Chapter 7: Research findings

"Even if an entrepreneurship training programme includes the best knowledge and skills (content) about new venture creation and business growth as its outputs, there is no guarantee that participants will start businesses or improve their business performance indicators (profit and turnover) unless their mindset, willingness to take risks, confidence, attitudes and behaviour have been influenced as well."
- Pretorius *et al.* (2005: 424)

7.1 Introduction

The literature study revealed the need for an entrepreneurship training programme specifically for women, and that it is necessary to measure the effectiveness of such a programme. The key motivation behind this study was to identify whether the WEP, as a training intervention, is effective in training women to start and grow their own businesses, and to investigate any notable differences or similarities between the experimental and control groups. This chapter focuses on summarising and interpreting the research findings and descriptive statistics, based on the responses from the respondents who completed the quantitative research questionnaires.

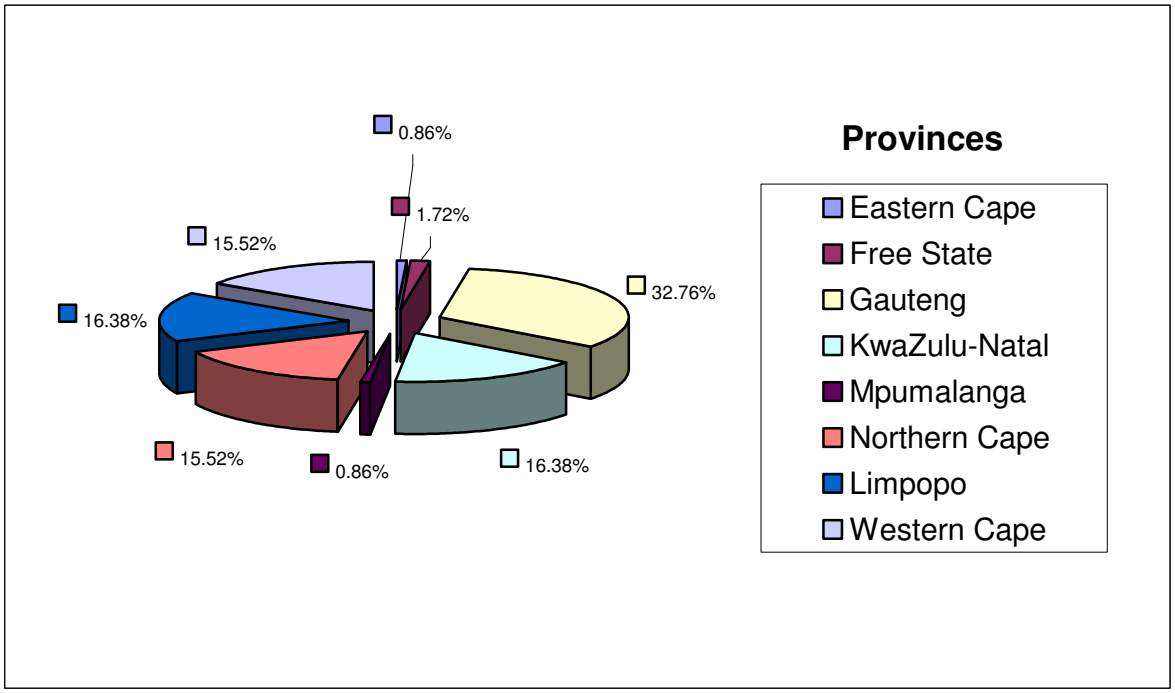
The first section of this chapter reports on the demographic profile of the experimental (116 respondents) and control (64 respondents) groups. The experimental group which attended the WEP was discussed in Chapter 5, Table 5.2. There are six different groups from various provinces in South Africa within this experimental group. The control group were women entrepreneurs chosen from different industries who mainly operated their businesses in the Gauteng province. The second section focuses on the business demographics of the respondents and examines all essential business information that was reported before the experimental group received the treatment (training intervention). The next section focuses on describing the respondents' satisfaction with the WEP as well as their expectations about the WEP before they attended the programme and whether those expectations had been met after the programme. Fourthly, the results of the factor analysis are presented to illustrate the reliability and validity of the measuring

instruments that were used in this study. The next section focuses on the significant differences between the experimental and control groups, and the *t*-tests, Chi-square tests and Kruskal-Wallis One-Way Analysis of Variance (ANOVA) are presented. The fifth section of this chapter comprises the statistical techniques used to measure the effectiveness of the WEP, specifically regarding the business performance indicators. The final section of this chapter focuses on providing general comments on open-ended questions from the respondents regarding the effectiveness of the WEP.

7.2 Personal demographics of the sample

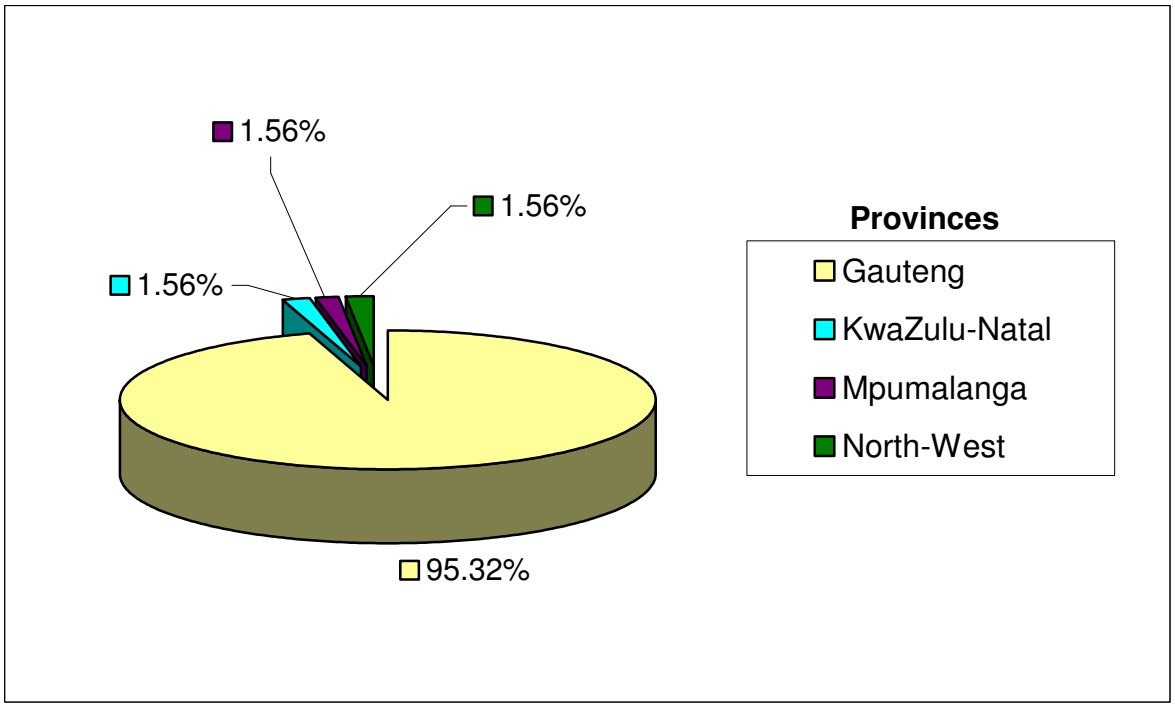
Many researchers, such as Antonites (2003: 178) and Friedrich *et al.* (2003: 9), who have worked with control and experimental groups, agree that the control and the experimental groups must exhibit the same demographic characteristics as far as possible. As mentioned in the literature study the gender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

Figure 7.1: The geographical distribution of the experimental group by province



The experimental group comprised women from the provinces indicated in Figure 7.1. The majority of the experimental group are situated in Gauteng province, probably due to the fact that two groups were trained in Gauteng, while in the remaining provinces only one group per province was trained. Mpumalanga and the Eastern Cape provinces were not included in this sample and this explains why there is only one respondent from each of these provinces.

Figure 7.2: The geographical distribution of the control group by province



The control group comprised women from the provinces indicated above in Figure 7.2. The majority of the respondents in the control group are situated in Gauteng province, whereas only one respondent came from KwaZulu-Natal, Mpumalanga and the North-West Province, respectively. The reason for this is that the control group were measured at a women's meeting in Gauteng.

The average age of the respondents is indicated in Table 7.1, where the mean as well as the standard deviation are presented. The arithmetic mean ($\overline{X}$) is also referred to as the arithmetic average and can be defined as the sum of a set of values divided by their number (Diamantopoulos and Schlegelmilch, 2002: 97).

According to Cooper and Schindler (2001: 475) the standard deviation (s) shows the variation about the average of the data, in other words it summarises how far away from the average the data values typically are.

Table 7.1: Average age of respondents (experimental and control groups)

Measured groups	Frequency (n)	Minimum age	Maximum age	Mean	Standard deviation	Frequency missing
Experimental group	113	24	60	41.78	7.82	3
Control group	60	25	64	43.17	7.46	4

Although the experimental group has more respondents than the control group, there is no significant age difference between the two groups. The minimum and maximum ages and the average age (mean) of the respondents for both the experimental and the control groups are almost identical. The standard deviation for both groups is relatively large, which implies that the variability of the dataset is sufficient to continue with parametric tests.

The other personal demographics, including highest level of qualification, home language, racial composition and marital status, are presented in Tables 7.2 – 7.5. These tables indicate the frequency and percent age of the experimental and control groups as well as the frequency and percent age of the total sample.

Table 7.2 is presented on the next page.

Table 7.2: Highest level of qualification of the total sample

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
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
Total	**116**	**100**	**64**	**100**	**180**	**100**

n = Frequency

% = Percent

The majority of the experimental group are well educated. More than half (57.76 %) of the respondents have a national diploma and/or other tertiary qualification. This is probably because when the experimental group was screened for inclusion to attend the WEP, they had to either have matric (Grade 12) or a higher qualification and/or a viable business opportunity (if they were not business owners). The majority (40.63 %) of the control group have only matric (Grade 12). Although it is evident that the experimental group is on average more educated than the control group, respondents with less than matric (Grade 12) were also included in the sample if they owned their own businesses or had the potential to be a business owner.

Table 7.3 is presented on the next page.

Table 7.3: Home language of the total sample

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
Zulu	24	20.69	17	28.33	41	23.30
English	25	21.55	4	6.67	29	16.48
Xhosa	17	14.66	4	6.67	21	11.93
South-Sotho	7	6.04	14	23.33	21	11.93
Tswana	10	8.62	4	6.67	14	7.95
Ndebele	1	0.86	0	0.00	1	0.57
Tsonga/ Shangaan	9	7.76	3	5.00	12	6.82
North-Sotho/ Sepedi	16	13.79	9	15.00	25	14.20
Afrikaans	6	5.17	2	3.33	8	4.55
Venda	1	0.86	3	5.00	4	2.27
Total	**116**	**100**	**60**	**100**	**176**	**100**

Frequency missing = 4 (control group)

The respondents in the experimental group are mostly English- and Zulu-speaking, probably due to the fact that most of the respondents live in Gauteng and KwaZulu-Natal Provinces and many of the respondents were trained in Gauteng. The respondents in the control group are mostly Zulu and South-Sotho speaking, because many of the respondents live in the Gauteng province and data was gathered in this province.

Table 7.4: Racial composition of the total sample

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
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	3.13	6	3.33
Total	**116**	**100**	**64**	**100**	**180**	**100**

Although all racial groups are included in the sample, the majority of the respondents in the experimental and control groups are black (83.33 %) and a few coloured (12.78 %).

Table 7.5: Marital status of the total sample

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
Never married	25	21.55	13	20.31	38	21.11
Married	69	59.48	32	50.00	101	56.11
Divorced	14	12.07	12	18.75	26	14.44
Widowed	6	5.17	3	4.69	9	5.01
Living together	2	1.73	4	6.25	6	3.33
Total	**116**	**100**	**64**	**100**	**180**	**100**

The majority of the respondents in both groups are married (56.11 %). There are no significant differences regarding the race composition and marital status between the experimental and control groups.

7.3 Business demographics of the sample

The business demographics report information about the respondents' businesses. The experimental and control groups had to have similar business biographical characteristics, as far as possible, before the experimental group received the treatment. The reason for this is to enable the groups to be compared against each other and to be representative of the population at large. The first section investigates the ownership of own businesses for both the experimental and control groups. The age of business, industry/sector of main business, annual sales/turnover, value of the capital assets, number of employees and customers of the respondents' businesses are presented. These variables, as well as the successfulness, profitability and break-even point of the respondents' businesses, will be used in section 7.7 as business performance indicators to measure the effectiveness of the WEP.

Table 7.6: 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
Total	**116**	**100**	**64**	**100**	**180**	**100**

It is evident that the majority of the experimental and control groups were business owners (89.44 %), whereas only 19 (10.56 %) respondents (15 experimental and four control group) did not own businesses. The group who were not business owners were seen as potential women entrepreneurs, as already discussed in the literature study. They were included in this study due to the screening stage (Chapter 5) which indicated that they had the potential to start an own business and had a viable business opportunity. Of the 19 potential women entrepreneurs, seven respondents (five – experimental group and two – control group) indicated that they would like to start a business within six months after they were measured the first time.

The potential women entrepreneurs within the experimental group were then asked whether they wanted to start their own businesses directly after the WEP, and all 15 indicated that they wanted to start a business within six months from that point.

The actual situation after six months revealed that five (33.33 %) out of the possible 15 respondents from the experimental group had actually started their own businesses. Only four respondents had not started their own businesses, while the other six were not available for follow-up after the six-month period. Out of the start-up and already established women entrepreneurs, 36 respondents (33.96 %) from the experimental group started another business after the WEP. Three respondents (75 %) from the control group started their own businesses within six months and none of these 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 WEP, whereas two respondents (4 %) from the control group did not own a business any more after six months.

Data on the form of business ownership was collected but is not presented, as it does not contribute to the research findings. Therefore it can only be mentioned that the majority of the experimental (67.96 %) and control (96.72 %) groups stated that their form of business ownership was Close Corporations (CC).

Table 7.7: Year when respondents started their businesses

Category	Variable	Experimental group		Control group		Total sample	
		n	%	n	%	n	%
Already established	1985 – 1995	9	8.91	4	6.78	13	8.13
	1996 – 1999	14	13.86	11	18.64	25	15.62
	2000	8	7.92	3	5.08	11	6.88
	2001	12	11.89	4	6.79	16	10.00
Start-up	2002	26	25.74	6	10.17	32	20.00
	2003	13	12.87	5	8.47	18	11.25
	2004	11	10.89	26	44.07	37	23.12
	2005	8	7.92	0	0.00	8	5.00
	Total	**101**	**100**	**59**	**100**	***160**	**100**

*** Frequencies missing (experimental group = 15 and control group = 5) - respondents were not business owners (potential women entrepreneurs).**

The respondents who owned their own businesses were asked to provide an indication of the year when they started their businesses and these results indicate the age of the business that was reported in this study. As seen from the Table 7.7, these respondents can be categorised as either already established or start-up women entrepreneurs (refer section 1.4 in Chapter 1) and the data can be summarised as follows:

- **Experimental group**

  Potential women entrepreneurs = 15 (12.93 %)

  Start-up women entrepreneurs (2002 – 2005) = 58 (50.00 %)

  Already established women entrepreneurs (older than 2002) = 43 (37.07 %)

  Total – 116

- **Control group**

  Potential women entrepreneurs = 4 (6.35 %)

  Start-up women entrepreneurs (2002 – 2005) = 37 (58.73 %)

  Already established women entrepreneurs (older than 2002) = 22 (34.92 %)

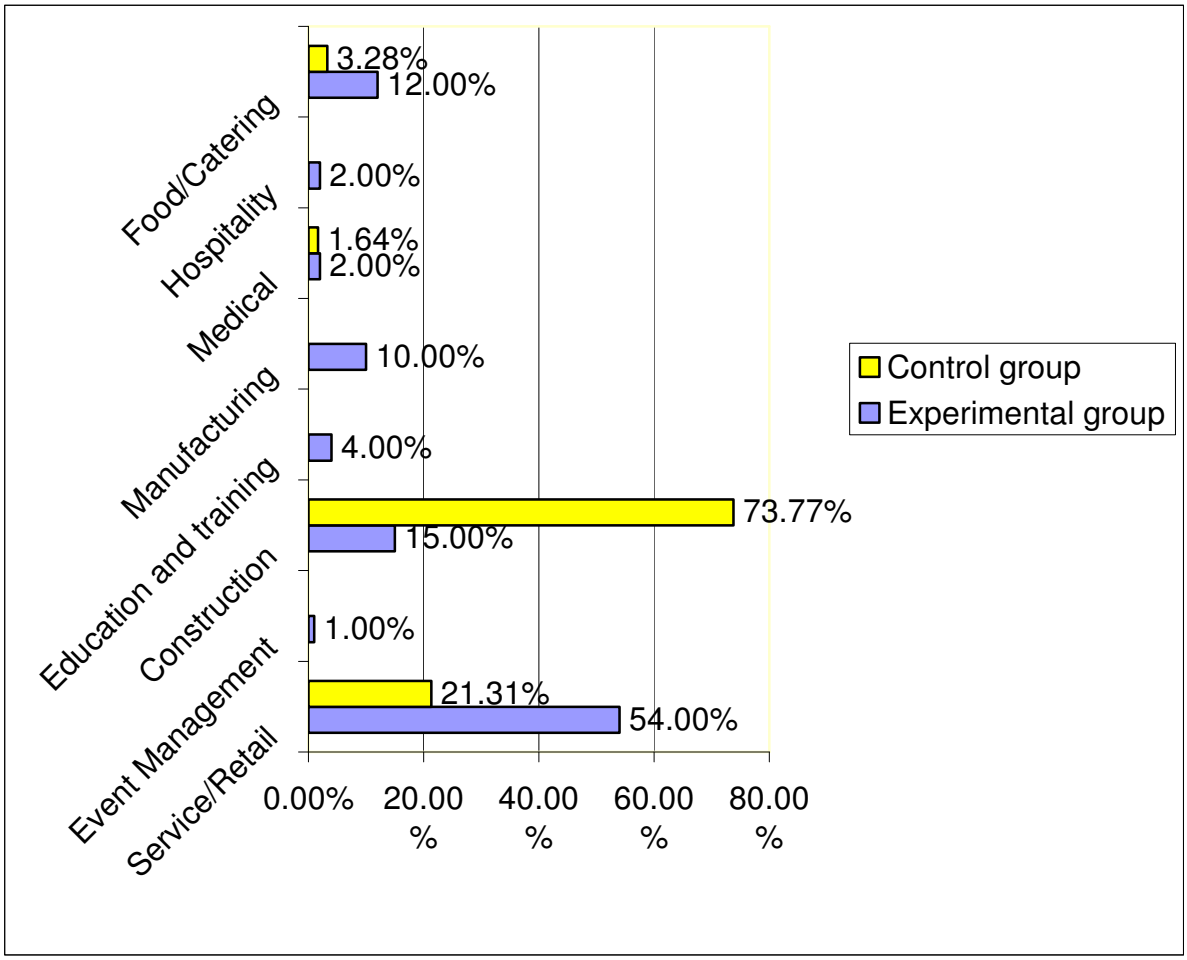
  Total – 63 (one respondent did not indicate)

The number of years in existence was similar for the experimental and control groups, as can be seen from Table 7.7. This finding also testifies to the fact that the experimental and control groups had to have the same characteristics, opinions and perceptions before the WEP.

Most of the respondents from the experimental group started their businesses in 2002 or between 1996 and 1999, whereas most respondents from the control group started their businesses in 2004 or between 1996 and 1999. It is interesting to note that there is a difference between the experimental and control groups regarding business start-up in 2004. There were no business start-ups recorded for the control group in 2005 due to the fact that the data was collected from these respondents in 2004.

Figure 7.3 on the next page illustrates the sectors/industries into which most of the respondents' businesses fell.

Figure 7.3: Experimental and control groups' distribution per sector/industry



The majority of the respondents in the experimental group indicated that their businesses were categorised in the service/retail industry, the construction industry and the food/catering industry. The majority of the respondents in the control group indicated that their businesses fell into the construction industry, the service/retail 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 % of the respondents in the control group).

The following business performance indicators are reported as an indication of how the business profile appeared before the WEP. The annual sales/turnover and value of the capital assets for both groups was reported before the experimental group received the WEP. The results are tabled and presented in Tables 7.8 – 7.10.

Table 7.8: Annual sales/turnover of the total sample

Variable	Experimental group		Control group		Total sample	
	n	%	n	%	n	%
0 – R150 000	58	57.43	31	50.82	89	54.94
R150 001 – R250 000	7	6.93	12	19.67	19	11.73
R250 001 – R500 000	12	11.88	7	11.48	19	11.73
R500 001 – R1 million	13	12.87	7	11.48	20	12.35
R1 million – R2.5 million	8	7.92	1	1.64	9	5.55
More than R2.5 million	3	2.97	3	4.92	6	3.70
Total	**101**	**100**	**61**	**100**	***162**	**100**

*** Frequencies missing - respondents were not business owners.**

Although the majority of the respondents indicated that their annual sales/turnover was in the 0 – R150 000 interval, it is evident that there is a good distribution between the remaining intervals. Note that frequencies are missing due to the fact that potential women entrepreneurs could not complete this question, as they did not own a business.

Table 7.9: 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	13.79	27	16.98
R250 001 – R2 million	21	20.79	11	18.98	32	20.13
R2 million – R5 million	1	0.99	1	1.72	2	1.26
R5 million – R10 million	0	0.00	1	1.72	1	0.63
Total	**101**	**100**	**58**	**100**	***159**	**100**

*** Frequencies missing - respondents were not business owners.**

Although the biggest percentage of the respondents indicated that their value of capital assets was in the 0 – R100 000 interval, it is evident that there is a good distribution between the remaining intervals.

Table 7.10:Respondents' average number of employees and customers/clients

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

***Respondents were not business owners or did not answer the question.**

Although the experimental group has on average more employees per business and more customers per month than the control group, the standard deviation for both groups is very large, which indicates that there is substantial variability in the dataset. The significance of this variability will be tested in section 7.7 and the influence of a small number of respondents will be taken into consideration.

The experimental group has now been compared with the control group concerning the following variables: geographic composition, age, education, home language, race, marital status, business ownership, age of business, sector/industry, annual sales/turnover, value of capital assets, number of employees and customers/clients. The differences and similarities between the measured groups will further be investigated in section 7.6.

7.4 Respondents' satisfaction and expectations regarding the WEP

The appropriate Chi-square test was executed on the relevant satisfaction and expectations' variables and did not indicate any significant differences between the before, after and six months after the WEP measurement. This was due to the data not showing a discrepancy between the before, after and six months after the WEP measurement. However, the following descriptive statistics are presented to show the experimental group's satisfaction and expectations regarding the WEP. The respondents were given a list of expectations that they could agree or disagree with and the list was based on the needs analysis already explained in Chapter 4, section 4.6.1. The control group also had the opportunity to provide their expectations from such a training intervention if they should get the opportunity to do the programme.

7.4.1 Respondents' satisfaction with the WEP

The responses recording the experimental group's satisfaction with the WEP were gathered directly after they attended and completed the WEP and are described in Table 7.11.

After the completion of the WEP, the experimental group were asked whether the WEP content could be useful to them in starting and/or growing their own businesses and 105 respondents (99.06 %) indicated yes; only one respondent did not answer the question.

104 respondents (98.11 %) indicated that they would recommend the WEP to a friend or colleague.

Table 7.11 is presented on the next page.

Table 7.11: The experimental group's satisfaction with the WEP

Variable	Level of satisfaction							
	Highly satisfied		Fairly satisfied		Dissatisfied		Highly dissatisfied	
	n	%	n	%	n	%	n	%
General satisfaction with the content of the WEP	97	91.52	7	6.60	1	0.94	1	0.94
Preparing a business plan	101	95.28	4	3.78	1	0.94	0	0.00
Presenting the business plan to peers, facilitator and financial institutions	85	80.95	17	16.19	3	2.86	0	0.00
General satisfaction with the facilitators	98	92.45	6	5.67	1	0.94	1	0.94
The facilitators' attitudes and enthusiasm	102	96.23	3	2.83	1	0.94	0	0.00
The facilitators' practical business experience	98	92.45	6	5.67	1	0.94	1	0.94
The facilitators' ability to encourage interaction and participation	99	93.40	7	6.60	0	0.00	0	0.00

Note that if the sample was less than 106 for certain questions, some respondents did not complete the question. Generally, the majority of the respondents were satisfied with the WEP in terms of the variables listed in Table 7.11. The two respondents that stated that they were dissatisfied with the WEP indicated that the reason was that they needed more information on financial elements of a business. A possible reason why the respondents' level of satisfaction in terms of the presentation of the business plans to peers and financial institutions is lower than that for the other variables, is that the respondents waited extremely long for feedback from the financial institutions with the adjudication of the business plans.

7.4.2 Respondents' expectations regarding the WEP

Table 7.12 indicates the experimental groups' expectations regarding the WEP before they attended the programme and whether those expectations had been met directly after the WEP and then again six months after they attended the programme. The respondents had to indicate whether they agreed or disagreed that the WEP would assist them or have assisted them with regard to the variables listed in Table 7.12. As mentioned previously, it is obvious that before, directly after and six months after the WEP responses, did not vary enough to indicate significant differences between the means, therefore this section is only described.

Table 7.12 is presented on the next page.

Table 7.12: The experimental group's expectations regarding the WEP

Variables (Expectations)	Before the WEP (n = 116)				Directly after the WEP (n = 106)				Six months after the WEP (n = 98)			
	Disagree		Agree		Disagree		Agree		Disagree		Agree	
	n	%	n	%	n	%	n	%	n	%	n	%
To start your own business	3	2.68	109	97.32	3	3.03	96	96.97	11	11.96	81	88.04
To grow your own business	3	2.68	109	97.32	3	3.03	96	96.97	2	2.06	95	96.94
To compile a business plan	4	3.51	110	96.49	3	2.83	103	97.17	0	0.00	98	100.00
To be more creative	4	3.45	112	96.55	2	1.90	103	98.10	4	4.12	93	95.88
To develop new products/services within your business	6	5.41	105	94.59	1	0.95	104	99.05	6	6.19	91	93.81
Networking with other women entrepreneurs	1	0.88	113	99.12	2	1.90	103	98.10	2	2.08	94	97.92
Financial and cash-flow planning	1	0.86	115	99.14	3	2.83	103	97.17	2	2.04	96	97.96
To market your products/services/business	1	0.88	113	99.12	2	1.92	102	98.08	2	2.06	95	96.94
Growth in net value of your business	2	1.79	110	98.21	2	1.92	102	98.08	8	8.25	89	91.75
Recruitment of employees	18	16.67	90	83.33	6	5.83	97	94.17	15	17.65	70	82.35
Increasing productivity levels	1	0.90	110	99.10	3	2.88	101	97.12	6	6.12	92	93.88
Increasing profitability	2	1.79	110	98.21	1	0.96	103	99.04	8	8.16	90	91.84

It is remarkable to find that the majority of the respondents indicated that their expectations were met directly after the WEP and six months after they attended the programme. However, some respondents disagreed that the programme assisted them to start their own businesses, as the majority of the respondents already had their own businesses. The following variables showed a slight deviation in terms of the actual situation: growth in net value of business, recruitment of employees, increasing productivity levels and increasing profitability. This might be due to the fact that with regard to these variables, respondents probably needed a significant time to actually perceive what the effect of the training intervention was. However, it should be noted that there were positive responses after the short six-month period.

The control group were also asked what their expectations were about such a training programme if they should get an opportunity to do the programme, and their responses are highlighted in Table 7.13.

Table 7.13: The control group's expectations about the WEP

Variables (Expectations)	Frequency - N = 50 (Percent)			
	Disagree		Agree	
	n	%	n	%
To start your own business	10	20.83	38	79.17
To grow your own business	2	4.08	47	95.92
To compile a business plan	2	4.17	46	95.83
To be more creative	3	6.25	45	93.75
To develop new products/services within your business	5	10.00	45	90.00
Networking with other women entrepreneurs	2	4.00	48	96.00
Financial and cash-flow planning	4	8.16	45	91.84
To market your products/services/business	5	10.00	45	90.00
Growth in net value of your business	3	6.00	47	94.00
Recruitment of employees	4	8.00	46	92.00
Increasing productivity levels	4	8.00	46	92.00
Increasing profitability	3	6.12	46	93.88

The majority of the control group had their own businesses, which is why they did not expect the WEP to assist them to start a business. It is interesting to find that both the experimental and control groups' expectations were high in terms of the above-mentioned variables.

A needs analysis was also done on the control group, who did not attend the WEP. The control group were asked, if they should get the opportunity to attend the programme, which business topics they would like to learn more about. As this was an open-ended question, the most frequently mentioned topics were:

- How to manage and run a business;
- Financial planning and how to obtain financial assistance;
- Compiling a business plan;
- Marketing of the business;
- Networking with other business people;
- Customer service; and
- How to grow a business.

It is worth mentioning that all the business topics cited by the control group are covered during the six-day WEP. This again testifies to the fact that the experimental and control groups had the same opinions, expectations and perceptions before the former attended the programme.

7.5 Validity and reliability of the measuring instruments

To confirm the validity and reliability of the measuring instruments, factor analysis was executed. As mentioned in Chapter 6, factor analysis looks for patterns among the variables to discover whether an underlying combination of the original variables (a factor) can summarise the original set. Factor analysis attempts to reduce the number of variables and discover the underlying constructs that explain the variance (Cooper & Schindler, 2001: 214; 574; 604).

Factor analysis was done on variables from all three research questionnaires used in this study in which respondents answered the questions the first time. The variables

were sorted and rotated to illustrate the different factors. The values are presented from the highest to the lowest, as evident in Tables 7.14, 7.17 and 7.18.

Table 7.14: Rotated factor analysis of respondents' entrepreneurial characteristics, orientation and business knowledge before the WEP

Variable no.	Description of Variable	Loadings		
		Factor 1	Factor 2	Factor 3
V46	Persistence and determination	**0.802**	0.000	0.000
V48	Need for achievement	**0.799**	0.000	0.000
V49	Leadership abilities	**0.767**	0.000	0.000
V51	Good communication skills	**0.684**	0.000	0.000
V47	Being independent and in control	**0.675**	0.000	0.000
V50	Knowledge of competitors	**0.567***	0.000	0.258
V39	Taking advantage of an opportunity	**0.303**	0.000	0.000
V42	Enthusiasm	0.000	**0.817**	0.000
V43	Performance motivation	0.000	**0.771**	0.000
V41	Commitment to business	0.000	**0.636**	0.000
V40	Product knowledge	0.000	**0.382**	0.000
V45	Running a business	0.000	0.000	**0.831**
V44	Business planning	0.000	0.000	**0.676**

*Note: Knowledge of competitors (V50) was rejected due to the high double loading and is not included as part of factor one in the statistical tests that follow.

The eigenvalues, which determine the number of factors when factor loading is done, are: Factor 1 = 6.01185, Factor 2 = 1.36281 and Factor 3 = 1.00010. The eigenvalue has to be greater or equal to one in order to be included as a factor when loading is done on variables. The original factor analysis was ranked from the

highest, 0.831, to the lowest value, 0.303, as factors one to three. The rows have been rearranged so that for each successive factor loadings greater than 0.600 appear first and loadings less than 0.250 have been replaced by zero.

The above table illustrates the three factors and the following labels were given:

Factor 1: Entrepreneurial characteristics

Factor 2: Entrepreneurial orientation

Factor 3: Business knowledge

According to Athayde (2003: 10), there is some debate about what constitutes an acceptable alpha score. A summary of over 800 articles of empirical studies using Cronbach alphas found that reported coefficients ranged from 0.600 to 0.999. Athayde (2003: 10) quotes Nunnally (1978) as recommending 0.500 as an acceptable threshold, while he points out that Malhtra (1993) and Tull and Hawkins (1993) recommend 0.600 and Churchill (1997), on the other hand, recommends 0.700. In this study, 0.600 was used as the benchmark.

Table 7.15: Cronbach alpha results

Factor	Description	Cronbach Alpha value
Factor 1	**Entrepreneurial characteristics**	0.8528
Factor 2	**Entrepreneurial orientation**	0.8294
Factor 3	**Business knowledge**	0.8012

From the 13 items, posed on a 5-point Likert scale, the derived three factors delivered excellent Cronbach Alpha results. A value of 0.9019 was obtained for all the variables used.

Table 7.16: Factor correlation for rotated factors

Factor	Factor 1	Factor 2	Factor 3
Factor 1	1.000		
Factor 2	0.618	1.000	
Factor 3	0.487	0.493	1.000

Although the correlations between factors one, two and three are high, it was decided that the factor structure was stable enough for them to be used as separate factors. These three factors explained 55.27 % of the variance.

Table 7.17: Rotated factor analysis of respondents' entrepreneurial and business skills before the WEP

Variable no.	Description of variable	Loadings
		Factor 1
V69	Drawing up financial statements	**0.768**
V77	Human resource management	**0.763**
V71	Business failure signs and causes	**0.759**
V78	Financial and cash-flow management	**0.748**
V68	Break-even analysis	**0.747**
V79	Risk orientation	**0.746**
V74	General management	**0.742**
V75	Marketing of business/products/services	**0.738**
V70	Managing growth of the business	**0.737**
V81	Opportunity identification	**0.734**
V67	Sustainable competitive advantage	**0.734**
V66	Compiling a business plan	**0.731**
V65	Compiling a feasibility study	**0.730**
V80	Creativity and innovation	**0.709**
V63	Creative problem solving	**0.708**
V76	Legal aspects – business forms and registration	**0.674**
V82	Using role models for support and assistance	**0.671**
V61	Using mentors and counsellors	**0.670**
V62	Making use of networking opportunities	**0.665**
V60	Ability to obtain financial assistance for the business	**0.640**

Factor analysis was done on one, two and three factors, which resulted in unsatisfactory loadings and eigenvalues as well as too high correlations between the factors. A decision was taken to rerun the factor analysis, resulting in one

acceptable factor to increase the validity and reliability of the measuring instrument. It could have been expected that the eigenvalue for factor one is 10.8915, the Cronbach alpha value is 0.9558 and this factor explained 52.07 % of the variance. This is merely an indication of the validity of individual variables.

The above table illustrates one factor and the following label was given: **Entrepreneurial and business skills.**

The three factors generated in Table 7.14 and one factor evident in Table 7.17 will from this point onwards be labelled as the **four skills transfer factors** for all the statistical techniques that follow. These four factors were used to determine whether skills transfer took place and can be seen in Table 7.27.

Table 7.18: Rotated factor analysis of respondents' business systems and strategies, financial indicators and change orientation before the WEP

Variable no.	Description of Variable	Loadings		
		Factor 1	Factor 2	Factor 3
V32	Improving systems in business (general)	**0.836**	0.000	0.000
V30	Allocation of resources	**0.756**	0.000	0.000
V34	Communication in business (general)	**0.692**	0.000	0.000
V36	Management roles and responsibilities	**0.544**	0.000	0.000
V26	Ability to do long-term planning	**0.535**	0.000	0.000
V28	Positioning your business against competitors	**0.507**	0.000	0.000
V38	Expansion (growth) of business	**0.455**	0.000	0.000
V24	Having record-keeping systems	**0.313**	0.000	0.000

Table 7.18 continued..

Variable no.	Description of Variable	Loadings		
		Factor 1	Factor 2	Factor 3
V18	Increasing turnover	0.000	**0.920**	0.000
V16	Making a profit	0.000	**0.768**	0.000
V22	Return on investment	0.000	**0.766**	0.000
V20	Increasing assets	0.000	**0.723**	0.000
V44	Change in attitude	0.000	0.000	**0.974**
V46	Change in culture	0.000	0.000	**0.757**
V48	Change in management style	0.000	0.000	**0.712**
V42	Change in business processes	0.000	0.000	**0.644**

The eigenvalues are: Factor 1 = 6.58098, Factor 2 = 2.11727 and Factor 3 = 1.23911. The original factor analysis was ranked from the highest 0.974, to the lowest value 0.313 as factors one to three. The rows have been rearranged so that for each successive factor, loadings greater than 0.600 appear first and loadings less than 0.250 have been replaced by zero.

The above table illustrates the three factors and the following labels were given:

Factor 1: Business systems and strategies

Factor 2: Financial indicators

Factor 3: Change orientation

Table 7.19: Cronbach alpha results

Factor	Description	Cronbach Alpha value
Factor 1	**Business systems and strategies**	0.8440
Factor 2	**Financial indicators**	0.8783
Factor 3	**Change orientation**	0.8839

From the 16 items, posed on a 4-point Likert scale, the derived three factors delivered excellent Cronbach Alpha results. A value of 0.9020 was obtained for all the variables used.

Table 7.20: Factor correlation for rotated factors

Factor	Factor 1	Factor 2	Factor 3
Factor 1	1.000		
Factor 2	0.403	1.000	
Factor 3	0.661	0.360	1.000

Although the correlation between factors one and three is very high, the decision was taken to use these three factors instead of only two factors, as the factor structure was stable. These three factors explained 54.66 % of the variance.

The three factors generated in Table 7.18 will now be labelled as the **three business improvement factors** for all statistical techniques that follow.

7.6 Testing the statistical and substantive significance

The two-sample chi-square (x^2) test is presented to indicate the significant differences between the experimental and control groups concerning various variables. Furthermore the *t*-test for independent samples and *t*-test for paired samples was carried out by using all the factors that were identified in the factor analysis. Furthermore, the Wilcoxon matched-pairs test was executed on the individual variables as included in the **four skills transfer factors** (Tables 7.14 and 7.17), and on the **three business improvement factors** (Table 7.18). Finally, the Kruskal-Wallis One-way Analysis of Variance (ANOVA) was performed on the **four skills transfer factors.**

7.6.1 The chi-square (x^2) test

This test was performed on the experimental and control groups before the former received the experimental treatment (WEP) and also to improve the reliability and validity of the measuring instruments used.

Table 7.21 presents the chi-square values for each variable where the experimental and control groups had to provide their opinions about the importance of certain business success concepts. As mentioned in section 7.4.2, the experimental and control groups had to have the same opinions before the WEP and it will now be tested statistically. A 5-point Likert scale was used, ranging from 1 = not important at all, to 5 = very important.

Table 7.21: Insignificant differences between the experimental and control groups concerning the business success concepts

Variables (business success concepts)	Frequency		Chi-Square value	P-value
	Experimental group	Control group		
Excellent product/service	113	62	0.3161	0.8538
Providing customer care	115	59	0.6157	0.7350
High quality	115	60	5.0989	0.0781
Sufficient capital	110	58	4.0498	0.2561
Training and acquiring skills (entrepreneur)	116	63	0.5862	0.4439
Training and acquiring skills (employees)	115	63	1.5352	0.4641

P * Statistically significant difference**

$\alpha < 0.05$ (95 % confidence level) $\alpha < 0.001$ (99 % confidence level)

The high chi-square value and p-value greater than 0.05 indicated that there is no statistical difference between the experimental and control groups concerning the variables listed in Table 7.21. The majority of the respondents in the experimental

and control groups stated that the following variables were very important and could contribute towards business success:

- Excellent product/service
- Providing customer care
- High quality products/services
- Sufficient capital
- Training and acquiring skills (entrepreneur)
- Training and acquiring skills (employees)

It was to be expected that there would be no statistical differences between the two groups concerning the above business success concepts before the WEP. This finding confirms that the experimental and control groups held the same opinions regarding the business success concepts before the training intervention.

Table 7.22: Significant and insignificant differences between the experimental and control groups' expectations about the WEP

Variable	Frequency		Chi-Square value	P-value
	Experimental group	Control group		
Growth in net value of business	112	57	0.7643	0.6824
Increasing productivity	111	56	1.5826	0.4533
Increasing profitability	112	58	1.1313	0.7695
Recruitment of employees	108	57	10.6960	0.0135***

P * Statistically significant difference**

$\alpha < 0.05$ (95 % confidence level) $\alpha < 0.001$ (99 % confidence level)

As the control group did not receive the intervention, they were asked, if they should get the opportunity to do the WEP, what they would expect from the programme.

The high chi-square value and p-value greater than 0.05 indicate that there is no statistical difference between the experimental and control groups concerning the

variables listed in Table 7.22. The majority of the experimental and control groups stated that they strongly agreed that they expected the WEP to assist them with the following variables to improve the performance of their businesses:

- Growth in net value of business
- Increasing productivity levels
- Increasing profitability

The only variable in which there is a statistical difference between the experimental and control group concerning the respondents' expectations of whether the WEP would assist them in improving the performance of their businesses, is the recruitment of employees. It is interesting to find that there are respondents in the experimental group who did not expect the WEP to assist them with the recruitment of employees, whereas all the respondents in the control group expected the programme to assist them with the recruitment of employees.

Table 7.23: Insignificant difference regarding written business plans between the experimental and control groups

Variable	Frequency		Chi-Square value	P-value
	Experimental group	Control group		
Written business plan			1.8642	0.3937
Yes	46	25		
No	70	39		
Total (n = 180)	116	64		

P * Statistically significant difference**

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

The high chi-square value and p-value greater than 0.05 indicate that there is no statistical difference between the experimental and control groups concerning whether they had written business plans or not. The majority of the respondents (both groups) had not written a business plan before the experimental group received the treatment (WEP).

Ninety percent (90 %) of the respondents in the experimental group had a written business plan after the training intervention. After the six-month period, 13 respondents (13.27 %) of the experimental group received financial assistance with the business plans that they had prepared for the WEP. Of these, 6 respondents (6.12 %), received financial assistance from ABSA Bank. Thirty-five (35.71 %) of the respondents did not apply for finance at the time when measured, whereas 10 (10.2 %) of the respondents stated that they did not apply as they did not need financial assistance. Only one respondent who applied for finance was rejected due to credit issues.

The Chi-square tests confirmed that the experimental and control groups were similar regarding various variables before the WEP. This makes the comparison between the groups in the next section valid and the results that much more reliable and representative of the total population.

7.6.2 *t*-test for independent samples

The *t*-test was executed on the experimental and control groups by comparing whether there were significant differences between the mean scores of the variable categorised in the **four skills transfer factors** as well as the **three business improvement factors**. The Mann-Whitney (or ranked-sum) test was also carried out and the values are provided in Table 7.24. This test is an alternative to the *t*-test for independent samples and allows for testing group differences when the populations are not normally distributed or when it cannot be assumed that the samples are from populations that are equal in variability (Zikmund, 2003: 543).

Section 7.5 identified the variables included in the four skills transfer factors:

Entrepreneurial characteristics

Persistence and determination, need for achievement, leadership abilities, good communication skills, being independent and in control and taking advantage of an opportunity.

Entrepreneurial orientation

Enthusiasm, performance motivation, commitment to business and product knowledge.

Business knowledge

Running a business and business planning.

Entrepreneurial and business skills

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 finally the ability to obtain financial assistance for the business.

Table 7.24: Independent *t*-test: Comparison of the experimental and control groups before the WEP on the four skills transfer factors

Factor	Mean		Std. Deviation		Mann-Whitney***
	Experimental group	Control group	Experimental group	Control group	
Entrepreneurial characteristics	4.3118	4.0161	0.5218	0.7914	0.0095***
Entrepreneurial orientation	4.3922	4.2016	0.5308	0.8271	0.1040
Business knowledge	3.6077	3.8548	0.9036	0.8702	0.0773
Entrepreneurial and business skills	2.3254	2.4234	0.6234	0.7715	0.3912

***** Statistically significant difference**

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

It is interesting to find that the only significant difference between the means of these two groups is in the entrepreneurial characteristics factor. The reason for this may be due to the fact that the experimental group knew that they were going to receive the training, which encouraged them and influenced them positively. This furthermore gave them a higher need for achievement than the control group at that point. There is no significant difference between the means of these two groups for the remaining factors. This is to be expected, due to the fact that the experimental and control groups had to have the same entrepreneurial characteristics, skills, orientation and business skills and knowledge, as far as possible, before the training intervention took place.

Table 7.25 highlights the comparison between the experimental and control groups regarding the **three business improvement factors** that were identified after the experimental group attended the WEP. Note that this test was carried out after the experimental group received the treatment and that differences between the experimental and control groups are now to be expected. These findings will indicate whether the WEP had an effect on the experimental group's businesses.

Section 7.5 identified variables included in three business improvement factors:

Business systems and strategies

Improving systems in business (general), allocation of resources, communication in business (general), management roles and responsibilities, ability to do long-term planning, positioning your business against competitors, expansion (growth) of business and having record-keeping systems.

Financial indicators

Increasing turnover, making a profit, return of investment and increasing assets.

Change orientation

Change in attitudes, change culture, change in management styles, change in processes.

Table 7.25: 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	
Business systems and strategies	1.4133	0.2729	0.4816	0.4661	< 0.0001***
Financial indicators	1.4748	0.2733	0.7413	0.5345	< 0.0001***
Change orientation	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 the above table 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 illustrates that the experimental group improved more than the control group regarding their business systems and strategies, financial indicators and change orientation. Due to the fact that this measurement was done after the experimental group received the training intervention it is obvious that the experimental group improved significantly after they attended and completed the programme. It is worth mentioning that the WEP did not have only a psychological effect (change orientation factor) on the respondents, but they also indicated that their physical business operations (business systems and strategies and financial indicators factors) had improved six months after the training intervention took place.

7.6.3 Paired sample *t*-test

According to Diamantopoulos and Schlegelmilch (2002: 195), this test is the related measure equivalent to the two-sample *t*-test for differences in means (it is also known as the t_r-test to distinguish it from the conventional *t*-test). It lends itself nicely to

comparisons of two-interval or ratio-level measures, the null hypothesis being that the means difference in the population is zero.

This test was carried out on the experimental group to measure the differences, if any, in their entrepreneurial skills and knowledge before and after the WEP. A 5-point Likert scale, ranging from 1 = very poor to 5 = excellent was used to register opinions. The *t*-test was further done on variables that were measured on a 4-point Likert scale ranging from 1 = no knowledge whatsoever to 4 = sufficient knowledge. The tests that follow were carried out before and six months after the WEP and any differences between the before and after measurement can be seen as related to the training intervention that took place.

Table 7.26: 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		
Entrepreneurial characteristics	4.2804	4.434	0.5220	0.4170	2.99	0.0035***
Entrepreneurial orientation	4.3846	4.5024	0.5362	0.4274	2.18	0.0318***
Business knowledge	3.5529	4.0673	0.9215	0.6612	5.39	< 0.0001***
Entrepreneurial and business skills	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 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. This confirms the WEP as a national benchmark that can be used by other organisations and institutions against which to measure the content of their entrepreneurial programmes.

7.6.4 Wilcoxon matched-pairs test

The paired sample *t*-test was carried out on the **four skills transfer factors** as well as the **three business improvement factors** that were generated from the factor analysis. Further testing is now necessary and therefore the Wilcoxon matched-pairs test was performed on various individual variables included in each **skills transfer factor.** These tests were only performed on the experimental group, to test their before and after the WEP responses. A 5-point Likert scale ranging from 1 = very poor to 5 = excellent was used to register responses regarding the respondents opinions about their entrepreneurial characteristics.

Table 7.27: Wilcoxon matched-pairs test: Comparison of the experimental group before and after the WEP on entrepreneurial characteristics

Factor	Variable	Mean		Std. Deviation		Wilcoxon***
		Before WEP	After WEP	Before WEP	After WEP	
Entrepreneurial characteristics	Taking advantage of an opportunity	4.2500	4.2885	0.7445	0.5858	0.4535
	Persistence and determination	4.2672	4.4038	0.7502	0.5997	0.0261***
	Being independent and in control	4.3879	4.5192	0.7433	0.6071	0.0362***
	Need for achievement	4.3966	4.5385	0.7087	0.6220	0.0251***

Factor	Variable	Mean		Std. Deviation		Wilcoxon***
		Before WEP	After WEP	Before WEP	After WEP	
	Leadership abilities	4.2845	4.4135	0.8000	0.6771	0.0702
	Good communication skills	4.2845	4.4423	0.7780	0.6802	0.0212***

***** Statistically significant difference**

$\alpha < 0.05$ (95 % confidence level) $\alpha < 0.001$ (99 % confidence level)

It is interesting to find that there are statistical differences between the means before and after the WEP of the experimental group for the following variables: Persistence and determination, being independent and in control, need for achievement and good communication skills.

The literature study (Chapter 3) revealed:

- High persistence and determination leads to a high need for achievement and motivation. The fact that the respondents improved after the WEP indicated that their need for achievement, goals and motivation is much higher after the WEP and will influence their businesses positively.
- The respondents' locus of control is very high after the WEP which indicates that they are more independent and in control of their businesses.
- Lastly, good communication skills will improve the respondents' ability to negotiate with stakeholders and network with other entrepreneurs.

There were no statistical differences for the variables taking advantage of an opportunity and leadership abilities; this may be due to the fact that the majority of the respondents rated themselves very high on these variables before the WEP as well as after the WEP.

Table 7.28 indicates the mean and standard deviation on the variables included in the entrepreneurial orientation factor before and after the WEP. A 5-point Likert scale ranging from 1 = very poor to 5 = excellent was used to register responses regarding the respondents opinions' about their entrepreneurial orientation.

Table 7.28: Wilcoxon matched-pairs test: Comparison of the experimental group before and after the WEP on entrepreneurial orientation

Factor	Variable	Mean		Std. Deviation		Wilcoxon***
		Before WEP	After WEP	Before WEP	After WEP	
Entrepreneurial orientation	Product knowledge	4.1724	4.3173	0.7943	0.6116	0.0705
	Commitment to business	4.5345	4.6635	0.6650	0.5326	0.0193***
	Enthusiasm	4.5776	4.5769	0.6997	0.6025	0.8557
	Performance motivation	4.3448	4.4519	0.6991	0.6809	0.1478

***** Statistically significant difference**

$\alpha < 0.05$ (95 % confidence level) $\alpha < 0.001$ (99 % confidence level)

The only variable that indicates that there is a statistical difference before and after the WEP is: commitment to business. The mean after the WEP is higher, which indicates that respondents had a higher rating or opinion of their commitment to their businesses after the WEP. This indicates that the WEP motivated the experimental group to be more committed to their businesses, which led to a higher need for achievement. However, it is contradictory to find that there are no statistical differences between the enthusiasm and performance motivation of the respondents after the WEP, as these concepts relate very closely to the commitment to business variable.

Table 7.29 indicates the statistical differences on the variables included in the business knowledge factor before and after the WEP. A 5-point Likert scale ranging from 1 = very poor to 5 = excellent was used to register responses regarding the respondents opinions' about their business knowledge.

Table 7.29: Wilcoxon matched-pairs test: Comparison of the experimental group before and after the WEP on business knowledge

Factor	Variable	Mean		Std. Deviation		Wilcoxon***
		Before WEP	After WEP	Before WEP	After WEP	
Business knowledge	Business planning	3.4310	3.9135	1.0486	0.8374	< 0.0001***
	Running/ operating a business	3.7759	4.2212	0.9239	0.6379	< 0.0001***

***** Statistically significant difference**

α < 0.05 (95 % confidence level) **α < 0.001 (99 % confidence level)**

It is interesting to note that the respondents' business knowledge improved significantly after the WEP. This indicates that the respondents are now able to draw up an adequate business plan for their businesses, as well as apply it practically to their businesses. This finding further illustrates that the WEP is also effective in improving the respondents' operations of their businesses, which also leads to better general management.

The Wilcoxon matched-pairs test was further done on the variables included in the entrepreneurial and business skills factor. Respondents were asked what their knowledge was about various entrepreneurial and business concepts before and after the WEP. A 4-point Likert scale was used ranging from 1 = no knowledge whatsoever to 4 = sufficient knowledge.

Table 7.30 is presented on the next page.

Table 7.30: Wilcoxon matched-pairs test: Comparison of the experimental group before and after the WEP on entrepreneurial and business skills

Factor	Variable	Mean		Std. Deviation		Wilcoxon***
		Before WEP	After WEP	Before WEP	After WEP	
Entrepreneurial and business skills	Ability to obtain financial assistance for your business	2.4224	3.5000	0.8356	0.5896	< 0.0001***
	Using mentors and counsellors	2.2414	3.2170	0.9835	0.7685	< 0.0001***
	Making use of networking opportunities	2.6121	3.6981	0.8421	0.5195	< 0.0001***
	Creative problem solving	2.5948	3.6226	0.7573	0.6392	< 0.0001***
	Compiling a feasibility study	2.0862	3.5660	0.8999	0.6175	< 0.0001***
	Compiling a business plan	2.2845	3.1632	0.8925	0.5785	< 0.0001***
	Sustainable competitive advantage	2.0690	3.6698	0.8206	0.5810	< 0.0001***
	Break-even analysis	1.9224	3.4906	0.8861	0.6934	< 0.0001***
	Drawing up financial statements	1.9828	3.2925	0.9508	0.6896	< 0.0001***
	Managing growth	2.0862	3.6415	0.8296	0.5886	< 0.0001***
	Business failure signs and causes	2.0689	3.7075	0.8917	0.5850	< 0.0001***
	General management	2.6724	3.5943	0.7997	0.6730	< 0.0001***

Table 7.30 continued..

Factor	Variable	Mean		Std. Deviation		Wilcoxon***
		Before WEP	After WEP	Before WEP	After WEP	
	Marketing of business/products/ services	2.6034	3.7170	0.9220	0.6288	< 0.0001***
	Legal aspects – company/business registration	2.5431	3.4717	0.9903	0.7710	< 0.0001***
	Human resource management	2.4310	3.2642	0.9346	0.7964	< 0.0001***
	Financial and cash-flow management	2.3190	3.3208	0.9288	0.7628	< 0.0001***
	Risk orientation	1.9655	3.2642	0.8938	0.7964	< 0.0001***
	Creativity and innovation	2.5259	3.6981	0.9460	0.5719	< 0.0001***
	Opportunity identification	2.6207	3.6698	0.9104	0.6432	< 0.0001***
	Using role models for guidance	2.4569	3.5472	0.9362	0.6919	< 0.0001***

***** Statistically significant difference**

$\alpha < 0.05$ (95 % confidence level) $\alpha < 0.001$ (99 % confidence level)

All the individual variables included in the entrepreneurial and business skills factor showed statistically significant differences before and after the WEP. This finding is an indication that the experimental group's knowledge and skills about entrepreneurship and business management improved extensively after they attended the programme. This is probably the most valuable finding and it is therefore necessary to discuss each individual variable:

- The first variable, ability to obtain financial assistance for your business, signifies that the WEP improved the respondents' knowledge of how and where they can obtain financial assistance. This finding illustrates that the training intervention

addressed one of the most severe barriers, namely a lack of access to finance, facing women entrepreneurs, as seen in Chapter 4 of the literature study.

- The WEP is effective in teaching respondents to make use of mentors, counsellors and role models. This is attributable to the fact that the programme supplied after-course training and services in the form of mentors and counsellors as explained in Chapter 5.
- Networking opportunities is another variable that made this programme unique and contributes towards the effectiveness of the WEP regarding improved communication skills.
- The WEP is also effective in teaching women entrepreneurs to make use of creative problem-solving techniques that can help them to solve problems more efficiently in the future.
- The variables compiling a feasibility study and business plan improved significantly after the WEP, which is attributable to the fact that all the delegates had to prepare their own business plans. The importance of a business plan was discussed in Chapter 5.
- The improvement in the respondents' sustainable competitive advantage variable contributes towards the success of their businesses. Although it is only an assumption, it should be mentioned that none of the respondents could identify a sustainable competitive advantage for their businesses before they attended the WEP.
- The WEP contributed towards improving the respondents' knowledge about the financial elements of a business. These elements include: the break-even analysis, cash-flow management and drawing up of and understanding their own financial statements.
- The WEP is effective in improving the following business skills: general management, managing growth, marketing, legal aspects, human resource management and financial management. All of these skills contribute towards better business management and will improve their business performances.
- The WEP improved respondents' skills about business failure signs and causes, which could prevent them from failing in the future. This is extremely important for start-up and potential women entrepreneurs at different stages of their

business's life cycle, as it can prevent them from failing within the first three years of their of operating a business.

- Lastly, as noted earlier, the WEP is effective in improving the entrepreneurial skills of respondents such as risk orientation, creativity and innovation and opportunity identification (refer Chapter 3 for the importance of these skills).

Table 7.31 shows a comparison between the experimental group regarding the three business improvement factors before and after the WEP.

Table 7.31: 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	
Business systems and strategies	1.7956	3.2089	0.4144	0.5245	< 0.0001***
Financial indicators	1.6432	3.1181	0.5114	0.8032	< 0.0001***
Change orientation	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)

It is apparent 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 did improve regarding their business systems and strategies, financial indicators and change orientation after they 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 facilitate strategies for improvement in the future. It should also be noted that the respondents' financial indicators: turnover, profit, return of investment and assets, increased significantly after the six-month period (refer Table 7.33). This is unexpected, as six months is a very short period and improvement was

only expected 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.

It can now be concluded that the experimental group improved after they attended the WEP on all seven factors identified in the factor analysis in section 7.5.

7.6.5 Kruskal-Wallis One-Way Analysis of Variance (ANOVA)

The research problem was stated in Chapter 6, section 6.2 which indicated the need to determine whether there were significant differences between the types of women entrepreneurs included in the experimental group. The Kruskal-Wallis ANOVA is used to determine significant differences between the various groups. This test was performed on the **four skills transfer factors** to measure significant differences between the potential, start-up and already established women entrepreneurs within the experimental group. These three terms have already been defined and explained in Table 7.7.

Table 7.32 is presented on the next page.

Table 7.32: K-W One-way ANOVA: Comparison of the potential, start-up and already established women entrepreneurs before and after the WEP on the four skills transfer factors

Factor	Mean						Std. Deviation						Kruskal-Wallis***
	PT		SU		AE		PT		SU		AE		
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	
Entrepre-neurial charac-teristics	4.0641	4.3718	4.3105	4.5065	4.1325	4.3625	0.6256	0.4312	0.4876	0.4041	0.5259	0.4235	0.2417
Entrepre-neurial orientation	4.2500	4.4808	4.3775	4.4804	4.4375	4.5375	0.4564	0.4728	0.5531	0.4467	0.5423	0.3945	0.6171
Business knowledge	3.1538	3.8846	3.5980	4.0784	3.6250	4.1125	0.9439	0.6176	0.8603	0.7306	0.9789	0.5827	0.7065
Entrepre-neurial and business skills	1.9077	3.5423	2.3103	3.5255	2.4413	3.5275	0.6973	0.2597	0.6066	0.3772	0.6473	0.5065	0.0876

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

PT = Potential women entrepreneurs (n = 15); SU = Start-up women entrepreneurs (n = 58);

AE = Already established women entrepreneurs (n = 43)

It is noteworthy that there are no statistical differences regarding the **four skills transfer factors** between the potential, start-up and already established women entrepreneurs. It might have been expected that the potential and start-up women entrepreneurs gained more skills after WEP as they are new to business, whereas the already established women entrepreneurs are more experienced; this, however, was not the case. These results indicate that the WEP is effective in transferring entrepreneurial and business skills to all types of women entrepreneurs. This is an interesting finding, as it proves that the WEP is effective for all women entrepreneurs, regardless of the stage of business life cycle in which they find themselves. Although no entrepreneurship training programme is perfect, it is evident that no adaptations need to be made when training different types of women entrepreneurs in South Africa.

7.7 Statistical techniques used to measure the effectiveness of the WEP

Various statistical techniques were used to measure the effectiveness of the WEP at various levels, as explained in Chapter 6, section 6.8. Some of these levels have already been measured and discussed during the previous section of this chapter. Therefore this section exclusively deals with the business performance indicators of the respondents businesses. The chi-square test, *t*-test and Kruskal-Wallis One-way ANOVA were used to measure the business performance indicators before and six months after the experimental group attended the WEP. The experimental group was further compared with the control group and the statistical significant differences are presented. The business performance indicators of the respondents' businesses include:

- Annual sales/turnover
- Value of capital assets
- Number of employees working in the businesses
- Number of customers per month
- Success of the businesses
- Profitability of the businesses
- Satisfaction of the customers
- Break-even point (Marginal income covers expenses)

Table 7.33: 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**

α < 0.05 (95 % confidence level) α < 0.001 (99 % confidence level)

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

Table 7.34: 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**

α < 0.05 (95 % confidence level) α < 0.001 (99 % confidence level)

Note that respondents had to complete the before and after questions relevant to the above data in order for them to be included in this measurement. The reason for this

is that one can only see whether improvement has taken place once the before and after measurement is compared. It is interesting to find that there are statistically significant differences regarding all the above business performance indicators, between before and after the respondents attended the WEP, except for the satisfaction of the respondents' customers. The reason for this is that 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. Eighty-seven point eighty-eight percent (87.88 %) of the respondents stated that their customers were satisfied before the WEP, and 94.57 % 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 finely enough to bring out small but significant differences. However, all the other business performance indicators improved significantly, though the satisfaction of the customers did not improve as radically. This is a remarkable finding, as it was expected that the relatively short six-month time period would not have time to show improvement regarding the business performance indicators. This in actual fact proves that the WEP assisted the experimental group to grow their businesses. The degree of improvement will be explained in Table 7.37.

Table 7.35: Chi-square test: Comparison between the before and after measurement of the control group regarding business performance indicators

Variable	Frequency (n)	Chi-Square value	P-value
Annual sales/turnover	47	64.9359	< 0.0001***
Value of capital assets	42	36.4654	0.0003***
Success of the businesses	43	16.7143	0.0534
Profitability of the businesses	43	13.4618	0.1428
Break-even point	44	8.5699	0.4779
Satisfaction of the customers	45	6.6205	0.6766

P * Statistically significant difference**

$\alpha < 0.05$ (95 % confidence level) $\alpha < 0.001$ (99 % confidence level)

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

Table 7.36: Wilcoxon matched-pairs test: Comparison between the before and after measurement of the control group regarding business performance indicators

Factor	Mean		Std. Deviation		Wilcoxon***
	Before WEP	After six months	Before WEP	After six months	
Number of employees	9.8158	7.4474	11.6291	9.7778	0.4239
Number of customers	4.0000	3.2692	6.5054	3.3771	1.0000

***** Statistically significant difference**

$\alpha < 0.05$ (95 % confidence level) $\alpha < 0.001$ (99 % confidence level)

The annual sales/turnover and value of capital assets are the two variables in which statistically significant differences occurred before and after the six month period. It can be concluded that these findings were not caused by the WEP because the control group did not attend the programme. This occurrence could be due to various reasons, 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 %).

According to Statistics South Africa (2006: 2) the seasonally adjusted GDP at market prices for the fourth quarter of 2005 increased by an annualised rate of 3.3 %, compared with that in the third quarter of 2005. The corresponding real annualised economic growth rates for the first three quarters of 2005 were 4.6 %, 5.4 % and 4.2 % respectively. These figures indicate that the real annual GDP at market prices for 2005 increased by 4.9 %, compared with 2004 when the real annual economic growth rate was 4.5 %. Furthermore the construction industry in 2004 and 2005 was seen as a major contributor to the economic growth in those years (Monama, 2006:

1). This author quotes economist Lumkile Mondi, who says: "The construction sector will play the lead role and will create the most significant number of jobs; the government has committed R320 billion to upgrading the country's infrastructure which will have a positive impact on the economy". The respondents' degree of improvement or deterioration after the six month period is now presented in Table 7.37.

Table 7.37: Business performance indicators: Experimental and control groups' degree of improvement or deterioration

Variable	Experimental group (n = 84 - 93)						Control group (n = 39 - 50)					
	No change		Improved		Deteriora-ted		No change		Improved		Deteriora-ted	
	N	%	n	%	n	%	n	%	n	%	n	%
Annual sales/ Turnover	40	43.48	43	46.74	9	9.78	29	58.00	12	24.00	9	18.00
Value of capital assets	55	59.14	32	34.41	6	6.45	25	52.08	17	35.42	6	12.50
Number of employees	12	13.19	58	63.74	21	23.08	10	21.74	23	50.00	13	28.26
Number of customers	9	10.71	52	61.90	23	27.38	9	23.08	22	56.41	8	20.51
Success of the businesses	38	41.76	49	53.85	4	4.40	24	48.00	18	36.00	8	16.00
Profitability of the businesses	32	35.16	51	56.04	8	8.79	18	36.00	26	52.00	6	12.00
Satisfac-tion of the customers	34	36.96	41	44.57	17	18.48	15	30 00	17	34.00	18	36.00
Break-even point	38	42.22	37	41.11	15	16.67	18	36.00	22	44.00	10	20.00

Table 7.37 is presented to demonstrate whether the respondents improved or deteriorated 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. Satisfaction of their customers was the variable where deterioration took place radically for the control group.

The significant differences in the experimental group will now be compared with the control group with regard to the business performance indicators.

Table 7.38: 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
Satisfaction of the customers	92	50	5.3746	0.0681
Break-even point	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 was used for all the variables that were categorical (ordinal) data and the Wilcoxon matched-pairs test was used for the ratio/interval data.

Table 7.39: 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	
Number of employees	8.8256	9.8158	15.3961	11.6291	0.0024***
Number of customers	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 in view of 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 with regard to the value of their capital assets, profitability of the businesses and break-even point.

The tables that follow present comparisons of various groups within the experimental group regarding their business performance indicators. Tables 7.40 and 7.41 give a comparison between the start-up and already established women entrepreneurs and Table 7.42 shows a comparison between the various provinces within the experimental group.

Table 7.40 is presented on the next page.

Table 7.40: Chi-square test: Comparison between the start-up and established women entrepreneurs regarding their business performance indicators

Variable	Frequency		Chi-Square Value	P-value
	SU	AE		
Annual sales/turnover	37	50	0.0326	0.8568
Value of capital assets	38	50	0.1764	0.6744
Success of the businesses	38	49	3.1398	0.0764
Profitability of the business	38	49	1.2029	0.2727
Satisfaction of the customers	38	50	0.0007	0.9787
Break-even point	37	49	6.2851	0.0122***

P * Statistically significant difference**

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

SU = Start-up women entrepreneurs

AE = Already established women entrepreneurs

The start-up and already established women entrepreneurs were compared by indicating which of them improved, deteriorated or stayed the same regarding their business performance indicators after the WEP. The potential women entrepreneurs could not be included in this comparison as they did not own businesses before the WEP and could not complete the business performance indicators section before the training intervention. It should be noted that the Chi-square test, for this particular comparison, did give warnings of data missing due to the fact that too small a percentage of women deteriorated after the WEP.

Table 7.41: Mann-Whitney U test: Comparison between the start-up and already established women entrepreneurs regarding their business performance indicators

Factor	Mean		Std. Deviation		Mann-Whitney***
	Start-up	Already established	Start-up	Already established	
Number of employees	6.5833	16.8918	22.4904	96.0107	0.3528
Number of customers	28.1332	-1.1562	269.9324	134.8424	0.3384

***** Statistically significant difference**

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

It is interesting to find that there was only one statistically insignificant difference between the start-up and already established women entrepreneurs. It was expected that the already established women entrepreneurs would improve more than the start-up women entrepreneurs due to various reasons such as business growth, experience and the stage of the business life cycle. This was not however the case, as both groups improved significantly. The only variable where there was a significant difference between the groups was the break-even point, where the start-up women entrepreneurs improved more than the already established women entrepreneurs. This might be due to the fact that the majority of the already established women entrepreneurs had reached break-even before they attended the WEP.

Table 7.42 is presented on the next page.

Table 7.42: Chi-square test: Comparison of various provinces within the experimental group regarding their business performance indicators

Variable	Frequency					Chi-Square Value	P-value
	G	KZN	NC	LP	WC		
Annual sales/turnover	25	17	15	17	15	5.3894	0.2496
Value of capital assets	26	17	15	17	15	11.9462	0.0178***
Success of the	25	17	14	17	15	2.1817	0.7024
Profitability of the Business	25	17	14	17	15	2.7946	0.5928
Satisfaction of the customers	25	17	15	17	15	3.1714	0.5296
Break-even point	24	17	15	17	14	7.8280	0.0981

P * Statistically significant difference**

$\alpha < 0.05$ (95 % confidence level) $\alpha < 0.001$ (99 % confidence level)

G = Gauteng; KZN = KwaZulu-Natal; NC = Northern Cape; LP = Limpopo Province; WC = Western Cape

The only statistically significant difference between the provinces can be found in the value of capital assets. The most significant difference is that the respondents from the Northern Cape Province did not improve at all regarding the value of their capital assets. One could have expected that the respondents from the Gauteng province would improve the most, but only 30.77 % of them improved, whereas 61.54 % of them stayed the same. The respondents from the Limpopo Province improved the most (52.94 %) regarding increasing the value of their capital assets.

It can only be mentioned that the Kruskal-Wallis One-Way ANOVA test was performed on the variables: number of employees and number of customers, and it also indicated statistically insignificant differences between the provinces. The p-value for the variables: number of employees and number of customers were 0.1673 and 0.0649 respectively.

The assumption can now be made that the WEP had an equal effect on start-up and already established women entrepreneurs, as well as on women from the various provinces in South Africa. These findings contribute towards the statement made earlier that the WEP can be seen as a national benchmark and that every type of woman entrepreneur, regardless of the stage of business life cycle or province, can improve after this training intervention.

7.7.1 General comments of respondents

The respondents were given an open-ended question at the end of the third and final research questionnaire. The experimental group were asked, six months after the WEP, whether the programme had had an effect on their businesses and 96 respondents (97.96 %) responded that it had an effect and several reasons were given. The most significant reasons were:

- Assisted them to expand or grow their businesses (33 respondents)
- Improved the management and operations of their businesses (32 respondents)
- It was a motivation and confidence booster (26 respondents)
- Assisted with financial and cash-flow elements within the business (21 respondents)
- Assisted them to start a new business (15 respondents)
- Networking (15 respondents)
- Assisted them to create the perfect business plan (12 respondents)
- Improved marketing of business (7 respondents)

The experimental group were also asked which knowledge and information they gained after the WEP that they would not have had if they had not attended the programme and the following responses were provided:

- Understanding financial statements and break-even analysis (39 respondents)
- Compiling a perfect and viable business plan (37 respondents)
- Market analysis and positioning (10 respondents)
- Marketing strategies (8 respondents)
- Methods for starting and developing a business (7 respondents)
- Growth and failure stages and signs (6 respondents)

- The importance of a sustainable competitive advantage (5 respondents)
- How to network as a business person (5 respondents)
- All of the above (35 respondents)

(Note that respondents could provide more than one answer as it was an open-ended question).

In the follow-up research questionnaire, the control group were asked to provide an indication of how their businesses had grown over the six-month period and their responses were:

- No growth, no profit, business is failing (23 respondents)
- Growth in employees and equipment (12 respondents)
- Gained more customers and projects (9 respondents)
- Average, slight growth (9 respondents)

7.8 Conclusion

During the course of this chapter relevant information was obtained and explained by means of descriptive and inferential statistics. Relevant data was captured and provided in tabular and figure format. The various statistical techniques and methods as discussed within the scope of Chapter 6 (Research design and methodology of the study) were practically applied within Chapter 7.

The personal demographic information of the respondents (experimental and control groups) was presented as well as their business demographic information. The experimental group's satisfaction and expectations regarding the WEP were captured as well as the control group's expectations about the WEP, if they should get an opportunity to attend the programme.

Factor analysis confirmed **four skills transfer factors,** namely **entrepreneurial characteristics, entrepreneurial orientation, business knowledge and entrepreneurial and business skills. Three business improvement factors** were also generated, namely **business systems and strategies, financial indicators**

and change orientation. The factor analysis indicated relatively high construct validity of the measuring instruments as evidenced by the high Cronbach alphas.
The chi-square test, *t*-test, Mann-Whitney test, and Wilcoxon matched-pairs test were executed to present the statistical differences between the experimental and control groups. The final section of this chapter focused on illustrating the statistical techniques used to measure the effectiveness of the WEP. The section mainly highlighted which of the respondents' business performance indicators improved after the WEP. The Kruskal-Wallis One-Way ANOVA test was also executed to illustrate statistical differences between various groups within the experimental group.

Attention will be paid in the next chapter to the conclusions and most important recommendations. The objectives and hypotheses of the study will be revisited. The information obtained will be applied within the boundaries and limitations of this particular study.