

CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The aim of the research was to determine whether there is a relationship between the personality traits and the work performance of credit controllers in Bankfin. In this chapter the empirical results reported in chapter four will be interpreted and the research findings will be related to the context created by the literature review in chapter three.

5.2 FACTORS INFLUENCING INTERPRETATION

The research results need to be interpreted against the background of statistically significant extraneous variables, the problematic measure used for the dependent variable and the sample size (which has an effect on the statistical power of the study).

5.2.1 The significant extraneous variables

The amount of effort spent on gauging the influence of extraneous variables on the relationship between personality variables and performance in the current study can be justified by the fact that the research was conducted in the context of the organisation as a system (see chapter two, section 2.8). It was not possible to control the multitude of influences on work performance in the organisational system in order that the effect of personality traits could be

studied in isolation. Extraneous variables were therefore also considered to enhance an understanding of the organisational system.

Two extraneous variables were found to have a statistically significant relationship with performance at the 0,01 level of significance: 'geographical location' and 'quality of portfolio'. These extraneous variables were taken into consideration in further analysis with the following results:

5.2.1.1 Geographical location

The correlation of personality variables with performance yielded a list of correlations with small effect sizes. This list changed dramatically in the correlation of personality variables with performance when 'geographical location' was partialled out. Moreover, in the stepwise multiple regression analysis where 'geographical location' was included alongside personality variables as predictors of performance, 'geographical location' came out as the strongest predictor of performance while two more personality variables, Conceptual (TS5) and Conscientious (TS11), were added as predictors with a significant contribution.

There are some obvious differences between the work of rural and urban credit controllers:

- (1) In section 4.4.2 (2) mention was made that the portfolio size in rural areas is often limited to the number of accounts that the Bankfin branch has in the particular town. If there are fewer accounts to focus on, it may enhance the opportunity of the credit controller to perform better. This is confirmed by the average portfolio size of 1385 for rural credit controllers compared to the average portfolio size of 2164 for urban credit controllers.

- (2) In section 4.4.2 (3) and (5) the more personal nature of the relationship between credit controllers and customers in rural areas were discussed, which could also be a mediating factor in the work performance of rural credit controllers.

The representativeness of the sample may have influenced the results with regards to geographical location. Whereas 49% of the population consisted of urban employees and 51% of rural employees, 61% of the sample consisted of urban employees and 39% of rural employees. This skewed representation was a direct result of the competing needs of sample size and cost (see chapter three, section 3.2). There may therefore be a sampling error (Keller and Warrack, 2000) due to the skewed representativeness of geographical location. The effect of such a possible error is, however, unknown.

The effect of 'geographical location' on performance should be taken into consideration when management and credit controllers contract performance goals. Figure 2.2 in chapter two shows that work performance depends on the willingness to perform, the capacity to perform, and the opportunity to perform. It seems that, whereas all credit controllers have identical performance contracts the opportunity to perform of urban credit controllers and the opportunity to perform of rural credit controllers is not identical. Should this trend continue and become visible, it may be perceived as unfair, eventually influencing the willingness of those credit controllers who feel that they are at a disadvantage, to perform.

Future researchers in this area may also specifically investigate differences between the rural and urban groups.

5.2.1.2 *Quality of portfolio*

'Quality of portfolio' proved to be a particularly problematic extraneous variable. 'Quality of portfolio' influenced the relationship between personality variables and performance. The statistically significant correlations that were found in the correlation between personality variables and performance as well as the list of correlations with small effect size changed dramatically when 'quality of portfolio' was partialled out. In the stepwise multiple regressions where 'quality of portfolio' was entered as predictor, first with personality variables and then also with personality variables and 'geographical location', 'quality of portfolio' came out as the strongest predictor of work performance, accounting for 52,4 % of the variance of work performance. Even the strong predictive value of 'geographical location' discussed in section 5.2.1.1 was totally overpowered by the predictive value of 'quality of portfolio'. Despite this strong predictive relationship, Conceptual (TS5) and Detail Conscious (TS10) still also come out at statistically significant predictors in the regression model.

Futhermore, the measure of 'quality of portfolio' and work performance seem to overlap as discussed in section 4.6.1.2 (a). If a client falls into arrears, the behaviour scoring, which influences 'quality of the portfolio', decreases. Poor performance may therefore be both a result and a cause of poor 'quality of portfolio'.

5.2.2 The dependent variable (performance)

The three sub-measures of the performance measure are problematic in the sense that 'percentage delinquent accounts' includes 'percentage accounts in arrears two months or more' and 'percentage customer complaints' was based on a very poor distribution amongst the sample. Although the researcher chose to use the dependent variable in the format that the bank uses it, including all

three sub-measures, future researchers may want to use a less problematic measure for work-performance. Furthermore, the measure for work performance includes only hardcore measures while other aspects of job performance such as relationships with colleagues have been omitted. The construction of the performance measure is thus limited.

There is also the matter of overlap in measurement between the extraneous variable 'quality of portfolio' and performance as discussed in section 4.6.1 (a). It is recommended that the bank should review the validity of their performance measure, taking both the validity of sub-measures and the influence of 'quality of portfolio' on performance, into consideration.

5.2.3 The sample

The required sample size for a statistical power level of 0,8 in the current study would be $n = 153$ as discussed in section 3.2. The researcher used a sample of convenience in an attempt to balance the competing elements of cost and statistical power. The resulting sample was $n = 89$, which has important consequences for the interpretation of the results.

The statistical power of this study was calculated at 0,59 as reported in section 4.2.1, which is somewhat low compared to the required level of 0,8. The lower the statistical power, the higher the probability of making a type II error, which implies not rejecting a false null hypothesis, i.e. not finding relationships which are there.

5.3 INTERPRETATION OF RESULTS

The results of the study are summarised in Table 4.21. The relationship between personality variables and the work performance of credit controllers in a

bank is very difficult to pinpoint exactly because of the limitations of extraneous variables, the limited power of the present study, and the problematic nature of the dependent variable as discussed in section 5.2.

In summary, if only statistically significant relationships are considered, there were three personality variables that were found to have a statistically significant relationship with the work performance of credit controllers in the bank:

- (1) Conceptual (TS5): the higher the score on Conceptual, the poorer the work performance of the credit controller.
- (2) Detail conscious (TS10): the higher the score on Detail Conscious, the better the work performance of the credit controller.
- (3) Conscientious (TS11): the higher the score on Conscientious, the better the work performance of the credit controller. This finding supports the previous research by Barrick and Mount (1991) as discussed in section 2.9.

The level of statistical significance of these relationships varied under different circumstances as can be seen in Table 4.21.

Due to the importance of effect size as discussed in section 3.4.2.4 (c) the following 20 relationships that were not statistically significant, but whose effect size can be interpreted at least as small ($r = 0,1$), could also be seen as important:

- (a) Persuasive (RP1): the higher the score on Persuasive, the better the work performance of the credit controller.

- (b) Outspoken (RP3): the higher the score on Outspoken, the better the work performance of the credit controller.
- (c) Outgoing (RP5): the higher the score on Outgoing, the poorer the work performance of the credit controller.
- (d) Socially Confident (RP7): the higher the score on Socially confident, the poorer the work performance of the credit controller.
- (e) Democratic (RP9): the higher the score on Democratic, the better the work performance of the credit controller.
- (f) Caring (RP10): the higher the score on Caring, the poorer the work performance of the credit controller.
- (g) Data Rational (TS1): the higher the score on Data Rational, the better the work performance of the credit controller.
- (h) Evaluative (TS2): the higher the score on Evaluative, the better the work performance of the credit controller.
- (i) Conventional (TS4): the higher the score on Conventional, the better the work performance of the credit controller.
- (j) Innovative (TS6): the higher the score on Innovative, the poorer the work performance of the credit controller.
- (k) Variety Seeking (TS7): the higher the score on Variety Seeking, the poorer the work performance of the credit controller.

- (l) Adaptable (TS8): the higher the score on Adaptable, the better the work performance of the credit controller.
- (m) Forward Thinking (TS9): the higher the score on Forward Thinking, the poorer the work performance of the credit controller.
- (n) Rule Following (TS12): the higher the score on Rule Following, the better the work performance of the credit controller.
- (o) Relaxed (FE1): the higher the score on Relaxed, the better the work performance of the credit controller.
- (p) Worrying (FE2): the higher the score on Worrying, the poorer the work performance of the credit controller.
- (q) Optimistic (FE4): the higher the score on Optimistic, the poorer the work performance of the credit controller.
- (r) Vigorous (FE7): the higher the score on Vigorous, the better the work performance of the credit controller.
- (s) Competitive (FE8): the higher the score on Competitive, the better the work performance of the credit controller.
- (t) Achieving (FE9): the higher the score on Achieving, the better the work performance of the credit controller.

The results of this study support the previous research (as discussed in section 2.9) which found that there is a relationship between personality and work

performance, expanding the body of research to include the specific discipline of credit control within the banking industry.

5.4 CONCLUSION

The research hypotheses were as follows:

H₀: There is no significant relationship between the personally traits of credit controllers and their performance results.

H₁: There is a significant relationship between the personality traits of credit controllers and their performance results.

H₂: Specific personality traits can be identified that will predict good and poor performance in credit control.

The null hypothesis is rejected based on the relationships between personality traits of credit controllers and their performance results as discussed in section 5.2, which also answers the general research question, "Is there a relationship between the personality traits of credit controllers and their work performance in a bank?"

The specific research question, "What are the measurable personality traits that can be used to predict good performance results for a credit controller in a bank?" has also been answered by the identification of the 23 important relationships although the limitation of low statistical power caused by a too small sample may have an important influence on the results.

Despite the limitations of this study, the researcher is of the opinion that it adds to the body of evidence that there is a relationship between personality and work performance, some of which was discussed in section 2.9.

Barrick and Mount (1991), in their meta-analysis of 117 studies (see section 2.9) suggest that one dimension of the Big Five dimensions of personality, conscientiousness, showed consistent relations with the performance for all occupational groups while the correlations of the other four personality dimensions varied by occupational group. It is interesting to note that Conscientiousness (TS11) also has a statistically significant relationship with performance in this study.

5.5 LIMITATIONS

The following limitations have been identified in the present study:

- (1) Sample size: The sample size of 89 resulted in a statistical power of 0,59 which compares poorly to the required statistical power of 0,8 as discussed in section 4.2.1.
- (2) Representative sample: Due to the convenience method of sampling used by the researcher, the percentage of rural participants was low (39 % of n) compared to the population (51 % of N). This is especially limiting since 'geographical location' was found to be a statistically significant extraneous variable.
- (3) Extraneous variables: Two statistically significant extraneous variables, the have a strong influence on the relationship between personality variables and work performance, were identified. 'Geographical location' not only has a statistically significant relationship with work performance,

but it can be seen as important because of the poor representation of rural credit controllers in the sample. 'Quality of portfolio' not only has a statistically significant relationship with work performance, but it contaminates work performance because it is a cause as well as an effect of work performance.

- (4) Measurement of the independent variable: The measure used for personality variables, OPQ32i, is controversial because of the ongoing debate about the validity of ipsative scales for studies that make comparisons between individuals. See section 2.6.2.5.
- (5) The criterium used for performance posed problems in terms of three aspects:
 - the inter-correlation of two of the sub-measures;
 - the weak distribution of the third sub-measure in the sample; and
 - the limitation of only using hardcore aspects of performance while other aspects of performance, like relationships with colleagues, may also be important.
- (6) There may have been other important extraneous variables that were not identified during the focus group because the process followed to identify extraneous variables was very simplistic.
- (7) All job incumbents were selected for the position of credit controller by means of psychometric testing and this may have resulted in restriction of range for some of the personality traits. Information on all applicants was not available and as a result no corrections for the restriction of range could be made.

- (8) The study was limited to one business unit of one organisation.

5.6 RECOMMENDATIONS

Recommendations for future researchers in this field:

- (1) Future research in this field should be supported by a bigger sample to increase the statistical power of the study.
- (2) Future research in this field should also be supported by a more representative sample, specifically with regards to extraneous variables that have an effect on the dependant variable.
- (3) Future researchers may want to attempt a more comprehensive approach to identify extraneous variables.
- (4) Future researchers may want to improve the measurement of performance, possibly using only one of the sub-measures with a very high inter-correlation and also gathering performance data over a longer period of time so that a clearer picture of the third sub-criterion of performance, customer complaints, can be obtained.
- (5) Future researchers will benefit by obtaining information on all applicants for a position so that corrections can be made for possible restriction of range.
- (6) Similar studies should be done over a broader spectrum of business units in that organisation or over a broader spectrum of organisations to enable more generalisable conclusions.

Recommendations to the management of the credit control discipline in Bankfin:

- (a) The effect of geographical location should be taken into consideration when performance goals are contracted with credit controllers in order to be fairer to them. Geographical location seems to have a significant effect on the performance of credit controllers, with credit controllers in rural areas on average performing better than credit controllers in urban areas when using the current performance criteria.
- (b) The sub-measures used for performance should be reviewed in the light of limitations discussed in section 5.2.2.

5.7 CHAPTER SUMMARY

This chapter included interpretations of the results against the background of the limitations of sample size, extraneous variables and the problematic criterion measure. Conclusions were made where the results were linked to the initial purpose of the study. Recommendations were made both to future researchers in this field and to the management of Bankfin in terms of some performance management issues. The limitations of the study were finally summarised.

REFERENCE LIST

- Allport, F.H. (1955). *Theories of perception and the concept of structure: A review and critical analysis with an introduction to a dynamic structural theory of behaviour*. New York: Wiley.
- Aron, A. & Aron, E.N. (1997). *Statistics for the behavioral and social sciences: A brief course*. Upper Saddle River: Prentice Hall.
- Avery, G. & Baker, E. (1990). *Psychology at work*. (2nd ed.). Sydney: Prentice Hall.
- Bain, P. (2002, January). Research on the use of the 16PF in South Africa. Retrieved September 30, 2002 from the World Wide Web: <http://www.pai.org.za/16pf.htm>
- Barnard, P.C. (1987). *Persoonlikheid as determinant by werksprestasie*. Unpublished M.A. dissertation. UNISA, Pretoria.
- Barrick, M.R. & Mount, M.K. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel Psychology*, 44, 1-26.
- Bateman, T.S. & Zeithaml, C.P. (1990). *Management: Function and strategy*. Homewood: Irwin.
- Bendix, S. (2000, June). *The implications of the Employment Equity Act on selection, with particular attention to psychometric testing*. Paper presented at the Industrial Psychology Conference of the Society for Industrial Psychology, Pretoria.

Bolton Institute of Psychology. *Comte, Ayer and logical positivism*. [Lecture posted on the World Wide Web]. Retrieved November 10, 2002 from the World Wide Web : <http://www.sar.bolton.ac.uk/ltl/lecture2.htm>

Caroux, E. & Moerdyk, A. (1997). Employment equity part 1: Changing perceptions. *People Dynamics*, 16(2), 32-37.

Cattell, R.B. (1944). A note on correlation clusters and cluster research methods. *Psychometrika*, 9, 169-184.

Cattell, R.B. (1984). The voyage of a laboratory: 1928-1984. *Multivariate Behavioural Research*, 19(2-3), 121-174.

Cattell, R.B., Eber, H.W. & Tatsuoka, M.M. (1985). *Handbook for the Sixteen Personality Factor questionnaire (16PF)*. Champaign: Institute for Personality and Ability Testing, Inc.

Chan, W. (2003). Analyzing ipsative data in psychological research. *Behaviormetrika*, 30(1), 99-121.

Chatman, J.A., Caldwell, D.F. & O'Reilly, C.A. (1999). Managerial personality and performance: A semi-idiographic approach. *Journal of Research in Personality*, 33(4), 514-545.

Christensen, L.B. (1994). *Experimental methodology*. (6th ed.) Boston: Allyn and Bacon.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences*. (2nd ed.). Hillsdale: Lawrence Erlbaum Associates.

- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159
- Corsini, R.J. & Marsella, J.M. (1983). *Personality theories, research, & assessment*. Ithaca: F.E. Peacock Publishers.
- Dessler, G. (1983). *Personnel management: Modern concepts and techniques*. (2nd ed.) Reston: Reston Publishing Company.
- Doman, F. (2000) *Die verband tussen persoonlikheid en toesighouersukses in die suiwelbedryf*. Unpublished M.Com dissertation. UNISA, Pretoria.
- Employment Equity Act, No 55 (1998). *Government Gazette*, 400 (19370).
- Frankl, V.E. (1984). *Man's search for meaning*. New York: Washington Square Press.
- Freud, S. (1946). *New introductory lectures on psycho-analysis* (W.J.H Sprott, Trans.). London: Hogarth Press.
- Gerber, P.D., Nel, P.S. & van Dyk, P.S. (1993). *Mannekragbestuur* (2nd ed.). Halfway House: Southern Publishers.
- Goldberg, L.R. (1990). An alternative "description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology*, 59, 1216-1229.
- Gouws, L.A., Louw, D.A., Meyer, W.F. & Plug, C. (1982). *Psigologie-woordeboek*. Johannesburg: McGraw-Hill.

- Gregory, R.J. (1996). *Psychological testing: History, principles, and applications*. (2nd ed.) Needham Heights: Allyn and Bacon.
- Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1995). *Multivariate data analysis with Readings*. (4th ed.) Prentice Hall: Englewood Cliffs.
- Henson, R.K. & Smith, A.D. (2000). State of the art in statistical significance and effect size reporting: A review of the APA task force report and current trends. *Journal of Research and Development in Education*, 33(4), 285-296.
- Hunter, J.E. & Schmidt, F.L. (1990). *Methods of meta-analysis: Correcting error and bias in research findings*. Sage: Beverly Hills.
- Internet Encyclopedia [sic.] of Philosophy. *Logical Positivism*. Retrieved November 10, 2002 from the World Wide Web: (<http://www.utm.edu/research/iep/l/logpos.htm>)
- Ivancevich, J.M. & Matteson, M.T. (1996). *Organizational behavior and management*. (4th ed.) Chicago: Irwin.
- Johnson, C.E., Wood, R. & Blinkhorn, S.F. (1988). Spuriousness and spuriousness: The use of ipsative personality tests. *Journal of Occupational Psychology*, 61, 153-162.
- Jung, C.G. (1971). *The portable Jung* (R.G.C. Hull, Trans.). New York: The Viking Press.
- Keller, G. & Warrack, B. (2000). *Statistics for management and economics*. Pacific Grove: Duxbury.

- Kerlinger, F.N. (1986). *Foundations of behavioral research*. (3rd ed.) New York: CBS College Publishing.
- Kierstead, J. (1998). Personality and job performance: a research overview. Retrieved September 03, 2003 from the World Wide Web: www.psc-cfp.gc.ca/research/personnel/personality_e.pdf.
- Lachenicht, L. (2002). Statistical power. In C. Tredoux & K. Durrheim (Eds), *Numbers, hypotheses & conclusions: A course in statistics for the social sciences*. (pp. 142-159). Cape Town: UCT Press.
- Lewis, P.S., Goodman, S.H. & Fandt, P.M. (1998). *Management challenges in the 21st century*. (2nd ed.) Cincinnati: South-Western College Publishing.
- Maas, F. (1989). *Die persoonlikheidsteorie van Cattell*. Pretoria: Human Sciences Research Council.
- Macmann, G.M. & Barnett, D.W. (1999). Myth of the master detective: Reliability of interpretations for Kaufman's intelligent testing approach to the WISC-III. Retrieved August 20, 2003 from the World Wide Web: <http://education.indiana.edu>.
- Maddi, S.R. (1996). *Personality theories: A comprehensive analysis*. (6th ed.) Pacific Grove: Brooks/Cole Publishing Company.
- Marais, F.A.J. (1970). *'n Pedagogies-psigologiese evaluering van die keuring van suksesvolle onderwysstudente*. Unpublished M Ed dissertation. Johannesburg: Randse Afrikaanse Universiteit.

Mauer, K.F. (2000, April). Psychological test use in South Africa. Retrieved September 30, 2002 from the World Wide Web: <http://www.pai.org.za/Psychological%20test%20use%20in%20South%20Africa.pdf>

McCormick, E.J. & Ilgen, D. (1985). *Industrial and organizational psychology*. (8th ed.) Englewood Cliffs: Prentice-Hall.

Meyer, W.F., Moore, C. & Viljoen, H.G. (1988). *Personality theories - from Freud to Frankl*. Johannesburg: Lexikon.

Mouton, J. & Marais, H.C. (1994). *Basic concepts in the methodology of the social sciences*. Pretoria: HSRC.

Murray, H.A. (1938). *Explorations in personality*. New York: Oxford University Press.

Nel, P.S., Gerber, P.D., van Dyk, P.S., Haasbroek, G.D., Schultz, H.B., Sono, T. & Werner, A. (2001). *Human resources management*. (5th ed.) Cape Town: Oxford University Press.

Prentice, D.A. & Miller, D.T. (1992). When small effects are impressive. *Psychological Bulletin*, 112(1), 160-164.

Prinsloo, C.H. (1992). *Manual for the use of the Sixteen Personality Factor Questionnaire, Form E*. Pretoria: HSRC.

Rogers, C.R. (1989). *The Carl Rogers reader*. Boston: Houghton Mifflin.

Saville, P., Cramp, L. & Henley, S. (1995). *OPQ course handbook*. Thames Ditton: Saville & Holdsworth.

Saville, P. & Munro, A. (1986). The relationship between the factor model of the Occupational Personality Questionnaires and the 16PF. *Personnel Review*, 15(5), 30-34.

Saville, P., Sik, G., Nyfield, G. & Hackston, J. (1996). A demonstration of the validity of the Occupational Personality questionnaire (OPQ) in the measurement of job competencies across time and in separate organizations. *Applied Psychology: An International Review*, 45(3), 243-262.

SHL. (1993). *OPQ Concept Model manual and user's guide*. Surrey: Author.

SHL. (1999). *OPQ32 Manual and user's guide*. Surrey: Author.

SHL. (2000a). *Guidelines for best practice in occupational assessment in South Africa*. Groenkloof: Author.

SHL. (2000b). *The Occupational Personality Questionnaire in South Africa: Psychometric research perspectives*. Groenkloof: Author.

Skinner, B.F. (1993). *About behaviourism*. London: Penguin.

Swinburne, P. (1986). Personality questionnaires as a source of learning in management education and training: a comparison of the OPQ and the 16PF. *Personnel Review* (15)1, 32-35.

The professional board of psychology, health professions council of South Africa. (2001). List of tests classified as being psychological tests. Retrieved September 30, 2002 from the World Wide Web:

http://www.hpcs.co.za/Professional_Boards/Psychology/Forms/F207.pdf

The Psychological Society of South Africa. (1996). *Ethical code for psychologists*. Pretoria: Author.

The Psychological Society of South Africa (Society for Industrial Psychology). (1998). *Guidelines for the validation and use of assessment procedures for the workplace*. Auckland Park: Author.

The 16PF Questionnaire: Key information. (2001). Retrieved September 30, 2002 from the World Wide Web: <http://16pfworld.com/keyinfo.html>

Thompson, B. (1999). Improving research clarity and usefulness with effect size indices as supplements to statistical significance tests. *Exceptional Children*, 65(3), 329-337.

Thorndike, E.L. (1968). *Human learning*. New York: Johnson Reprint.

Tredoux, C.G. & Durrheim, K.L. (2002). *Numbers, hypotheses and conclusions*. Juta: Cape Town.

Wiesen, C.A. & Schlenger, W.E. (1998). *Statistical power: a primer*. Centre for Substance Abuse Prevention, Research Triangle Institute contract no. 227-97-6003-01.