills (dB/S) through the creative use of different approaches (values of eA) and specifically the business plan (fB/P). This E for E/P integrated model is in line with the work of Solomon, Winslow and Tarabishy (2002: 6), who suggest that entrepreneurial activities are a function of human, venture and environmental conditions. Typically, motivation and entrepreneurial skills are elements of the human skills, while business skills and the business plan utilisation are elements of the venture skills. Apart from the normal environmental factors governing strategy and operation of the venture, the approaches used and the facilitator will both contribute as elements of the learning environment. A new, improved entrepreneurship training model originally assembled by Antonites (2003: 15) is presented in Table 1. This training model illustrates the most significant skills identified in the models and included in the WEP.

As seen in the training model (Table 1), the purpose of the WEP is to provide technical, business management and entrepreneurial training to women entrepreneurs. The business management and entrepreneurial training are clearly observable in Table 1, but the technical training is not so easily identifiable. According to Hisrich, Peters and Shepherd (2005: 20), technical skills involve things like oral communication, taking advantage of technology, interpersonal skills, listening and network building. These technical skills are portrayed mainly by means of the Performance Motivation (M), Approaches to Learning (A) and Business Plan utilisation (B/P) elements, highlighted in Table 1. In addition to this training, the WEP also includes skills that are not normally included in entrepreneurship training programmes for either gender. The WEP includes topics like: networking and support, making use of role models, mentors and counsellors, and confidence-building. It emphasises the marketing and financial aspects of a business, as these aspects are perceived to be the two topics presenting the greatest problems for women entrepreneurs when operating a business.

**Table 1**  
Skills included in the improved entrepreneurship training model

Entrepreneurial performance (E/P)	Performance motivation (M)	Entrepreneurial skills (E/S) and entrepreneurial success themes	Business skills (B/S)	Facilitator and programme context (F)	Approaches to learning (A)	Business plan utilisation (B/P)
Establishment of own business	Motivation	Risk propensity	General management skills	Previous experience of facilitator and participants	Involvement of participant	Elements
Growth in net value of business	Mentorship	Creativity and innovation	Marketing skills	Outcomes of the programme	Learning approaches used	Preparation
Recruitment of employees	Role models	Opportunity identification	Legal skills	Needs analysis of participants		Presentation
Increasing productivity levels		Role model analysis (success factor)	Operational skills			Evaluation
	Increasing profitability		Networking	Human resource skills		
		Leadership	Communication skills			
		Motivation	Financial management			
		Attitude of participant	Cash flow management			
		Social skills				
		Start-up skills				

Source: Own compilation as adapted from Antonites (2003: 15)

#### 2.1.4 *The WEP framework*

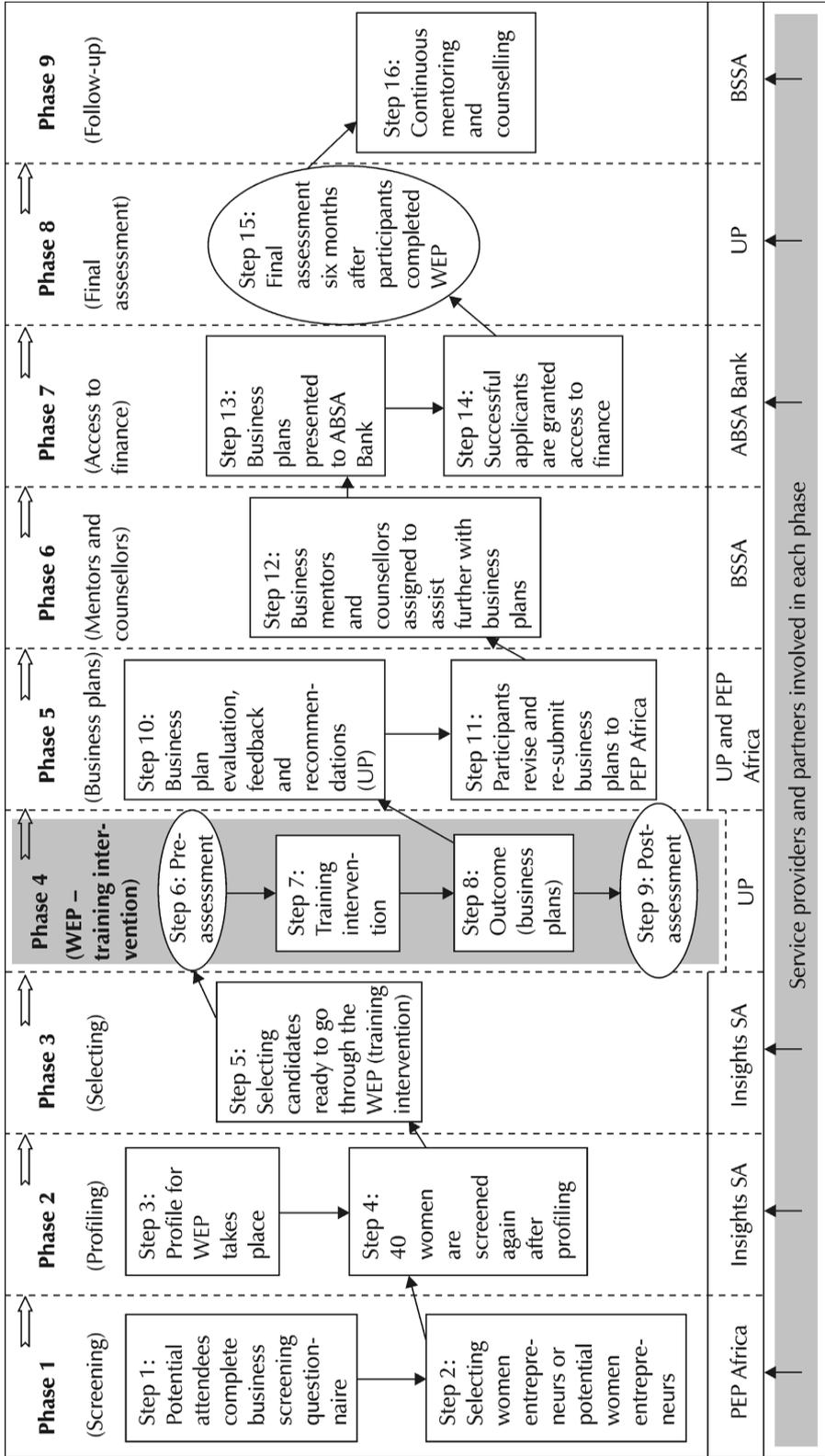
Figure 1 provides a graphical layout of all the phases and steps followed by the participants in the WEP before and after the actual training intervention. The WEP service providers and partners are also highlighted and the following abbreviations were used:

- Private Enterprise Partnership for Africa (PEP Africa),
- Insights learning and development South Africa (Insights SA),
- University of Pretoria (UP),
- Business Skills South Africa (BSSA), and
- Amalgamated Banks of South Africa (ABSA Bank).

During phases 1 and 2, women have the opportunity to apply for attendance at the WEP by completing a screening questionnaire. Following that, 40 women entrepreneurs in each major South African province are selected to go through the profiling system. According to the coordinator and facilitator of the profile for WEP process, this includes individual personality profiling and an in-depth assessment of the delegates' business needs. When necessary, it offers them branding solutions (Finch, 2005: 2). The profiling also offers access to tools that will assist them in growing their businesses successfully. During phase 3, the top 20 women in each province are selected to undergo the six-day training intervention, while pre- and post-assessments takes place during phase 4. This will be explained further in the methodology and findings of this paper. Phase 5 deals with the business plan, seeing that one of the outcomes of the WEP is for each woman entrepreneur to have her own. The WEP facilitator provides evaluation, feedback and assistance on the final day of the intervention. During phase 6, the business plans are revised by the participants and re-submitted to the business counsellors and mentors assigned to the women. Phase 7 provides an opportunity for the delegates to submit their business plans to the ABSA Bank, who will review the possibility of access to finance. Successful applicants are granted access to finance. Phase 8 provides a follow-up meeting between delegates and mentors six months

after the delegates have completed the training intervention. Phase 9 provides continued support and counselling to delegates. This counteracts the argument that many training programmes focus on the delegates only while they are in training, but do not assess what they have implemented and gained after the training intervention. The WEP offers this additional service by providing business mentors and counsellors who will support the WEP delegates in areas where they need further assistance.

**Figure 1**  
The WEP framework



Source: Own compilation

### 3

#### Measuring the effectiveness of a training intervention

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Hill and O’Cinneide (1998: 3) note that only a few studies have investigated the effects of entrepreneurship education. Falkäng and Alberti (2000: 101) corroborate this, suggesting that there is a need for much more research on methodologies for measuring entrepreneurship education effectiveness.

To measure the effectiveness of a training programme, Kirkpatrick (1967: 98) suggests four different levels. In this paper, assessing the training effectiveness of the WEP is done in line with these suggestions:

- Reaction measures are used to find out trainees’ satisfaction with the training programme. This evaluation is done on completion of the training programme and consists of a number of questions about the course that participants rate according to their level of satisfaction.
- Learning measures and behaviour measures assess the effect of the training on the entrepreneurial factors. Learning measures are also used to assess the gain in training specific skills, increasing knowledge and changing attitudes.
- Behaviour measures are conducted to find out whether the participants were able to apply these skills to job situations.
- Post-training success measures are used to measure training outcomes in terms of economic factors like profits, costs, productivity and quality.

Donkin (2004: 18) mentions that attempting to calculate return on investment is a step beyond the Kirkpatrick model and usually involves some hard measuring. He suggests that the first step is to work out the desired results, such as increased output, more sales, reduced staff turnover or increased turnover. The next step is to quantify the costs associated with these issues. To measure the effectiveness of the WEP even further, this paper also made use of the key performance measures adopted from a study

conducted by Kalleberg and Leicht (1991: 148) on 400 entrepreneurs; these are:

- Primary performance measures (number of employees, growth in employees, number of customers, sales/turnover and value of capital assets).
- Proxy performance measures (geographical range of markets – national versus international markets, formal business and VAT registration).
- Subjective measures (including the ability of the business to meet business and domestic needs – confidence in running a business).
- Entrepreneurial performance measures (the desire to start a business or the desire for growth and the ownership of multiple businesses).

The measurement levels of Kirkpatrick (1967) and Kalleberg and Leicht (1991) have been used because, according to a literature study, other authors used these levels successfully in studies of effectiveness (Carter, 2000: 330; Friedrich, Glaub, Gramberg & Frese, 2003: 4; Henry *et al.*, 2003: 98).

### 4

#### Methodology

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The total sample was comprised of 180 women entrepreneurs. It included respondents from different provinces and every ethnic group in South Africa. Six different groups ( $\pm 20$  trainees per group) underwent the WEP from January 2004 to October 2005. One section of the total group was an experimental group (116 respondents), while the other section was the control group (64 respondents). After six months, the results of the experimental group were compared with those of the control group. As far as possible, the control group was similar to the experimental group in terms of age, experience, skills level and business owners, to name but a few factors. The factors considered during sample selection are the sampling frame, including the following:

- Determinant 1 – Already established, start-up or potential women entrepreneurs. In

the GEM report, Orford *et al.* (2003: 9) distinguish these entrepreneurial firms by age. Potential entrepreneurs are those who are making a leap towards entrepreneurship by gathering information and obtaining resources to start a business in the near future. Start-up entrepreneurs are firms that have not yet paid wages and salaries for more than three months. Firms older than 42 months (3.5 years) are regarded as established entrepreneurs;

- Determinant 2 – Women entrepreneurs with high-growth or potentially high-growth ventures, and
- Determinant 3 – Women whose training needs matched the training content of the WEP.

**4.1 Research design**

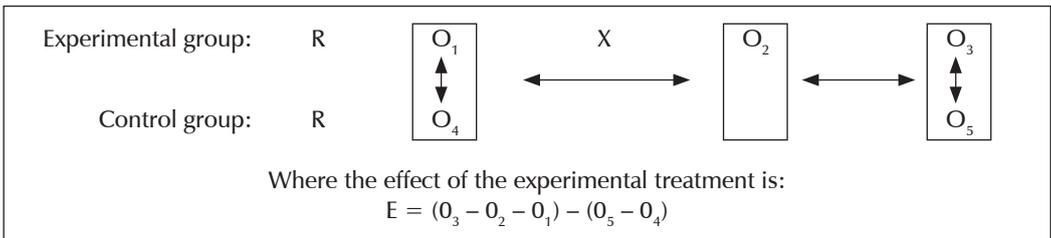
The study consists of two parts, a literature review and empirical research. The empirical part is comprised of quantitative research, in which three different research questionnaires are used to obtain information from respondents. The first questionnaire was given to respondents before the actual training took place, in order

to measure the respondents’ level of knowledge and skills as well as training expectations and needs (this is referred to as O<sub>1</sub>). The second questionnaire was given to respondents to measure their behaviours and attitudes directly after they had completed the WEP (this is referred to as O<sub>2</sub>). The third questionnaire measured the respondents’ business performance six months after they had completed the WEP (this is referred to as O<sub>3</sub>).

The study is causal in nature; there is at least one independent variable and one dependent variable in a causal relationship. In this paper the independent variable (IV) is the WEP and the dependent variables (DV) are ‘starting own businesses’ and ‘growing start-up or established businesses’. This study was based on a true experimental design, illustrated in Figure 2, which can be classified as the Pre-test-Post-Test Control Group Design in which:

- R = Randomly assigned group members to a group
- X = Exposure of a group to an experimental treatment
- 0 = Observation or measurement of the dependent variable

**Figure 2**  
The true experimental design



Source: Own compilation, as adapted from Cooper and Schindler (2001: 406)

In extension of this design, a follow-up observation (six months after the training) was added to strengthen the experimental design and improve the scientific contribution to the field of study. Figure 2 above demonstrates that the experimental group received the treatment (X) in the form of a training intervention and was

observed before the training (O<sub>1</sub>); directly after training (O<sub>2</sub>); and approximately six months after training (O<sub>3</sub>). The control group was observed (O<sub>4</sub>) concurrently with the experimental group (O<sub>1</sub>) and again approximately six months after that period (O<sub>5</sub>). The control group did not receive the treatment (X).

## 5 Hypotheses

It should be noted that experimentation provides the most powerful support possible for a hypothesis of causation. It was decided to state hypotheses in this paper rather than propositions, because a hypothesis is an empirically testable proposition (Cooper & Schindler, 2001: 136). The following hypotheses are stated:

Null hypothesis (H1o): The WEP, as a training intervention, is not effective in assisting women entrepreneurs to start their own businesses.

Alternative hypothesis (H1a): The WEP, as a training intervention, is effective in assisting women entrepreneurs to start their own businesses.

H2o: The experimental group has not gained entrepreneurial skills as well as business skills and knowledge after the completion of the WEP.

H2a: The experimental group has gained entrepreneurial skills as well as business skills and knowledge after the completion of the WEP.

H3o: There were no significant differences regarding business performance between the experimental and control groups six months after the experimental group completed the WEP.

H3a: There were significant differences regarding business performance between the experimental and control groups six months after the experimental group completed the WEP.

The acceptance or rejection of the above hypotheses, together with all the measurement levels of effectiveness as identified by Kirkpatrick (1967), Kalleberg and Leicht (1991), will be presented under the discussion of the findings in the paper.

## 6 Findings

Many researchers, such as Antonites (2003: 178) and Friedrich *et al.* (2003: 9), who have worked with control and experimental groups, agree that the control and the experimental groups must exhibit the same demographic characteristics as far as possible. As mentioned in the literature study, the gender of all the respondents (both experimental and control groups) is female.

### 6.1 Personal demographics

The majority of the experimental group are well educated. More than half (57.76 per cent) of the respondents have a national diploma and/or other tertiary qualification. A large section of the control group has only matric (Grade 12) or less than matric (40.63 per cent and 31.25 per cent respectively). The respondents are mostly English- and Zulu-speaking, probably because most of the respondents live in the Gauteng and KwaZulu-Natal Provinces, and many of the respondents were trained in Gauteng. Although all racial groups are represented in the sample, the majority of the respondents in the experimental and control groups are black (83.33 per cent) and coloured (12.78 per cent). The majority of the respondents in both groups are married (56.11 per cent). Table 2 below shows no obvious differences in race composition and marital status between the experimental and control groups.

**Table 2**  
Personal demographics of the respondents

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
<b>Education</b>						
Less than matric (Grade 12)	23	19.83	20	31.25	43	23.89
Matric (Grade 12)	26	22.41	26	40.63	52	28.89
National diploma (3 years)	31	26.72	8	12.50	39	21.67
Baccalaureus degree (3 years)	18	15.52	4	6.25	22	12.22
Post-graduate tertiary education	18	15.52	6	9.37	24	13.33
<b>Total</b>	<b>116</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>180</b>	<b>100</b>
<b>Racial composition</b>						
Black	91	78.45	59	92.19	150	83.33
Coloured	20	17.24	3	4.69	23	12.78
Indian	1	0.86	0	0.00	1	0.56
Caucasian	4	3.45	2	3.12	6	3.33
<b>Total</b>	<b>116</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>180</b>	<b>100</b>
<b>Marital status</b>						
Never married	25	21.55	13	20.31	38	21.11
Married	69	59.48	32	50.00	101	56.11
Divorced	14	12.08	12	18.75	26	14.44
Widowed	6	5.17	3	4.69	9	5.01
Living together	2	1.72	4	6.25	6	3.33
<b>Total</b>	<b>116</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>180</b>	<b>100</b>

n = Frequency  
% = Percent

## 6.2 Business demographics of the sample

The business demographics report information about the respondents' businesses. The age of

the business, annual sales/turnover, the value of capital assets, the number of employees and customers of the respondents' businesses are presented.

**Table 3**  
Business ownership of the total sample

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
Own a business	101	87.07	60	93.75	161	89.44
Do not own a business	15	12.93	4	6.25	19	10.56
<b>Total</b>	<b>116</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>180</b>	<b>100</b>

In Table 3, it is evident that the majority of the experimental and control groups were business owners (89.44 per cent), whereas only 19 (10.56 per cent) respondents (15 in the experimental group and 4 in the control group) did not own businesses. The group who were not business owners were seen as potential women entrepreneurs, as has already been discussed.

The majority of the respondents in the experimental and control groups indicated

that their businesses were categorised in the service/retail industry, the construction industry and the food/catering industry. This was not due to sampling, as sector/industry was not a parameter of interest as part of the sampling design. It is interesting to find that many women are entering the construction and manufacturing sectors (73.77 per cent of the respondents in the control group).

Table 4 is presented below to point out the annual sales/turnover of the total sample.

**Table 4**  
Annual sales/turnover of the total sample

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
0 – R150 000	58	57.43	31	51.67	89	55.28
R150 001 – R250 000	7	6.93	12	20.00	19	11.80
R250 001 – R500 000	12	11.88	6	10.00	18	11.18
R500 001 – R1 million	13	12.87	7	11.66	20	12.42
R1.01 million – R2.5 million	8	7.92	1	1.67	9	5.59
More than R2.5 million	3	2.97	3	5.00	6	3.73
<b>Total</b>	<b>101</b>	<b>100</b>	<b>60</b>	<b>100</b>	<b>*161</b>	<b>100</b>

\* Frequencies missing – potential women entrepreneurs and/or non-responses.

Table 5 is presented to highlight the value of capital assets of the total sample

**Table 5**  
Value of capital assets of the total sample

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
0 – R100 000	60	59.41	37	63.79	97	61.00
R100 001 – R250 000	19	18.81	8	13.80	27	16.98
R250 001 – R2 million	21	20.79	11	18.97	32	20.13
R2 million – R5 million	1	0.99	1	1.72	2	1.26
R5.01 million – R10 million	0	0.00	1	1.72	1	0.63
<b>Total</b>	<b>101</b>	<b>100</b>	<b>58</b>	<b>100</b>	<b>*159</b>	<b>100</b>

\* Frequencies missing – potential women entrepreneurs and/or non-responses

Although the majority of the respondents indicated that their annual sales/turnover (see Table 4) was in the R0 – R150 000 interval and the value of their capital assets (see Table 5)

was in the R0 – R100 000 interval, it is evident that there is a good distribution between the remaining intervals. Note that frequencies are missing owing to the fact that potential women

entrepreneurs could not complete this question, as they did not own a business. Table 6 below indicates the mean and standard deviation of

the respondents' average number of employees and customers.

**Table 6**  
Respondents' average number of employees and customers/clients

Measured group	N	Minimum	Maximum	Mean	Std. Deviation	*Frequency missing
<b>Average number of employees</b>						
Experimental group	100	0	130	8.75	14.63	16
Control group	55	1	50	9.25	10.39	9
<b>Average number of customers per month</b>						
Experimental group	93	0	1 000	78.03	193.56	23
Control group	41	1	420	14.83	65.50	23

\*Potential women entrepreneurs or respondents did not answer the question

Table 6 emphasises that, although the experimental group had on average more employees per business and more customers per month than had the control group, the standard deviation for both groups is very large, indicating a substantial variability in the dataset.

### 6.3 Validity and reliability of the measuring instruments

To confirm the validity and reliability of the research questionnaires used, factor analysis was carried out, and is presented in Table 7. Factor analysis was performed on the three sets of variables, and seven factors were generated. In this paper, 0.600 was used as the benchmark against which to measure the Cronbach alpha values.

From the 13 items, posed on a 5-point Likert scale, the derived first three factors delivered excellent Cronbach Alpha results as can be seen in Table 7. A value of 0.9019 was obtained for all the variables used. Factor analysis was performed on the second set of variables in the research questionnaire used, on one, two and three factors, which resulted in unsatisfactory loadings and eigenvalues as well as too-high correlations between the factors. It was decided to rerun the factor analysis, resulting in one acceptable factor (Entrepreneurial and business skills factor). The first four factors were used to determine whether skills transfer had taken place and can be seen in Table 8. From the 16 items, posed on a 4-point Likert scale, the derived last three factors delivered excellent Cronbach Alpha results. A value of 0.9020 was obtained for all the variables used.

**Table 7**  
Factor analysis

Factor labels	Factors generated	Eigen values	Cronbach alpha
<b>Four skills transfer factors</b>	Entrepreneurial characteristics	6.01185	0.8528
	Entrepreneurial orientation	1.36281	0.8294
	Business knowledge	1.00010	0.8012
	Entrepreneurial and business skills	10.8915	0.9558

<b>Three business improvement factors</b>	Business systems and strategies	6.58098	0.8440
	Financial indicators	2.11727	0.8783
	Change orientation	1.23911	0.8839

#### 6.4 Testing the statistically significant differences

The independent *t*-test (Mann Whitney U test) and Chi-square test were used to illustrate the statistically significant differences between the experimental and control groups. The

paired-sample *t*-test, Wilcoxon matched-pairs test and Chi-square test were used to measure the experimental groups before and after the training intervention (WEP).

**Table 8**

Paired sample *t*-test: Comparison of the experimental group before and after the WEP on the four skills transfer factors

Factor	Mean		Std. deviation		t-statistic	P-value
	Before WEP	After WEP	Before WEP	After WEP		
<b>Entrepreneurial characteristics</b>	4.2804	4.434	0.5220	0.4170	2.99	0.0035***
<b>Entrepreneurial orientation</b>	4.3846	4.5024	0.5362	0.4274	2.18	0.0318***
<b>Business knowledge</b>	3.5529	4.0673	0.9215	0.6612	5.39	< 0.0001***
<b>Entrepreneurial and business skills</b>	2.3104	3.5283	0.6481	0.4165	19.14	< 0.0001***

P \*\*\* Statistically significant difference

$\alpha < 0.05$  (95 % confidence level)

$\alpha < 0.001$  (99 % confidence level)

It is valuable to note that Table 8 indicates that there are statistical differences between the means before and after the WEP of the experimental group for all the skills transfer factors identified. This indicates that skills transfer took place successfully and that the experimental group gained entrepreneurial and business skills and knowledge after the completion of the WEP. These findings emphasise that the content of the WEP is effective in improving the entrepreneurial and business knowledge and skills of women entrepreneurs.

It is significant that all the individual variables included in the business knowledge as well as entrepreneurial and business skills factors showed statistically significant differences

( $p < 0.0001$ ) before and after the WEP. These variables included: drawing up financial statements, human resource management, business failure signs and causes, financial and cash-flow management, break-even analysis, risk orientation, general management, marketing of business/products/services, managing growth of the business, opportunity identification, sustainable competitive advantage, compiling a business plan, compiling a feasibility study, creativity and innovation, creative problem solving, legal aspects – business forms and registration, using role models for support and assistance; using mentors and counsellors, making use of networking opportunities, and ability to obtain financial assistance for the business. This indicates that the respondents are

now able to draw up an adequate business plan for their businesses as well as apply it practically. This finding further illustrates that the WEP is also effective in improving the respondents' operation of their businesses, which also leads

to better general management. Furthermore the Wilcoxon matched-pairs test was executed to compare the three business improvement factors before and after the WEP (see Table 9).

**Table 9**

Wilcoxon matched-pairs test: Comparison of the experimental group before and after the WEP on the three business improvement factors

Factors	Mean		Std. deviation		Wilcoxon***
	Before WEP	After WEP	Before WEP	After WEP	
<b>Business systems and strategies</b>	1.7956	3.2089	0.4144	0.5245	< 0.0001***
<b>Financial indicators</b>	1.6432	3.1181	0.5114	0.8032	< 0.0001***
<b>Change orientation</b>	1.8854	3.5304	0.4644	0.6539	< 0.0001***

\*\*\* Statistically significant difference  
 $\alpha < 0.05$  (95 % confidence level)  
 $\alpha < 0.001$  (99 % confidence level)

Table 9 indicates that there were statistical differences between the before and after measurement of the experimental group regarding the three business improvement factors. This shows that the respondents improved in their business systems and strategies, financial indicators and change orientation after they had attended the WEP. The improvement of the business systems and strategies factor illustrates the fact that the experimental group were able to improve their systems in their businesses and to facilitate strategies for improvement in the future. It should also be noted that the respondents' financial indicators:

turnover, profit, return of investment and assets had increased significantly after the six-month period. This is unexpected, as six months is a very short period and improvement was expected only 12 to 18 months after the training intervention. The improvement of the last factor, change orientation, indicated that the entrepreneurs' attitude, management style and outlook were more positive after the WEP. The next step is to compare the experimental group against the control group in respect of the three business improvement factors, which is highlighted in Table 10.

**Table 10**

Independent t-test: Comparison of the experimental and control groups after the WEP on the three business improvement factors

Factor	Mean		Std. deviation		Mann-Whitney***
	Experimental group	Control group	Experimental group	Control group	
<b>Business systems and strategies</b>	1.4133	0.2729	0.4816	0.4661	< 0.0001***
<b>Financial indicators</b>	1.4748	0.2733	0.7413	0.5345	< 0.0001***
<b>Change orientation</b>	1.6449	0.2283	0.6665	0.4829	< 0.0001***

\*\*\* Statistically significant difference  
 $\alpha < 0.05$  (95% confidence level)  
 $\alpha < 0.001$  (99% confidence level)

From Table 10 it is evident that the means of the three business improvement factors were much higher for the experimental group than for the control group. This shows that the experimental group improved more than did the control group regarding their business systems and strategies, financial indicators and change orientation. Because this measurement was done after the experimental group received the training intervention, it is obvious that the experimental group improved significantly after attending and completing the programme. It is worth mentioning that the WEP had a psychological effect (change orientation factor) on the respondents, and they also indicated an improvement in their physical business operations (business systems and strategies and financial indicators factors) six months after the training intervention had taken place.

It can now be concluded that the experimental group improved in all seven factors identified in the factor analysis after attending the WEP. This confirms the WEP as a national and international benchmark against which other organisations and institutions can measure the content of their entrepreneurial programmes.

#### 6.4.1 Business performance indicators

This section deals exclusively with the post-training success measures (Kirkpatrick, 1967) and the primary performance measures (Kalleberg & Leicht, 1991) by focusing on the business performance indicators of the respondents' businesses. These business performance indicators will give an indication of whether the respondents' businesses had grown six months after the experimental group attended the WEP. Tables 11 and 12 compare the business performance indicators of the experimental group before and after the WEP.

**Table 11**

Chi-square test: Comparison between the before and after measurement of the experimental group regarding business performance indicators

Variable	Frequency (n)	Chi-Square value	P-value
Annual sales/turnover	88	98.9070	< 0.0001***
Value of capital assets	89	52.5964	< 0.0001***
Success of the businesses	88	22.7349	0.0068***
Profitability of the businesses	87	29.8625	0.0005***
Break-even point	77	38.9736	< 0.0001***
Satisfaction of the customers	88	12.1906	0.2028

P \*\*\* Statistically significant difference

$\alpha < 0.05$  (95% confidence level)

$\alpha < 0.001$  (99% confidence level)

The Chi-square test (Table 11) was used for all the variables that were categorical (ordinal) data and the Wilcoxon matched-pairs test (Table 12) was used for the ratio/interval data.

**Table 12**

Wilcoxon matched-pairs test: Comparison between the before and after measurement of the experimental group regarding business performance indicators

Factor	Mean		Std. deviation		Wilcoxon***
	Before WEP	After WEP	Before WEP	After WEP	
Number of employees	8.8256	19.7558	15.3961	60.3242	< 0.0001***
Number of customers	88.7564	104.5000	208.7524	224.8285	0.0201***

\*\*\* Statistically significant difference

$\alpha < 0.05$  (95% confidence level)

$\alpha < 0.001$  (99% confidence level)

It is of interest that there are statistically significant differences regarding all the above business performance indicators (see Tables 11 and 12), between before and after the respondents attended the WEP, except for the satisfaction of the respondents' customers. This is because the majority of the respondents stated before the WEP that their customers were satisfied with the service and/or products that they received from their businesses. The findings indicated that 87.88 per cent of the respondents stated that their customers were satisfied before the WEP, and 94.57 per cent of the respondents stated that their customers were satisfied six months after the WEP. One shortcoming of the chi-square test as a statistical technique is that it does not measure sufficiently finely to bring out small but significant differences. However, all the other business performance indicators improved significantly, although customer satisfaction did not improve as radically. This is a remarkable finding, as it had been expected that there would not be time in the relatively short

six-month time period to show improvement regarding the business performance indicators. This proves, in actual fact, that the WEP assisted the experimental group in growing their businesses.

The respondents' degree of improvement or deterioration was also measured in terms of the above business performance indicators after the six-month period. For the experimental group, improvement took place in all the above-mentioned variables, except the value of capital assets and the break-even point, where the majority of the respondents stayed the same. For the control group, improvement took place in the number of employees and customers as well as the profitability and break-even point of their businesses. Customer satisfaction was the variable where deterioration took place radically for the control group.

In Tables 13 and 14, the significant differences in the experimental group will now be compared with those of the control group regarding the business performance indicators.

**Table 13**

Chi-square test: Comparison of the experimental and control groups regarding their business performance indicators

Variable	Frequency		Chi-Square value	P-value
	Experimental group	Control group		
Annual sales/turnover	92	50	7.4561	0.0240***
Value of capital assets	93	48	1.6480	0.4387
Success of the businesses	91	50	7.5547	0.0229***
Profitability of the business	91	50	0.4376	0.8035

<b>Satisfaction of the customers</b>	92	50	5.3746	0.0681
<b>Break-even point</b>	90	50	0.5748	0.7502

P \*\*\* Statistically significant difference

$\alpha < 0.05$  (95% confidence level)

$\alpha < 0.001$  (99% confidence level)

The Chi-square test (Table 13) was used for all the variables that were categorical (ordinal) data

and the Wilcoxon matched-pairs test (Table 14) was used for the ratio/interval data.

**Table 14**

Mann Whitney U test: Comparison of the experimental and control groups regarding their business performance indicators

Factor	Mean		Std. deviation		Mann-Whitney***
	Experimental group	Control group	Experimental group	Control group	
<b>Number of employees</b>	8.8256	9.8158	15.3961	11.6291	0.0024***
<b>Number of customers</b>	88.7564	4.0000	208.7524	6.5053	0.0424***

\*\*\* Statistically significant difference

$\alpha < 0.05$  (95% confidence level)

$\alpha < 0.001$  (99% confidence level)

The four variables that indicated statistically significant differences between the experimental and control groups were: annual sales/turnover, success of the business, number of employees and number of customers. These findings are interesting yet contradictory, considering the previously-indicated tables in which there were significant differences between the before and after six months measurement within the experimental group. This indicates that the control group also improved to a certain degree as far as the value of their capital assets, profitability of the businesses and break-even point were concerned. It can be concluded that these findings were not brought about by the WEP, because the control group did not attend the programme. There could be various reasons for the occurrence, such as the favourable economic situation in South Africa, inflation, seasonality of businesses and the fact that the majority of the control group fell in the construction industry (73.77 per cent), which enjoyed enormous growth in 2004 and 2005.

## 7

### Discussion of findings

Tables 15 and 16 summarise the findings of each measurement level (Kirkpatrick, 1967) and the key performance measures (Kalleberg & Leicht, 1991) that were used to determine the effectiveness of the WEP in this paper.

**Table 15**  
Measurement levels used to determine the effectiveness of the WEP  
on the experimental group

Type of measurement level	Findings
Reaction measures	104 (98.12 %) respondents were satisfied with the WEP and indicated that they would recommend the programme to a friend or colleague.
Learning measures	The p-value for <b>all four skills transfer factors</b> (0.0035***, 0.0318***, <0.0001*** and <0.0001***, respectively) confirmed statistically significant differences between the before and after measurement (Table 8).
Behaviour measures	The Wilcoxon statistic for <b>all three business improvement factors</b> was $p < 0.0001^{***}$ , respectively (Table 9). The respondents applied and improved various skills in their businesses, of which improving the management and operations of their businesses and improving motivation and confidence were the most frequently-mentioned areas.
Post-training success measures	The Wilcoxon statistic for <b>all three business improvement factors</b> was $p < 0.0001^{***}$ , respectively (Table 9). See Tables 11 and 12 for p-values of business performance indicators.

P \*\*\* Statistically significant difference

**Table 16**  
Key performance measures used to determine the effectiveness of the  
WEP on the experimental group

Key performance measures	Findings
Primary performance measures	See post-training success measures (Table 15).
Proxy performance measures	See methodology (sampling frame).
Subjective measures	<b>Change orientation factor</b> ( $p < 0.0001^{***}$ ). There was a statistically significant difference in the respondents' behaviour before and after the WEP.
Entrepreneurial performance measures	Five (33.33%) potential women entrepreneurs started a business and 36 (33.96%) start-up and already-established women entrepreneurs started multiple businesses. After six months, all of the start-up and already-established respondents in the experimental group owned the same business that they had owned before the WEP, whereas two respondents (4%) from the control group no longer owned a business after six months.

P \*\*\* Statistically significant difference

From tables 15 and 16, it is evident that the WEP, as a training intervention, was effective when measured according to the above measurement levels.

Finally, it is necessary to revisit the hypotheses stated earlier in the paper. Based on the empirical findings, summarised in Tables 15 and 16, all the null hypotheses are rejected and the alternative hypotheses accepted.

## 8 Conclusion

The literature review introduced various important elements within the field of entrepreneurship and specifically in the context of education and training programmes.

Four skills transfer and three business improvement factors were identified in

this paper, and it was pointed out that the experimental group improved significantly regarding these factors after they had attended the WEP. This paper proved statistically that the WEP is not only effective in providing skills to women entrepreneurs but also encourages potential women entrepreneurs to start their own businesses and start-up, and established entrepreneurs to start multiple businesses.

Based on the effectiveness of the WEP, the most valuable output from this study has been the development of a framework for entrepreneurship training. Such a framework for entrepreneurship training programmes would be of benefit to designers, providers and funders of entrepreneurship programmes. For example, first-time programme providers could implement this framework in the absence of their own. In addition, experienced programme providers could compare the WEP framework with their own and make amendments accordingly. This is a contribution to the field, proving statistically that the WEP is effective in training entrepreneurs. Furthermore, this paper could be used to point out to potential funders and sponsors the benefits and values of providing funding for such a training intervention. The WEP framework suggested is comprehensive, incorporating pre-, during- and post-programme elements, with built-in programme evaluation. The inclusion of the profiling phase, as indicated in Figure 1, will significantly improve the quality of application received by the programme providers, and will give the programme delegates an indication of how they can expect to benefit from the programme. One of the most novel aspects of the framework developed in this research is the much-needed post-programme follow-up support. While this is excluded from most programmes on account of budget constraints, such follow-up support need not be expensive.

### 8.1 Limitations of the paper

Although the paper aimed at measuring the various levels of effectiveness of the training intervention, this was only a starting point and it is therefore acknowledged that there are limitations, namely:

- The respondents were aware that research was being conducted, so the usefulness of the research design might have been reduced. The main interference was that some delegates did not finish the WEP due to illness, work-related circumstances or lack of transport;
- The six-month period following the training intervention is too short to fully measure the impact of the WEP on the delegates' businesses. It was not practically possible to widen the time-frame of the study owing to budget and time constraints; and
- It could be claimed that the changes and improvements that occurred within the respondents' attitudes and behaviours, as well as the growth of their businesses, were not due to the WEP alone. It could be suggested that these occurrences could have been influenced by other external factors such as a favourable economic situation or the entrepreneur's personal life.

### 8.2 Recommendations and further research

The following opportunities were identified and recommendations made namely:

- More studies of effectiveness using control groups and including longitudinal designs are needed, so that findings from research like this one can achieve greater external validity.
- The ideal situation would be to measure the experimental group again after 18 months and then again after three years to really determine the impact that the WEP had on the experimental group's businesses.
- A comparative study could be done when the WEP is conducted in other countries and the results compared with this study.
- Furthermore, it is suggested that effectiveness studies making use of longitudinal designs should incorporate a co-variance model within the study. The purpose of such a model is to keep all external factors, such as the economy, inflation, and seasonality, constant in order for the researcher to determine that the changes

in respondents' businesses were due to the training programme and not to other factors.

- In addition, issues like the impact on effectiveness of different pedagogical methods used to deliver entrepreneurship programmes, as well as the particular entrepreneurial experience of the trainers/facilitators involved, also need to be considered.
- The WEP framework, as introduced in this study, could be used as a basis for other entrepreneurship training programmes to train both genders simultaneously to see whether the programme would be effective for male entrepreneurs as well. A comparative study between men and women entrepreneurs could then be done to measure their skills transfer factors and business performance indications after such an intervention.
- Finally, based on fact that the WEP was statistically proven to be effective, developers of entrepreneurial training programmes should include the following concepts in their programmes (See table 1 and figure 1):
  - Entrepreneurial performance,
  - Entrepreneurial motivation,
  - Entrepreneurial skills (focusing on the use of role models, social skills and change orientation),
  - Business skills,
  - Needs analysis of participants,
  - Facilitators' experience and participation,
  - Approaches to learning,
  - Business plan utilisation, and
  - Using business mentors and counselors.

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