

CRANFIELD UNIVERSITY

DAWN JOHANSEN

**THE DEVELOPMENT AND EVALUATION OF
AN INSTRUMENT TO ASSESS AND DEVELOP
THE DESIRABLE ATTRIBUTES OF RAF AIRMEN**

SCHOOL OF ENGINEERING

PhD THESIS

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March 2005

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ABSTRACT

The research reported in this thesis related specifically to Royal Air Force (RAF) personnel. The primary aim of the work was to design an instrument to assess and develop the desirable attributes of airmen regardless of rank, trade-group or location.

The work comprised three separate but integrated studies that culminated in the successful introduction of the tool to the Recruit Training Squadron (RTS).

The first study consisted of a job analysis based on repertory grid technique with data elicited from 128 RAF personnel with experiences of line management of airmen. This stage of the research yielded 117 constructs from which twenty desirable attributes (each illustrated by observable behavioural examples) were generated.

The second study was conducted to assess the content validity and generalisability of the list of twenty attributes identified from the first study. Thirty three officers and airmen, who represented all RAF ranks, considered the face validity of the list: ranked the twenty items in order of importance; and rated a 'good', 'average' and 'poor' airmen on each of the attribute items. The results of this study were used to develop the instrument for recruit assessment and development.

The final study was designed to examine the reliability and validity of the tool for use at RTS. In this stage of the research, RTS instructors were trained in the use of the tool which they then trialled with four separate recruit groups. In trial recruits were assessed on the development tool on three occasions over seven weeks. At the end of the initial training period development scores were correlated with standard assessment measures. The correlations between development instrument scores and standard training measures were all statistically significant, with some associations being particularly strong.

CONTENTS

Chapter		Page
1	Overview	1
	1.1 Identification of The Problem	1
2	The Importance of Attitude to Work Performance	6
	2.1 Attitude Definition	6
	2.2.1 Measurement of Attitude	8
	2.2.2 The Relationship Between Attitudes and Behaviour	9
	2.3 Summary	11
3	Work Performance	13
	3.1 Models Of Work Performance	13
	3.1.1 Task Performance	14
	3.1.2 Contextual/Citizenship Performance	15
	3.1.3. How Contextual/Citizenship Behaviour Is Rewarded	17
	3.1.4 Contextual/Citizenship Behaviour – In Role Or Extra Role?	18
	3.2 Competencies	18
	3.2.1 Competency Categories	19
	3.2.2 People Versus Task-Oriented Competencies	21
	3.2.3 The Link Between Competencies And Job Performance	22
	3.3 Work Performance And The Military	23
	3.3.1 Project A	25
	3.3.2 Limitations Of Project A	26
	3.4 Summary	27
4	Identifying Desirable Work Behaviours	29
	4.1 Job Analysis	29
	4.1.2 Methods of Job Analysis	29
	4.1.2.1 Critical Incident Technique	30
	4.1.2.2 Repertory Grid Technique	30
	4.1.2.3 Evaluation of Both Methods for use within the RAF	33
	4.3 Accuracy of job analysis	34
	4.4 The use of subject matter experts in job analysis	37
	4.5 Summary	39

5	Methods Of Assessing Behaviours	40
5.1	Sources of Error	41
5.1.1	Halo Effect	41
5.1.2	Leniency	42
5.1.3	Context	43
5.1.4	Vehicle	43
5.2	Ways To Reduce Error.	43
5.2.1	Rater Training	43
5.2.2	Scale Design	44
5.3	Behavioural Rating Formats	45
5.3.1	Graphic Rating Scales:	45
5.3.2	Behaviourally Anchored Rating Scales (BARs):	45
5.3.3	Behavioural Observation Scales	46
5.4	Summary	46
6	Summary of the Literature Review and Aims and Objectives of the Research	47
6.1	Aims and Objectives of the Present Research	49
7	Identification of Desirable Behaviours of RAF Airmen	50
7.1	Introduction	50
7.1.1	Aims And Objectives	50
7.1.2	Objectives	51
7.2	Methodological Considerations	51
7.3	Method	52
7.3.1	Participants	53
7.3.2	Interviews	55
7.3.3	Construct Elicitation	55
7.3.4	Laddering	57
7.3.5	Ratings	57
7.4	Results	58
7.4.1	Analysis And Results Of The Construct Elicitation	58
7.4.2	Differences Between Locations	60
7.4.3	Analysis And Results Of Ratings	60
7.4.4	Constructs Related To The Core Values	63
7.4.5	Results For Laddering	64
7.5	Discussion	68
7.5.1	Overview	68
7.5.2	Aims And Objectives	68
7.5.3	Summary Of Results	68
7.6	Conclusions	72

8	Validation of the Desirable Attributes	74
8.1.1.1	Introduction	74
8.1.1.2	Aims And Objectives	77
8.1.1.2.1	Aim	77
8.1.1.2.2	Objectives	78
8.1.1.3	Methodological Considerations	78
8.1.1.4	Method	79
8.1.1.4.1	Participants	79
8.1.1.4.2	Qualitative Analysis	80
8.1.1.4.3	Ranking Order of Importance	81
8.1.1.4.4	Rating Individuals on Frequency of Performance of Each of the Desirable Attributes	82
8.1.1.5	Results	83
8.1.1.5.1	Qualitative Analysis	83
8.1.1.5.2	Results of Ranking the Order of Importance of the Desirable Attributes	86
8.1.1.5.3	Officer/Airmen Differences in the Ranking of the Order of Importance of the Desirable Attributes	86
8.1.1.5.4	Length of Service Differences in the Ranking of the Order of Importance of the Desirable Attributes	87
8.1.1.5.5	Differences Between Locations in the Ranking of the Order of Importance of the Desirable Attributes	88
8.1.1.5.6	Results of Rating Individuals on Frequency of Performance of Each of the Desirable Attributes	93
8.1.1.5.7	Comparison Between the Different Methods of Identifying the Order of Importance of Desirable Attributes	95
8.1.1.5.8	Discussion	
8.1.1.5.9	Conclusions	103
		104
9	Design and Validation of the Behaviour Measuring Instrument	105
9.1	Introduction	105
9.1.2	The Behaviour Measuring Instrument (BMI)	105
9.2	AIMS AND OBJECTIVES	107
9.2.1	Aims	107
9.2.2	Objectives	108
9.3	METHOD	108
9.3.1	Development of the BMI	108
9.3.2	Preparation for the Trials	109
9.3.2.1	Instructors	109
9.3.2.2	Trainees	110
9.3.3	The Trials	110
9.3.4	Treatment of Data	111
9.3.5	Qualitative Information	111

9.4	Results	112
9.4.1	Recruit Training Squadron Data	112
9.5	Reliability	112
9.5.1	Test Re-Test Reliability	112
9.5.2	Inter-Rater Reliability	113
9.5.3	Internal Consistency	113
9.6	Validity	114
9.6.1	Face Validity	114
9.6.2	Concurrent Validity	115
9.6.3	Predictive Validity	116
9.6.4	Construct Validity	117
9.7	Discriminatory Power	117
9.8	Item Analysis	118
9.8.1	Item Difficulty and Distribution of Test Scores	118
9.9	The BMI As A Development Tool	122
9.10	Discussion	123
9.10.1	Objectives	123
9.10.2	Summary of Results	123
9.10.3	Reliability and Validity of the BMI	124
9.10.4	Training of Instructors	124
9.10.5	The BMI as a Development Tool	125
9.10.6	The BMI as a Measure of Recruit Attitude	126
9.11	Conclusions	127
10	Discussion and Conclusion	128
10.1	Overview	128
10.2	The identification of the problem	129
10.3	The Importance of Attitude to Work Performance	129
10.4	Work Performance	130
10.5	Identifying Desirable Work Behaviours	136
10.6	Conclusion	138
	References:	139

APPENDICES

Appendix A – Training for Desirable Behaviour Interviews

Appendix B – Results of ANOVAs to compare means construct ratings

Appendix C – Full list of behaviours produced by the job analysis

Appendix D – Comparison of Officer/Airman differences in rank order of attribute list

Appendix E - Comparison of length of Service differences in rank order of attribute list

Appendix F – Comparisons between location in the ranking of the order of importance

Appendix G - Comparison of mean scores for good, average and poor airmen for each desirable attribute

Appendix H – The Behaviour Measuring Instrument (BMI)

CHAPTER ONE

OVERVIEW

“There is a general perception that the attitudes that recruits are bringing in to the military are not of the required standard.”

(Rugg-Gunn, McLeod, Cunningham, & Green 2001)

1. IDENTIFICATION OF THE PROBLEM

This research was born out of a problem being experienced in the British Military.

There was a perception within the Royal Air Force (RAF) that there were problems with the attitudes of new recruits joining the organisation. It was felt that recruits were coming in to the RAF who had the skills and abilities required to pass out of initial training but did not have what was perceived to be the ‘right attitude’ for the RAF.

This was not only being identified as an issue for the RAF but also for the military generally in the UK. The Royal Marine Corps trainers hold the view that *“today’s youth is not what it used to be”* (Hardy, Shariff, Jones & Allsopp 2001 p.6). The Army were also expressing similar views with feedback from senior military personnel and training instructors indicating *“the attitudes that recruits are bringing in to the military are not of the required standard”* (Rugg-Gunn, McLeod, Cunningham, & Green 2001 p.1). In particular this problem appears to have started with ‘Generation X’ i.e. those born between 1965 & 1981 (Archer, 2001).

The reason for this perceived decline in standards is generally thought to be changes in the wider society. It is argued (Dandeker & Paton, 1997) that particular concepts

such as duty, self-discipline, self-sacrifice, respect and concern for others are waning in general society. Dandeker & Paton (p.45) go on to suggest that *“the armed forces have to establish a framework for their future organisational culture that preserves those elements that are deemed essential for operational effectiveness (and can be shown to be so) and which therefore underpin the unique elements of the military contract.”*

The RAF Core Values could be seen as a basis for this framework. The RAF Core Values and Standards in the Royal Air Force Booklet (2000 p.1) states: *“The Royal Air Force is built on a foundation of shared values, expectations and commitment. The core values of the RAF are built around seven key qualities; integrity, courage, commitment, professionalism, pride, loyalty and team work”.*

If those traditional core values are as important now as they were previously seen to be; the RAF need to be able to demonstrate and ensure that those outside the organisation are also aware of those values and recognise the benefits of them. If, as argued (Dandeker & Paton, 1997) those traditional values no longer exist in wider society then recruits to the RAF need to have their value and need demonstrated and for recruits to be afforded the opportunity to develop them.

The first step in achieving this will be to identify and clarify what values and attitudes are really important for an airman to hold today. Although Rugg-Gunn et al (2001) reported a perception of poor attitude in new recruits to the military, the Systems

Approach to Training (SAT) (the prescribed approach to training analysis, design, conduct and evaluation across all three services) does not address this attitudinal element. In an attempt to address the issue within the RAF, instructors at the Recruit Training Squadron (RTS), developed a list of training objectives, labelled 'attitudinal goals' by the RAF. There is no record of who developed these goals or the methodology used for their development. However, they appear to have been in use for some time and were included in the training objectives of the many of the RAF trade training courses. These goals state that a trainee should show a positive attitude towards:

- 1) *Their role in the RAF commensurate with rank and experience.*
- 2) *Their commitment to the RAF.*
- 3) *Professional training and personal development.*
- 4) *Increasing their awareness of the role of the RAF.*
- 5) *The need for military discipline.*
- 6) *Effective team working.*
- 7) *Maintaining high standards of dress, deportment and integrity.*
- 8) *Personal health and physical fitness*
- 9) *The application of health and safety at work and environmental protection*
- 10) *Security in the RAF*
- 11) *Effective communication*
- 12) *The equal opportunities policies within the RAF*

Although these goals were developed the instructors had not found them useful for helping them to assess and develop new recruits. The instructors reported, that they found the goals inadequately defined, subjective and unlikely to stand up to legal inspection. Therefore, the Recruit Training Squadron (RTS) approached Command Scientific Support Branch (CSSB) to develop an instrument that would allow instructors to assess the 'right attitude' for RAF airmen.

A number of attempts had been made to try to address the issue however none had proved to be successful (Childs 1990). It seems that although theory has much to offer the practitioners the link between theory and practice is often not made (Locke & Cooper, 2000). This certainly seems to have been the case with this issue within the RAF. It was therefore the objective of this study to apply theories in order to address the real problem. The aim of the literature review was to investigate theories that were thought to be likely to be relevant to the problem of how to assess attitude in RAF recruits during basic training. In summary the areas of the literature that were examined were:

1. The importance of attitude to work performance: Chapter two
2. Work Performance: Chapter three
3. Identifying Desirable Work Behaviours: Chapter four
4. Methods of Assessing Behaviours: Chapter five

Chapter six provides a summary of the literature review and outlines the structure and the aim and objectives of the present research.

The research was conducted in three separate studies and each study is presented separately:

1. The Behaviour Elicitation Study: Chapter seven
2. The Behaviour Validation Study: Chapter eight
3. The Design and Validation of the Behaviour Measuring Instrument: Chapter nine

The results are discussed in relation to each study in the relevant chapter and chapter ten aims to draw those discussions together and relate the findings of this research to the area of applied psychology.

CHAPTER TWO

2. THE IMPORTANCE OF ATTITUDE TO WORK PERFORMANCE

The first area in which it would be appropriate to examine the literature would be the area of measurement of work performance in relation to how an employee's attitude may affect their performance. Although the RAF had specified an interest in recruit attitudes, the real interest was in the fact that poor attitudes were associated with poor performance. Therefore, the first question to be answered in this research is what does the literature tell us about the importance of attitude to job or role performance?

2.1 Attitude Definition

Many definitions of attitude have been suggested but not one has received unanimous acceptance (White, 2000). However, there are some consistent themes that emerge from all the definitions. Firstly, that an attitude must have a target or object and secondly, that an attitude is evaluative in nature. The Collins English Dictionary (1994) definition summarises this as *"the way a person views something or tends to behave towards it, often in an evaluative way"*.

When considering the measurement of attitude Rosenberg & Hovland, (1960) provide a useful framework by considering an attitude as a predisposition to respond to some class of stimuli with a certain class of response. These classes of response are specified as affective, cognitive and behavioural.

The effective element refers to the emotions concerned with the attitude object. An attitude object may be pleasing or displeasing, liked or disliked, but it is this emotional loading that gives attitudes their insistent and motivating nature.

The cognitive component refers to the beliefs of the individual about an object. The most important cognitive beliefs are evaluative, i.e. they involve the attribution of good/bad or favourable/unfavourable beliefs towards the object.

The behavioural element is the action tendency of an attitude and includes all the behavioural readiness associated with that object. It suggests that if individuals hold a positive attitude towards a given object then they will be disposed to help or reward or support the object. The relationship between these components is shown in figure 1.

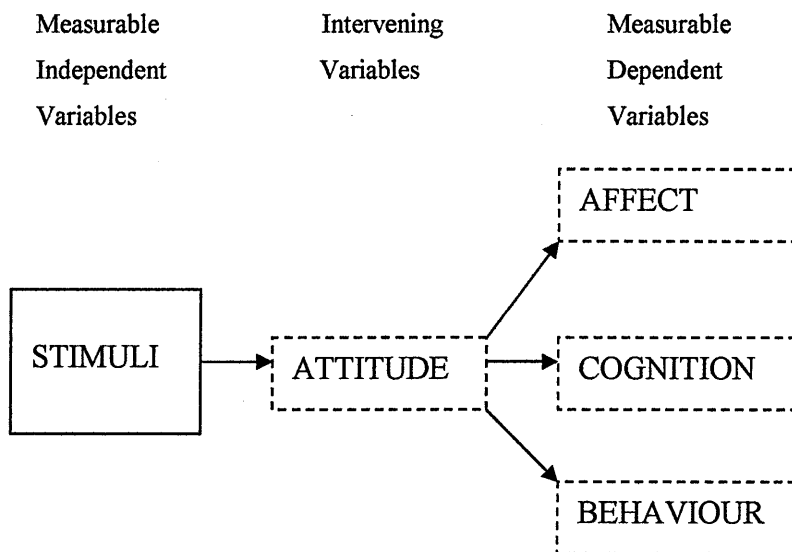


Figure 2.1 - Three component model of attitudes (Rosenberg & Hovland, 1960)

The three component model as shown above indicates that the concept of an attitude is being used to intervene between observable antecedent stimuli and observable subsequent responses. The attitude is positioned in the middle of the causal chain acting as both an effect and cause of external observable events. (Rugg et al , 2001) However, as can also be seen in figure 2.1 the measurable dependent variables are affect, cognition and behaviour rather than the attitude itself. Therefore in order to assess attitude all three components will need to be measured rather than simply measuring any individual component.

2.2.1 Measurement of Attitude

The three component model has major implications for the measurement of attitudes in that any complete description of a person's attitude requires measurements from all three classes of responses. Evidence in support of this notion comes from Triandis (1964) who argues that any form of attitude measurement should incorporate indices of each component. Thus in order to accurately measure attitude any tool should include affective, cognitive and behavioural elements.

There are a number of ways of measuring an attitude. The most widely used is the attitude scale. An attitude scale consists of a set of statements or items to which the person responds. The pattern of responses provides a way of inferring something about that person's attitude towards a particular object. Attitudinal scales have been developed which are argued to measure both the affective and cognitive components of attitude. Fishbein and Ajzen (1975) have shown that it is possible to construct behavioural attitude scales by applying the same scaling and item selection procedures

to a series of behavioural criteria. However, *“in terms of evaluating the effectiveness of military training, what are required are more overt measures of behaviour”*. (Rugg et al (2001 p.10))

Attitude scales are usually self report measures and thus the most direct way of measuring an individual's attitude. However they rely on that individual being self-aware, able to articulate their attitudes and having no reason to lie about them. In a situation where an individual's employment may be effected by their 'attitudes' they may be tempted to portray themselves in a positive light. It may be that in such a situation a more accurate reflection of an individual's attitude may be inferred from their behaviour. It is therefore appropriate to investigate the research into the relationship between attitudes and behaviour.

2.2.2 The Relationship between Attitudes and Behaviour

Research investigating the link between attitudes and behaviour began in the 1930s and proved to be largely unsuccessful. Fishbein and Ajzen, (1974) suggested that the failure of research to produce a relationship between behaviour and attitude was due to the generality of the stimulus. Attitude measures usually asked about a broad class of events or objects whereas behavioural manifestation of attitudes is in response to a single stimulus. Fishbein and Ajzen concluded that it is not that attitudes do not predict behaviour; it is that general attitudes do not predict specific behaviours. General attitudes predict aggregated behaviour; specific attitudes predict specific behaviour.

In order to explain the relationship between attitudes and behaviour Fishbein & Ajzen, (1975) developed the Theory of Reasoned Action. In summary, the theory states that actions are derived from intentions, and that intentions are themselves derived from an individual's attitude and perception of social pressure. The model proposes that there are only two determinants of a person's intentions: firstly, their attitude toward performing an act and secondly, their perceptions of what other important people in their life think they should do (subjective norm). For some behaviours attitude is more important than subjective norm and for others the reverse is true. An important point to make is that the theory emphasises attitudes towards behaviours, rather than attitudes towards objects or targets.

More recent research also supports this view. Fazio (1990) proposes two routes by which attitude affects behaviour: firstly a spontaneous peripheral route, in which attitude influences the way in which a situation is perceived and secondly a data driven route, in which behaviour is based on an effortful consideration of available information, including the expectation of others.

Other research indicates that certain conditions may lead to a stronger relationship between attitudes and behaviour. For example: Pratkanis & Turner (1994) suggested that a strong correspondence between attitudes and behaviour can be expected when four conditions are met.

1. The attitude object is well-defined and relevant to the current situation;
2. The attitude is strongly held;
3. The individual can access a lot of complex knowledge supporting the attitude;
4. The attitude supports aspects of the self concept:

Van Harreveld, Van Der Plight & De Vries, (2000) reinforce the view that the relation between attitude and behaviour depends on the centrality and strength of the attitude. They argue that attitudes that are central and strongly held are more accessible and therefore more likely to drive behaviour.

So the more recent literature would appear to support a link between attitudes and behaviour, provided that the attitude is important enough, strong enough and relevant to the behaviour. Effective attitude measurement is clearly a complex and contextually dependent exercise and whilst various attitude measurement techniques have been developed and applied none are universally applicable. The implications of the research relating to attitude definition and measurement would suggest that it would be inappropriate for attitudes to be inferred from behaviour alone, especially during initial training for recruits to the military.

2.3 Summary

The literature suggests that attitude may well affect an individual's intention to act, however that intention to act may or may not lead to a behaviour being performed. Thus the link between attitude and behaviour is not straightforward or always consistent. If the link between attitude and behaviour is not proven then to use behaviour to infer attitude would not be appropriate. Equally to imply that a person who does not have the 'right' attitude cannot contribute effectively to a particular organisation would not be valid either.

However, there was a perception that poor attitude was leading to poor performance from recruits during basic training that remained through trade training and into productive RAF service. This situation was not acceptable to the RAF and needed to be addressed. Although the literature has not proven a consistent link between attitude and behaviour, in everyday life individuals tend to infer a 'bad' or 'poor' attitude as a result of overt behaviour. This would suggest that the problem related to the behaviour of recruits and it was behaviours themselves that needed to be addressed rather than attempting to link behaviours to specific attitudes. It would therefore be appropriate to examine the literature with regard to the area of work performance and the impact that behaviour may have on work performance.

CHAPTER THREE

“An employee owes no ‘loyalty’, he owes no ‘love’ and no ‘attitudes’ – he owes performance and nothing else” – (Drucker 1973)

3. WORK PERFORMANCE

Perhaps the most important dependent variable in occupational psychology is work performance. For the main applications of occupational psychology such as training, job design, employee motivation the focus is always on improving job performance. Latham & Latham (2001). For this particular study the area of interest is how behaviour may affect work performance.

3.1 Models of Work Performance

Work performance appears to be a multidimensional construct with many models that attempt to explain the concept. Campbell (1990) developed a model of job performance that differentiated eight-factors, but these eight factors were divided into job-specific and non-job behaviours. In this model, task specific proficiency relates to core tasks and skills required to perform one’s job. These tend to be reflected in those job competencies judged as essential for job incumbents. Non-job specific proficiencies represent desirable and incidental competencies.

Viswesaran & Ones (2000) offer a good review of work performance in which they breakdown the dimensions of job performance from various studies. These dimensions were organized into two groups: dimensions for single occupations and dimensions that are applicable to all occupations. Robertson and Smith (2001 p.447)

reviewed this list of dimensions and found that there were a number of vague statements and remarkable variety and little common ground between the dimensions, and they concluded *“It would seem we have a considerable way to go before research provides us with a common set of variables underlying work performance.”*

However, there is some consistency in the literature suggesting that work performance can be considered as two dimensional. Developments in the area of personnel research have included the broadening of the construct of job performance beyond the effective performance of the relevant tasks, to include non-job components of performance (Austin & Villanova, 1992). Models to measure work performance now usually tend to break down jobs into two main categories: Task Performance and Contextual Performance. (Welbourne, Johnson & Erez, 1998.)

3.1.1 Task Performance

Historically, job performance has been measured in terms of core task activities, which have been identified in job analyses that focus on tasks and estimate their importance and frequency of occurrence. Task performance refers to the proficiency with which these tasks are completed Robertson & Smith (2001). Katz and Kahn (1978) defined role performance as meeting or exceeding the quantitative and qualitative standards of performance. Borman and Motowidlo (1993) defined task performance as activities that are formally recognized as part of the job and that contribute to the organization's technical core. The central themes to these definitions of task performance are; that activities result in an end product, either goods or

services; and it is formally recognised as being part of the job. Task performance is likely to be contained in most job descriptions and is usually well defined.

3.1.2 Contextual/Citizenship Performance

There has been interest in the concept of contextual performance with many definitions and terms being used in the literature to describe the construct. Borman and Motowidlo suggest that contextual performance consists of multiple sub-dimensions such as team work allegiance and determination. Van Dyne, Cummings & Parks (1995) describe “extra-role” behaviours, such as helping other workers, promoting the organization in public, developing oneself etc.

Drawing on Barnard’s concept (Barnard 1938) of the “willingness to cooperate” and Katz’s dependable role performance and “innovative and spontaneous behaviours” (Katz 1964; Katz & Kahn 1966, 1978). Organ (1988:p.4) defined Organisational Citizenship Behaviours (OCB) as *“individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization.”* Much research has been conducted into OCB and related concepts, such as extra-role behaviors, (Van Dyne, Cummings, & Parks 1995), prosocial organizational behaviors, (Brief & Motowidlo 1986, George 1990) organizational spontaneity (George & Jones 1997) and contextual behavior (Borman & Motowidlo 1993, Motowidlo & Van Scotter, (1994). For a full review see Podsakoff, Mackenzie Paine & Bachrach (2000).

Despite the growing interest in contextual performance there is a lack of consensus about the dimensionality of the construct. Podsakoff et al (2000) (pg 516-517) identified almost thirty potentially different forms of citizenship behaviour. They organised these into seven common themes or dimensions that appear to be supported by the literature as being distinct constructs as shown in table 3.1

Table 3.1 - Themes of non-job behaviours. (Podsakoff, Mackenzie Paine & Bachrach, 2000)

TITLE	DEFINITION
Helping Behavior	Voluntarily helping others with or preventing the occurrence of, work-related problems
Sportsmanship	Not complaining when they are inconvenienced by others, but also maintain a positive attitude even when things do not go their way
Organizational Loyalty	Promoting the organization to outsiders, protecting and defending it against external threats and remaining committed to it even under adverse conditions.
Organizational Compliance	Internalisation and acceptance of the organization’s rules, regulations and procedures to the extent that the rules are adhered to even when no one is able to observe the behaviour.
Individual Initiative	Voluntary acts of creativity and innovation designed to improve the task or the organizations performance, or going “above and beyond the call of duty”.
Civic Virtue	Having a macro-level interest in, or commitment to the organization as a whole.
Self Development.	Voluntary behaviours employees engage in to improve their knowledge, skills and abilities.

Even with this summary it still seems that contextual performance and OCB research still has a long way to go before providing a complete and relevant framework for practitioners to apply in organisations. Fletcher (2001) argued that further research is needed to identify more clearly what contextual performance is and the effect it has.

Welbourne, Johnson & Erez, (1998 p 541), argue that these “*models of work performance lack a unifying theoretical framework and without a theoretical*

underpinning, there is little guidance for choosing which dimensions of performance to include in a model”.

It was hoped that models of non job dimensions would help to inform which specific behaviours would predict overall work performance and thus provide an indication of the behaviours required to develop a measure to assess desirable behaviours for RAF personnel. Unfortunately, inconsistency and ambiguity in the definitions of behaviours used to describe contextual behaviours has meant this is not the case.

However, the concept of OCBs/Contextual performance has provided a framework for research into a broad range of issues of relevance to this study.

3.1.3 How Contextual/Citizenship Behaviour is Rewarded

Although the original definition of Organizational Citizenship Behaviours (OCB) (Organ 1988) specified that they were not rewarded by the organization, subsequent research has indicated that managers do indeed consider OCBs when rating individual's performance (MacKenzie, Podsakoff & Fetter 1991) and that managers administer rewards contingent upon citizenship behaviour (Allen & Rush 1998). This is supported by research investigating the weights experienced supervisors place on task and contextual performance when judging subordinates' overall performance. Several studies have addressed this issue with the typical finding that supervisors weight task and contextual performance roughly equally when making overall performance judgements. (Podsakoff, MacNenzie, Paine & Bachrach, 2000, &

Motowidlo & Van Scotter, 1994). Thus contextual performance (*or OCB*) is valued by supervisors just as strongly as technical proficiency.

3.1.4 Contextual/Citizenship Behaviour – In Role or Extra role?

Another of Organ's fundamental elements of definition of OCBs was the distinction between in-role and extra-role behaviours. However, research has led to much debate on this issue. Morrison (1994) has provided empirical evidence that many of those behaviours described by Organ as discretionary were perceived by employees to be part of their role requirements. Although this finding could be due to the nature of the questions asked by Morrison, other research has also suggested that managers either view citizenship behaviours as a required part of their employees' jobs, or they define performance more broadly to include any behaviour that contributes to the effective functioning of the organization. Thus the distinction between in-role and citizenship behaviour is one that both employees and managers have difficulty recognising. (Allen & Rush, 1998; Motowidlo & Van Scotter 1994; Werner, 1994.)

3.2 COMPETENCIES

A competency is defined as an underlying characteristic of an individual which is causally related to effective or superior performance in a job (Boyatis, 1982). Webster (2000) suggests that competence should be conceptualised as the quality or state of being functionally adequate or of having sufficient knowledge, judgement, skill or strength for a particular duty. Competencies were developed in response to the concern that personality traits (Ghiselli, 1966) and traditional aptitude and knowledge tests (McClelland, 1973) were poor predictors of job performance.

Competencies can be motives, traits, self concepts, attitudes or values, content knowledge, or cognitive or behavioural skills. – *“Any individual characteristic that can be measured or counted reliably and that can be shown to differentiate significantly between superior and average performers, or between effective and ineffective performers”* Spencer, McClelland and Spencer (1994 p 4).

3.2.1 Competency Categories

There appears to be debate within the literature as to the characteristics and categories of competencies. Garavan, & McGuire, (2001) suggest that competencies are defined in terms of three distinct perspectives: competencies as individual characteristics i.e. the competence is part of the individual, either innate or learned: Competencies as characteristics of organizations i.e competencies are one of the resources available to organisations; and the notion of competencies as a tool to structure and facilitate communication between education and the labour market.

Sparrow and Hiltrop (1994) suggest that competencies fall into three categories: behavioural, managerial, and core. Behavioural competencies are defined as behaviour repertoires which employees bring to and input on the job. The level of analysis used is the person and the job and there are clear specifications that these competencies are what employees need to bring to the role/job to perform to the required level. Managerial competencies tend to be defined as knowledge, skills and attitude and a small number of personal behaviours. The unit of analysis is the organization and it is assumed that such competencies are generic; are externally transferable and there is an entry threshold standard. This contrasts with the concept

of a behavioural competency where the performance criterion is based on characteristics of excellent individual performance. Derouen and Kleiner (1994) divide competence into technical, human and conceptual components. They further divide the technical component into professional and managerial elements and expand the conceptual category to include mental competence, which consists of the ability to identify and solve problems.

There is some agreement that there are observable and less observable elements of competence. Birdir and Pearson (2000) suggest that these components consist of skills, judgements, attitudes, values, entry skills, knowledge, ability and capacity. Knowledge, skills and observable behaviours form the observable elements. However, less observable elements of competencies exist and these control surface behaviours. These less observable attributes include social role, self-image, traits and motives. Garavan, & McGuire. (2001)

There is also debate in the literature as to whether competencies as characteristics can be learnt or whether they are innate (Garavan, & McGuire, 2001). The traditional view is that competencies and competence are given. Characteristics such as emotion, attitude and cognition originate from innate abilities and therefore cannot be learned; they can only be developed (Klink, Van der Boon & Bos, 2000). The opposite view (Eraut, 1994; Fletcher, 1992) considers that competencies can be developed and trained.

Devisch (1998) argues that the concept of core competencies refers to the means by which employees adjust to the corporate culture of the organisation. Such competencies are considered non-transferable and differ from one organisation to

another. Functional competencies are linked to job roles and the way in which they interact with other roles. They are considered essential to performance and can be both technical and organisational in nature. Specific competencies are defined as the attributes that a person is required to bring to a job, in order to ensure successful performance. These competencies may be transferable if a person accepts a similar job in another organisation but are generally not thought to be transferable to other dissimilar work. Many competency frameworks are static, mechanistic, and seek to prescribe a fixed list of desirable competencies. They generally fail to take account of the need for flexibility and openness to change and underestimate the importance of non-task-specific competencies. Garavan, & McGuire (2001).

3.2.2 Person-oriented versus task-oriented competencies

The person versus task dichotomy is also an issue for competency research. Bergenhenegouwen, Horn & Mooijman, (1996) argue that in the managerial context managers must possess both a range of personal competencies and task competencies to perform effectively. They must also possess the vision to encourage the development of personal and task competencies among subordinates. The argument runs along the lines that such a perspective allows employees to share a common vision of the organisation and permits organisations to link resource requirements to business strategies. However, it is argued that competency models do not specify the balance between these two sets of competencies. Currie and Darby (1995) suggest that competency models fail to provide a weighting system, which would allow organisations to prioritise competencies. Consequently, all competencies carry equal importance. A production manager may be more focused on task-oriented

competencies, whereas a sales manager may be more concerned with enhancing person-oriented competencies.

The balance between person and task oriented competencies will vary according to the organisational and industry context. Nordhaug (1998) suggests that person-centred competencies can be called metacompetencies, because they encompass a broad range of personal skills and aptitudes, such as creativity, ability to communicate and to cooperate with others, the capacity to tolerate and master uncertainty and the ability to adjust to change.

3.2.3 The Link between Competencies and Job Performance

Competencies can be related to job performance in a simple causal flow model (Figure 3.1) that indicates that motive, trait, self-concept and knowledge competencies aroused by a situation predict skilled behaviours, which in turn predict job performance. Competencies include an intention, action and outcome.

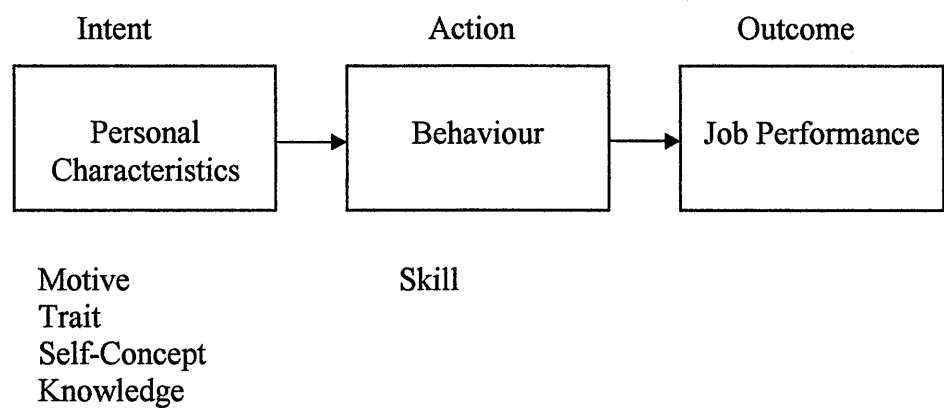


Figure 3.1 - Competency Causal Flow Model (From Spencer et al 1994)

As can be seen in figure 3.1 the majority of competencies seem to relate to the 'intent' element of work performance. As has been shown in the earlier part of the literature review, research has not yet been able to establish an unequivocal link between intent and behaviours, so for the purpose of this research it was still important to define the specific behaviours that contribute to effective work performance.

Divergence in the meaning of competency presents difficulty when making comparisons across industry. Therefore it would be appropriate to examine the literature in the specific industry that we are interested in for the purpose of this research i.e. the Military.

3.3 WORK PERFORMANCE AND THE MILITARY

The current literature does provide some indication of general behaviours considered to impact on job performance which could be used for this research. However, the nature of the Military job can be considered to be different from civilian organisations. *"Military jobs are carried out in situations that are physically and psychologically demanding and properties such as order, discipline, secrecy and respect for the chain of command are much more valid than in civilian jobs"* (Sümer, Sümer, Demirutku, & Çifci. (2001 p.56).

Also, the culture of the military itself is changing. The Global Military Situation has changed with the end of the 'cold war' and the move towards more peace-keeping roles for the services. The MOD now includes in its mission the aim of being a force for good. Therefore, what is required of Military Personnel is very different to

previous years. The armed forces have to establish a framework for their future organisational culture that preserves those elements that are deemed essential for operational effectiveness (and can be shown to be so) and which therefore underpin the unique elements of the military contract. Dandeker & Paton, (1997), Sumer, Sumer, Demirutku & Cifci (2001). Also there is much more recognition of the importance of extra-role behaviours within the RAF for example it is publicised in the reporting procedures the officers are promoted based on their involvement in secondary duties rather than their skill in their specialism. In addition, Geraghty and Collins (2000) found conceptual inconsistencies between the contextual performance literature and their study of Irish Army officers. Specifically they found a four factor structure, with two factors being contextual and two being job specific. They suggest a four factor model differentiating between interpersonal, intrapersonal, planning and quantitative reasoning.

It can be concluded that although the existing literature on OCB and related behaviours is very important for the military to consider, the specific behaviours that contribute to an officer or airmen performance still needed further investigation.

So the research in relation to OCBs/contextual performance that has been conducted within the military context needs to be examined in more detail.

3.3.1 PROJECT A

One of the most relevant pieces of research in this area is Project A. The overall aim of project A was to generate the criterion variables, predictor measures, analytic methods, and validation data that are necessary for developing an enhanced selection and classification systems for all entry-level positions in the United States Army. Campbell (1990). In accordance with models of work performance initial model specified that performance is multidimensional within two major categories of dimensions: organization wide or job-specific. Campbell, Ford, Rumsey, Pulakos, Borman, Felker, Vera & Riegelhart (1990). Organization wide components are those that are defined and measured the same way for every job, within the organization, for example 'providing peer leadership and support'. Job specific tasks are those that relate to specific jobs such as operating a particular system. For the present research the organization wide factors are of most interest.

Project A used job analysis and criterion construction methods designed to discover the content of the first order dimensions via a comprehensive description of the total performance domain. In order to develop the criterion, critical incident workshops were conducted using Officers and Senior NCOs as subject matter experts (SMEs). The following dimensions were agreed to be behavioural examples of soldier effectiveness that were not job-specific:

- Controlling own behaviour related to personal finances, drugs/alcohol and aggressive acts,
- Adhering to regulations and Standing Orders for Personnel, and displaying respect for authority
- Displaying honesty and integrity
- Maintaining proper military performance
- Maintaining proper physical fitness
- Maintaining living and working areas to Army-unit standards
- Exhibiting technical knowledge and skill
- Showing initiative and extra effort on job/mission/assignment
- Developing own job and soldiering skills
- Attending to detail on jobs/assignments/equipment checks
- Maintaining own equipment
- Effectively leading and providing motivation to other soldiers
- Supporting other unit members.

3.3.2 Limitations of project A

The intended use of the information gained during the Project A research was to enhance the selection and classification of soldiers for the US Army. Although project A produced the above list of behavioural examples of non job-specific soldier effectiveness, the research only sought information related to entry level jobs and therefore the issue of whether those would apply throughout the rank structure was not addressed.

Also Project A was conducted for the US Army and whether research conducted in the US is directly transferable to the UK has to be questioned. For example: McAreavey, Alimo-Metcalf, & Connelly (2001- p447) found evidence to “*refute any simple extrapolation of US theories of Leadership in health organisations*”. It would seem logical to apply the same caution to OCB research in the military.

Therefore further research was necessary to investigate whether similar behaviour examples would be appropriate to the Royal Air Force.

3.4 Summary

So far the literature review has established that there is no clear consistent understanding of work performance. However there seems to be agreement that it consists of two dimensions i.e. specific task performance and performance that although not directly role related, does benefit the employer. It would also appear that whichever theory of work performance is considered there is a consensus that behaviours over and above those required to complete a specific task contribute to work performance. These findings are also reflected in competency research in that there appears to be agreement that there are, task specific, organizational specific and person specific competencies. The competency approach seems to rely to some extent on the importance of underlying attitude which has already been identified as being a problem for this research (Chapter three).

There is also apparently little research into the balance between task-specific and contextual behaviours in their contribution towards work performance. In addition the distinction between the two does not seem to be clear to job incumbents or supervisors.

Although some research has been conducted, into competencies or contextual behaviours required specifically related to the military, whether these findings are transferable to the Royal Air Force still needs to be established. It would therefore be

necessary to investigate defining these specific behaviours for the RAF. In order to do this the next area of research to be discussed is the methods used to define job requirements.

CHAPTER FOUR

“Good job analysis lies at the heart of much best practice in personnel processes” Doyle (2003)

4 IDENTIFYING DESIRABLE WORK BEHAVIOURS

It has been shown that there was a need to identify specific behaviours, over and above role specific behaviours that contribute to the performance of airmen.

It would therefore be appropriate to examine the literature in relation the methods that should be used in attempting to identify what those behaviours should be.

4.1 JOB ANALYSIS

Job analysis occupies a central position in personnel research. Until the behavioural requirements of a particular job are identified, selection schemes, training programs or performance evaluation systems cannot be developed. There is little debate among industrial and organisational psychologists regarding the importance of job analysis. (Landy & Vasey 1991). Ash and Levine, (1980) suggested many uses for job analysis, including specifying personnel requirements, i.e. personal attributes, traits and behaviours that are related to successful performance of the job and personnel appraisal.

4.1.2 Methods of Job Analysis

As well as many uses for job analysis there are many methods of conducting the analysis. Some of the most well known and reviewed in the literature are; Position Analysis Questionnaire (PAQ) (McCormick, Jeanneret & Mecheam, 1972): Critical Incident Technique (Flanagan, 1954): Repertory Grid Technique (Kelly 1955).

A review of the methods used for job analysis as was conducted as a basis for the methodology for this research (White 2000). After a review of the relevant literature White concluded that two techniques were particularly suitable: critical incident and repertory grid techniques. These techniques identify observable behaviours from individuals who are familiar with the job in question and enquire directly about the effectiveness and ineffectiveness of behaviour.

4.1.2.1 Critical Incident Technique

The critical incident technique, as first described by Flanagan (1954), is a flexible set of procedures for collecting direct observations of work behaviour. Individuals who are most familiar with a job are interviewed and asked to describe in some detail examples of behaviour that they have observed which discriminate between successful and unsuccessful performance. Analysis of this information should identify the behaviours that make the difference between success and failure in a particular job setting.

The critical incident technique is now one of the most frequently used job analysis procedures for developing behavioural criteria. For example, Arnold, Arad, Rhoades and Drasgow (2000) used the method to identify effective leadership behaviours in three different organisations. Project A used the critical incident technique

The primary limitation with the critical incident technique is that it relies heavily on people's memories and interpretation of events.

4.1.2.2 Repertory Grid Technique

George Kelly, engineer turned psychotherapist in America during the 1930s, developed the Personal Construct Theory (PCT) to help him understand his clients' points of view. Kelly (1955) explained PCT in terms of "man as a scientist", constantly striving to make sense of the world and his experiences. Individuals all interpret the world in their own way and to help do this, they develop 'constructs' (which they are always updating) from the information they perceive. They each develop a unique construct system, which directly reflects their own experiences and gives them a framework of meaning to the constant flow of events. These constructs determine people's expectations of a situation and so help them make predictions about the world and in this respect individuals' construct systems affect their future behaviour.

From this theory Kelly produced a practical technique, the role construct repertory test, in order to help his clients find their own solution to the issues distressing them. The role construct repertory test later evolved into the repertory grid technique, which has remained popular today as a data collection technique for researching many issues. Of particular relevance in this context is its use in industry (Stewart, 1997).

The technique can be used to gain information about an individual's point of view on almost anything, (Stewart & Stewart 1997). In this particular case the issue in question is, "what are desirable and undesirable work behaviours of serving personnel in the RAF?" and it is the views of personnel that are relevant in identifying them.

There are variations in the process of collecting data using Repertory Grid technique which adds to the versatility of the technique (Fransella and Bannister, 1977, Stewart, 1997). However the principles of the technique remain the same. Interviewees are asked to focus on elements, which are chosen to represent the area in which construing is to be investigated. Triads of elements are then presented to the participants and they are asked to identify some important way in which two of them are similar but different to the third. This generates the constructs that are important to the interviewee in their own words rather than using those of the interviewer.

Although there is some debate in the literature about the validity of using RTG outside of clinical psychology (see Marsden & Littler (2000) for a discussion), the technique has been applied successfully in the personnel area. (McAreevey, Alimo-Metcalf, & Connelly, 2001 and Neimeyer, 1989). Also the technique has been validated for use outside clinical domain (Langan-Fox & Tan, 1997). Repertory grid technique has certain advantages in that the less observable aspects of a job, i.e. decision-making and relationships with other people, can be identified. (Stewart & Stewart 1997). A further advantage of the repertory grid technique is that those being interviewed discuss the issue in question in their own words and are not, like in many other techniques, constrained by the ideas and words of other people, in particular the interviewer. The repertory grid method produces clear descriptions on constructs - so that they are unequivocal. (Goffin, 1994).

4.1.2.3 Evaluation of Both Methods for use within the RAF

A pilot study was conducted which evaluated both methods (Johansen 2000). Twenty six instructors from RAF Halton (RTS) were interviewed, thirteen using the repertory grid technique and twelve using the critical incident technique. One person was unable to recall people or incidents and so was just asked to provide a list of desirable behaviours. Each interview involved two researchers, one conducting the interview and the other recording the relevant information.

Although the critical incident technique was quicker in terms of interview time, the list of observable behaviours generated was not as comprehensive as that obtained by the repertory grid method. Interviewees had more difficulty producing actual behaviours using the critical incident technique as they tended to generalize about the type of situation rather than concentrate on particular incidents and the behaviours shown by any individuals. Using the critical incident technique tended to produce examples of specific group behaviour rather than individual behaviour and this was more noticeable with instructional staff than with line managers. It was generally found that the interviewees were more able to focus on describing actual behaviours with the repertory grid method. A limitation of this study was that the majority of participants were instructional staff and as highlighted above the instructional staff had more difficulty focussing on individual behaviour than did line managers. Another limitation of this study was that although the interviewers found the elicitation of desirable behaviours easier with the repertory grid technique than the critical incident technique there was no further analysis of the quality of the information gained from the two techniques. It may have been that although the

repertory grid technique was easier and produced more behaviour examples they may not have been the behaviours that made a difference to the performance of the airmen. Therefore the issue of validity of job analysis information must be considered.

This question of accuracy in job analysis has been receiving attention in the literature more recently. There has been a move away from comparing job analysis methods, which has tended to indicate that there is no one job analysis method that is sufficient for all the functions of personnel research (Levine, Ash and Bennett, 1980), to focus on the issue of assessing accuracy in job analyses and the outcomes.

4.3 Accuracy of Job Analysis

The importance of job analysis has already been highlighted in terms of the impact it has in the area of personnel management. In addition there have been developments in recruitment and selection procedures so companies now have to prove that the selection criteria they use are fair. Procedures must be developed that allow all potential recruits to have an equal chance of being selected for the job. Any criteria used must be relevant for the job in question and must be able to stand up to scrutiny in court. Job analysis is often recommended as the foundation for ensuring the required robustness for many personnel procedures (Thompson and Thompson, 1982).

The assumption that job analysis is a good foundation for the robustness of personnel procedures which are based on the results of such an analysis implies that the accuracy of job analysis methods and the data gathered using them are free from bias and inaccuracy. However this assumption has recently been challenged by the

suggestion of Morgeson and Campion (1997) that there are many potential social and cognitive sources of inaccuracy in job analysis. Unfortunately, comparatively little job analysis research has directly investigated this issue. Morgeson & Campion (2000) suggest that one likely cause for this lack of research has been the inherent difficulties in defining accuracy in the job analysis context. The entire job analysis domain has struggled with questions about what constitutes accuracy. That is, how do we know that job analysis information is accurate or true? The absence of a definitive answer to this question creates problems for both researchers and practitioners.

Morgeson and Campion (1997) suggested that job analysis inaccuracy can be indexed in at least six different ways: interrater reliability; interrater agreement; discriminability between jobs; dimensionality of factor structures; mean ratings; and completeness of job information. Interrater reliability reflects consistency across different raters and indexes rater covariation (Shrout and Fleiss, 1979). This form of reliability has been the most commonly used index of job analysis accuracy. Interrater agreement reflects the absolute level of agreement across different raters. As such, it indexes the extent to which raters make similar ratings (Kozlowski and Hattrup, 1992). Discriminability between jobs reflects the ability to distinguish between different jobs. Dimensionality of factor structures reflects the extent to which factor structures are complex or multidimensional (Stone and Gueutal, 1985). Mean ratings refer to elevated or depressed ratings. Completeness reflects the relative comprehensiveness of the job analysis data.

Interestingly, all these different conceptions of accuracy are based on principles of classical test theory. In particular, they rely on the notion that a 'true score' exists. But as Sanchez and Levine (2000) suggest, such an assumption may be problematic in the job analysis context. For example, some have suggested that work settings and environments are becoming more dynamic in nature (Carson and Stewart, 1996). Such a high rate of change in the organizational context would seem to preclude conceptualizing jobs as static entities. Still others have suggested that over time the nature of tasks performed by incumbents can change quite dramatically (Borman, Dorsey and Ackerman, 1992). If jobs change over time, then the true score model would not appear to apply.

This would suggest that it is difficult to establish an unquestionably correct description of a job. In an attempt to avoid these difficulties, Sanchez and Levine (2000) focused on consequential validity as a standard for job analysis accuracy. They suggest that the validation process should be driven by the eventual use of the job analysis information. This would identify which inferences are important, the kinds of evidence or standards to employ during the validation process, and the confidence one can have in the job analysis output.

One of the most influential factors on the accuracy of job analysis has to be the subject matter experts (SMEs) who provide much of the information used in any job analysis. The literature should therefore be examined to ensure this research uses SMEs in the most effective way.

4.4 The Use of Subject Matter Experts in Job Analysis

The use of Subject Matter Experts (SMEs) is central to the majority of Job analysis methods. Recently, the concept of the SME has replaced the single job analyst. Instead of one knowledgeable person gathering and integrating information about the job in question, it is common to see samples of incumbants and supervisors identified. This has largely been as a result of criticism of Job Analyses which argue that important or frequently performed duties were ignored or unimportant or infrequently performed duties were given a too prominent role in test development. Landy & Vasey (1991) argue that the SME group method is an improvement on the traditional model of one or two job analysts conducting semi-structured interviews with job incumbents as it takes advantage of many more 'observations' in constructing the final job description and statistical analysis is carried out, thus decisions are based on empirical rather than clinical judgements. Selection of these SMEs is crucial to the success of this method.

There have been an increasing number of studies that reporting the issue of SME group characteristics. Arvey, Passino & Lounsberry, (1977) investigated the interaction of sex on the job analyst and the sex of the incumbant interviewed. Landy & Vasey (1991) explored the influence of race, gender, education and experience of SMEs on the results of Job analysis. They asked a large number of SMEs to rate the frequency of performance of 444 tasks from a predetermined checklist. They concluded that sex and experience influence the responses of SMEs on job analysis questionnaires. They also suggest that other characteristics of SMEs may effect results

of Job Analysis. For example, willingness to cooperate, verbal ability, memory and performance level.

The Landy & Vasey model only examined the frequency of tasks, however many studies use SMEs to rate the importance of attributes/behaviours/competencies. For example: Sümer et al (2001) identified 5 personality dimensions considered to be relevant to the job of military officer: Conscientiousness-Self-Discipline, Military Factor, Self-confidence, Agreeableness-Extraversion, and Leadership, by evaluating the ratings of relevance times importance of attributes given by military officers.

McSwane (1999) argued that in order to develop legally defensible and psychometrically valid job analysis a large scale validation survey of the draft analysis should be conducted. This often involves asking (SMEs) to rate each of the tasks on a scale ranging from 1 – ‘of no importance’ to 5 – ‘extremely important’. For example, Diperna and Elliot (1999) used this method to develop an examination blueprint.

Other research on the effectiveness of SMEs have indicated that the ratings given by SMEs may be subject to influence by the social desirability of the tasks, and thus the ability of SMEs to reliably link job tasks to work attributes is questionable. (Muellar & Belcher 2000).

Most of the discussion in the literature regarding the validity (consequential or otherwise) of job analysis seems to focus on specific discrete tasks and tends to ignore the contextual aspects of work performance. If contextual performance is as important

as is being implied by the research, then ways of establishing which behaviours are important need to be established and evaluated. This may be especially difficult for job analysts as by definition these behaviours are not those involved in completing a given task. Competency assessment studies the people who do the job well and defines the job in terms of the characteristics and behaviours of these people. (Spencer, McClelland and Spencer, 1994). This method may provide a useful way to approach the identification of contextual behaviours.

4.5 Summary

This section of the literature review has highlighted the importance of the job analysis in the whole process of this research. The job analysis must be completed and evaluated for accuracy. In addition to establishing the validity of job analysis method this research should aim to evaluate the validity of any outcome of the process. As the aim was to produce an instrument to help instructors develop RAF recruits the resulting instrument should be validated.

It would now be appropriate to investigate how the literature can inform this research on designing the final instrument.

CHAPTER FIVE

5 METHODS OF ASSESSING BEHAVIOURS

The initial problem, as identified by the RAF, required a measure of attitude to be developed that would allow for assessment of whether a new recruit had the 'right attitude' to continue to serve with the RAF. Reviews of the literature have indicated that the requirement was actually for a clearly defined set of behaviours to be identified. Once this set of behaviours was identified an instrument to measure these behaviours needed to be developed. The next area of the literature that needed to be reviewed was in relation to the design of behavioural rating instruments.

Numerous types of rating methods or formats have been developed in attempts to evaluate ratee performance accurately, alleviate the judgemental and measurement difficulties associated with performance appraisal, and assist in providing feedback to ratees. The development of the rating instrument can only come after the criteria have been identified and various aspects of the rating context, such as the identification and intended use of the results are considered (Latham and Latham, 2000).

Whatever type of scale is chosen to attempt to measure the identified behaviours it will involve one person subjectively rating the performance of another. Research shows that a number of elements can bring error into any situation where individuals rate others on performance. Landy and Farr (1980) offer a component model of performance rating (Figure 5.1).

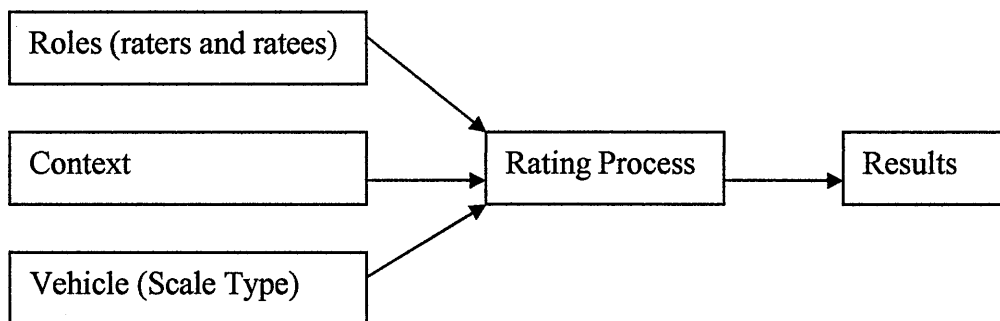


Figure 5.1 - Component Model of Performance Rating (Landy and Farr, 1980)

5.1 SOURCES OF ERROR

The component model of performance rating model highlights that there are three main areas from which error may arise. Errors that are attributable to the Roles components stem from rater or ratee characteristics. For example, Walsh, Weinberg and Fairfield (1987) found the gender of the ratee and rater effected ratings given. The interaction between roles can also serve to bias ratings. Robbins and DeNisi (1994) found that interpersonal affect biases ratings given in the direction of that affect. This indicates that ratings of individuals will be more favourable when there is a positive or favourable relationship between rater and ratee. Both halo and leniency effects are examples of rater error:

5.1.1 Halo Effect

Halo effect is a persistent error that has been widely researched. It manifests itself in the unduly high levels of inter-dimensional correlations found in the ratings of individuals. The cause of halo effect has been described in three ways:

1. General Impression Model: Thorndike (1920) conceived the error as a rater's tendency to allow their overall perception of an individual to colour the judgement of specific qualities.

2. Salient Dimension: Lance, LaPointe and Stewart (1994) suggest that ratings given to the more salient qualities exert undue influence over the ratings that are less salient.

3. Inadequate Discrimination model. The third explanation suggests that the rater is unable to adequately discriminate between performance dimensions. Thus, certain observations of behaviours may be rated against more than one dimension.

Lance et al (1994) found that the General Impression model best accounted for the ratings even when the context was manipulated to favour the other models. They thus concluded that this model should be accepted as the preferred explanation of halo effect regardless of the rating context.

5.1.2 Leniency

Leniency is the tendency for a rater to consistently rate candidates more or less favourably than other raters. Saal, Downey, and Lahey (1980) suggest that the effect is due to a rater having a tendency to assign a higher or lower rating than is warranted by the ratee's behaviour. DeCottis (1977) suggest that leniency may be due to raters bringing particular response sets to the rating process. However, Hauenstein (1992) argue that the effect may be due to external factors influence a rater's assessment.

5.1.3 Context

Context refers to those factors that exist within the rating environment that may add systematic error to ratings. Such factors may exist at an organisational level. Rozelle and Baxter (1981) showed that interview ratings were made more accurately when assessors were given more responsibility and made more accountable for their judgements.

5.1.4 Vehicle

The vehicle component describes errors that are attributable to scale types. Although scales are designed to reduce rater errors they may introduce other errors. Classical Test theory tells us that a test score is made up of the True Score and Error. As the true score is the element that test users are interested in the aim of any test developer is to reduce the amount of error inherent in the test itself. Considerable research has been conducted on the development of scales that may elicit accurate ratings. Campbell, Dunette, Arvey, Hellervik and Lowell (1973) showed that the use of Behaviourally Anchored Rating Scales (BARS) can limit the effects of halo and leniency.

5.2 WAYS TO REDUCE ERROR.

5.2.1 Rater Training

Rater training is an important part of any formal assessment procedure that can help reduce error. Woehr and Huffcutt (1994) conducted a meta-analysis of rater training

strategies and found that training increases rating and observational accuracy and reduces rating error.

5.2.2 Scale Design

Numerous types of rating methods or formats have been developed in attempts to evaluate rate performance accurately, alleviate the judgemental and measurement difficulties associated with performance appraisal and assist in providing feedback to ratees.

Instruments to allow for raters to evaluate ratees tend to fall into four categories, a blank sheet of paper; trait scales; outcome measures or behavioural criteria. A blank sheet of paper is criticised for not being standardised (Lazer and Wikstrom, 1977)

Trait scales are generally expressed in terms of personality dispositions, for example conscientiousness. Trait scales are often perceived as too subjective by employees (Latham and Seijts, 1997), and are criticised for the traits being poorly defined (Latham and Latham, 2000). Behavioural rating scales define traits as well as core competencies in terms of observable and hence verifiable behaviour.

The advantages of behavioural measures include that they facilitate coaching of self and others. They make clear what a person must start doing, stop doing, or be doing differently to enhance an organization's effectiveness. (Latham & Latham (2000).

5.3 Behavioural Rating Formats:

5.3.1 Graphic Rating Scales:

Graphic Rating Scales are usually based on traits or generic work aspects such as; quality of work. Raters are asked to mark a point on the scale which indicates their evaluation of Problems; trait ratings too subjective and not clearly related to job performance. More useful to have scales full of job-related behavioural descriptions, courts prefer types of scales where the rating factors are the major functions of a person's job.

5.3.2 Behaviourally Anchored Rating Scales (BARs):

Behaviourally Anchored Rating Scales (BARs) provide behavioural descriptions to help people understand what the points on a scale mean. Usually have either 5 or 7 points each one with a description of the behaviour that earns that rating. However, they are time consuming to design and rarely do employees behaviours match the examples exactly. BARs were researched extensively in 70's and frequently recommended as a format for defining rating scales (Dickinson & Zellinger (1980)

Project A (described in chapter three) produced (BARS) which were developed from their research, which were then field tested on Army Personnel. Although the results were disappointing for the task performance rating scales with low reliabilities and high use of the 'never observed' option, the Army wide rating measures obtained better results with a median reliability of .58. This would suggest that the BARs have potential for use with the military for the assessment of Organization wide performance criterion. (Campbell et al, (1990).

5.3.3 Behavioural Observation Scales;

Behavioural Observation Scales are similar to bars but each category has several behaviours on which the rater notes the frequency with which the behaviour occurs. Much research has shown the BOS format has advantages over the other behavioural scales. For example; Brannick & Levine (2002) found BOS to be slightly more reliable and Tziner & Kopelman (1988) concluded that BOS formats produce significantly higher levels of goal clarity, acceptance and commitment than graphic rating scales, as they focus on specific behaviours.

5.4 Summary

Whenever an assessment of one individual is made by another than error will occur. The best that can be done is for people to be aware of possible causes of error and try to reduce it to a minimum. One way of accounting for error is to ensure that any instrument used to do the assessment is a valid and reliable as possible. Choosing the most appropriate format is one element of this. Also providing appropriate training in the use of the instrument will reduce rater error. It is therefore recommended that the instrument is designed as a Behaviour Observation Scale.

CHAPTER SIX

6 SUMMARY OF THE LITERATURE REVIEW AND AIMS AND OBJECTIVES OF THE RESEARCH

The initial tasking asked for a tool to be developed that would measure the attitude of recruits joining the RAF, with the aim of terminating the employment of those recruits who did not have the 'right attitude'.

A review of the literature indicated that there was general agreement that the link between attitude and behaviour can be tenuous. Therefore it was proposed that rather than trying to measure the correct attitude, the aim of the research should be to develop a tool to measure and develop those behaviours that were considered as desirable or for RAF airmen. The first step in this process then should identify which behaviours distinguish between airmen in terms of performance.

A review of the literature found general agreement that in order to be effective an organisation needs employees to display additional behaviours over and above those specific key skills or knowledge required in order to complete a specific task or job role. This was seen to be the case whichever view of work performance is in favour.

These additional behaviours have been described in various ways: Spontaneous and Innovative Behaviour, Organizational Citizenship Behaviour, Contextual Performance, prosocial organizational behaviour, extra-role behaviour and person orientated competencies. This would suggest the first stage of this research should identify those behaviours that distinguish between good, average and poor airmen and should include behaviours over and above those required to be skilled in a chosen

trade. It is also suggested that a tool that aims to measure the performance of these additional behaviours will be as good a predictor of being regarded as a good airman as a measure of potential ability or knowledge.

The literature was then examined to identify the best way of identifying which behaviours should be sought. The repertory grid technique was identified as being the most appropriate method of job analysis and this method was used to identify desirable behaviours of RAF personnel. This review considered the issue of job analysis validity and concluded that the best way to establish the validity of the job analysis method used was to investigate the validity of the outcome, in this case the resulting instrument.

The Design of the instrument was considered and it was concluded the Behavioural Observation Scale would be the most appropriate format for the design of the instrument:

6.1 AIMS AND OBJECTIVES OF THE PRESENT RESEARCH

The overall aim and objectives of this research was to apply the study of psychology to resolve a perceived problem within the RAF. This problem was how to assess whether new recruits have the 'right attitude' to serve in the Royal Air Force.

The research was conducted in 3 distinct studies:

1. Elicitation of Desirable Behaviours:

Aims and Objectives: To use an effective job analysis method to identify which behaviours are indicative of airman performance:
To produce a list of observable behaviours that could be validated in stage two of the research:

2. Validation of those Desirable Behaviours:

Aims and Objectives: To validate the findings of study one:
To investigate the generalizability of the behaviours generated in study one:
To examine the differences between job incumbents and supervisors in their ranking of importance of identified behaviours.

3. Development and Validation of an instrument to measure and develop those behaviours in new recruits to the RAF.

Aims and Objectives: To design and evaluate an instrument to measure and develop those desirable behaviours, as identified above, in RAF recruits at Recruit Training Squadron.
To validate the findings of studies one and two.

The studies were conducted sequentially and were reported as separate studies.

CHAPTER SEVEN

7. IDENTIFICATION OF DESIRABLE BEHAVIOURS OF RAF AIRMEN

7.1 INTRODUCTION

As discussed in the introduction to the thesis, within the RAF and the British Military generally there has been a developing unease regarding the perceived quality of recruits and the attitudes that they are bringing with them into the services.

The RAF felt that an instrument was required that would enable instructors to assess the attitude of new recruits. In order to develop this tool the first step should be to identify what was the 'right attitude' for RAF personnel. However, the literature review (chapter two) indicated that the link between behaviour and attitude was not robust enough to allow reliable inferences to be made of an individual's attitude from their behaviour or visa versa. It was thus recommended, by the researcher, that the project should instead concentrate on measuring those observable behaviours that were required in the RAF. Thus, the main objective of this research became to identify and design an instrument to measure desirable behaviours of RAF airmen. The behaviours being sought were those which should be displayed throughout an entire Service career, regardless of rank, or trade group.

7.1.2 AIMS AND OBJECTIVES

The aim of this part of the research was to produce a list of the desirable behaviours of RAF airmen that could be used as a basis to develop a tool to assess and develop new

recruits in the RAF. The literature review (chapter four) indicated that the best way of identifying these desirable behaviours was to conduct a job analysis.

7.1.1 Objectives:

1. To use an effective job analysis method to identify which behaviours/behavioural constructs are indicative of airman performance:
2. To produce a list of observable behaviours that could be validated in stage two of the research:

7.2 METHODOLOGICAL CONSIDERATIONS

The previous chapter discussed the importance of a good job analysis for identifying competencies and behaviours for job specification, job selection and design of training and appraisal systems. A pilot study (Johansen, 2000) concluded that a job analysis method based on Kelly's repertory grid technique should be used. (See chapter four.)

White (2000) gives a description of the theory behind and details of how the technique should be used. In summary, Repertory Grid technique requires individuals to identify similarities and differences between 'elements' (objects of interest) - for job analysis purposes – job holders). Elements are chosen to represent the area that is to be investigated, which in this case were RAF airmen.

As well as using the repertory grid technique the method used an approach highlighted by competency research. Competency assessment differs from conventional job analysis methods in that it studies the people who do the job well and defines the job in terms of the characteristics and behaviours of these people. Spencer, McClelland and Spencer (1994). This study used that approach to generate the appropriate elements. The elements required were good, average and poor airmen, as the purpose of the exercise was to ascertain the desirable behaviours of effective airmen, i.e. which behaviours discriminate between good, poor and average airmen. The interviewees were asked to consider actual airmen rather than imaginary ideal airmen, or typical poor airmen, so that they could identify real behaviours and differences. This was to try to avoid eliciting generalized ideas promoted by systems already in use in the RAF such as those described in the Core Values booklet (AP1) and airmen appraisal forms (F6000).

Once the data collection is complete the construct systems can be analysed and condensed to a form that will reveal ways in which they can be used for practical purposes. Analysing the data will condense the information so it becomes more user-friendly whilst still retaining its comprehensiveness.

Another concern highlighted by the pilot study (Johansen, 2000) was how to measure the importance or validity of the elicited constructs (see chapter four). The only way to identify the relative importance of the constructs was the frequency with which each one was mentioned. Although it could be argued that this in itself should indicate the importance of the construct it was noticed that many of the behaviours and terms generated used the wording from the RAF published core values or from the RAF

appraisal forms. Whether constructs were actually important in the performance of airmen, or whether they were just mentioned frequently because of the common use within RAF needed to be investigated. Therefore, a rating procedure was added following the trial. By asking individuals to rate each airman on each construct, the impact of each construct on the evaluation of airmen could be investigated.

The literature review also recommended that these desirable behaviours should be identified by individuals who have expert knowledge of the work of RAF airmen. As the RAF is a diverse organisation with many occupational areas, known as branches for officers and trade groups for airmen, any research will need be representative of these groups to ensure that the full range of behaviours are identified. Analysis of the differences between these groups will need to be carefully analysed to identify if there are any differences between ranks, branches or trade groups or whether there is a group of core behaviours that are desirable throughout the RAF.

7.3 METHOD

7.3.1 Participants

A total of 128 subject matter experts (SMEs) were interviewed using the Repertory Grid Technique. The majority (122) of the participants were male and 6 female. The SMEs were RAF personnel who had line management responsibilities for airmen. The locations and functions of interviewees were chosen to provide a sample that would be representative of the whole RAF.

Table 7.1 - Rank of those interviewed

Rank	N	%	Rank	N	%
Cpl	12	9	Fg Off	1	1
Sgt	35	27	Flt Lt	16	13
Chf Tech	12	9	Sqn Ldr	15	12
FS	12	9	Wg Cdr	2	2
WO/MACR	20	16	Unknown	3	2

Table 7.2 - Location of those interviewed

Location	N	%
Cosford	13	10
Honington	16	12
Trade Sponsors	23	18
Digby	21	16
Waddington	18	14
Lyneham	20	16
Cottesmore	18	14

RAF Cosford and RAF Honington Regiment Training Flight were chosen to represent training schools. RAF Lyneham, RAF Digby, RAF Waddington and RAF Cottesmore represented the Main Operating Bases (MOBs). In addition, a number of Trade Sponsors from various locations were interviewed. Trade Sponsors are those responsible for deciding on the competences and training requirements for specific trade groups. Those interviewed at RAF Cosford and RAF Honington were mainly instructors.

The majority of interviewees had been in the RAF for over 15 years. (Figure 7.1)

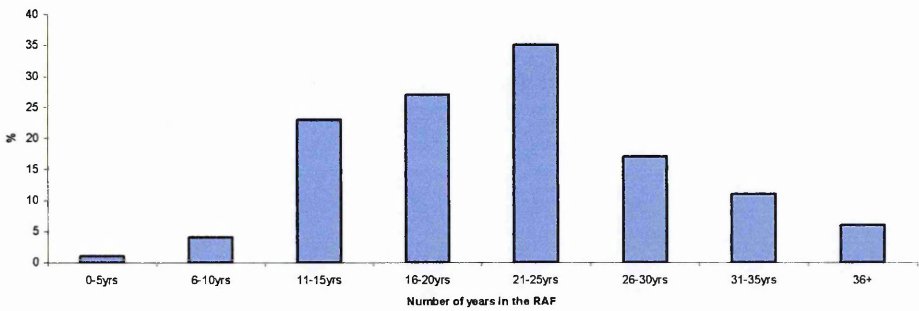


Figure 7.1 - Length of Service of those interviewed

7.3.2 Interviews

Interviews were carried out on a one to one basis and confidentiality and anonymity were assured. The interviews were conducted either by the author (N=66) or by other occupational psychologists who had received training in the technique from the author. (The training notes and interview protocol can be found at appendix A)

The first part of the interview involved the interviewees thinking of five airmen whom they had known during their time in the RAF. They were asked to think of two whom they would consider examples of good airmen, one they would consider to be average and two they would consider poor examples. The airmen identified for consideration could be any rank from Senior Air Craftsman (SAC) to Warrant Officer (WO) but they had to be people who the participants knew well enough to describe how they behaved. The participant wrote the names or some other way that they could identify the individuals on to five cards, which were labelled 1 to 5 so that the interviewer could identify who were considered the good, average and poor airmen. Cards 1 and 2 were for the good airmen, card 3 for the average and cards 4 and 5 for the poor airmen.

7.3.3 Construct Elicitation

The interviewer then presented the participant with three of the names (triads). In the first instance the first triad was the two good airmen and one of the poor airmen and asked 'In what way do the good airmen differ from the poor airman?' The response given was the first construct that was recorded as shown in Figure 7.2. If the interviewee gave only one pole of the construct they were prompted to give the

opposite pole. Eg if they said the two good airmen were motivated, they were asked to describe the poor airmen on the same continuum, and they may have said lazy. This was very important when deciding whether two constructs described by different people were the same for the purpose of analysis later on. This process was repeated using the same triad and then different triads until the interviewee could think of no further constructs. The pattern of triad presentation is given in the interview protocol, appendix A. The triads were presented this way, rather than the more conventional choice of randomly selected triads with participants free to choose for themselves which two they perceived as similar and which one different, as the aim of the process was to highlight in which way good performers differed from poor performers and both groups from the average performers.

Emergent Similarity Pole	Element 1 'Good Airman'	Element 2 'Good Airman'	Element 3 'Average Airman'	Element 4 'Poor Airman'	Element 5 'Poor Airman'	Different Pole
Motivated	O	O			X	Lazy
Reliable		O	O	X		Unreliable
Does only the bare minimum	X			O	O	Does over & above

O indicates which elements were similar on the constructs and the X shows which element is different within the triad that was presented.

Figure 7.2- Example of construct elicitation in the study sample

7.3.4 Laddering

Once the overall constructs were obtained the interviewees were asked to describe each construct in terms of behaviours. For example, the participants would be asked

how they knew the person they had described as motivated was motivated. They would then provide such explanations as: ‘they always turn up on time, they look for work to do’ etc. If the interviewees had difficulty explaining/defining how they knew somebody was motivated they were asked how they knew the other person wasn’t motivated. If the interviewees were struggling to do this they were asked to focus on a particular incident in which the individual demonstrated where he/she was on the construct. This form of laddering was repeated for each construct given by the participant, with the exception of constructs that were already given as observable behaviours.

7.3.5 Ratings

Finally interviewees were asked to rate their chosen individuals on a scale of one to five for each of the constructs that they had given. First, they were asked to identify which pole of the construct that they considered to be positive, and then to give each individual a score for each construct with 5 being positive and 1 being negative. Figure 7.3 shows an example of how a grid was completed using the ratings.

Emergent Similarity Pole	Element 1 'Good Airman'	Element 2 'Good Airman'	Element 3 'Average Airman'	Element 4 'Poor Airman'	Element 5 'Poor Airman'	Different Pole
Motivated	5	5	3	2	1	Lazy
Reliable	4	3	4	1	2	Unreliable
Does the bare minimum	5	5	3	2	1	Does over & above

5 = Extremely: positive pole (eg *motivated*) - 1 = Extremely: negative pole (eg *lazy*)

Figure 7.3 - Example of a section of a grid using the ratings given by interviewees

7.4 RESULTS

7.4.1 Analysis and Results of the Construct Elicitation

The first stage of the analysis was to generate a complete list of constructs that were elicited from the procedure. For the purpose of this research a construct was defined as any descriptor that an interviewee identified as being different between the triads used. It could be an attribute, behaviour, general characteristic etc. The behaviours used to demonstrate the construct were examined along with the descriptions of both poles of the elicited construct. This information was used to decide if an item was a new construct or could be interpreted as one already provided by the same or another interviewee. Each new construct elicited was entered as a separate variable into SPSS. A total of 117 constructs were elicited as examples of differences between good, average and poor airmen. Each of the constructs given and the frequency with which they were mentioned is presented in Table 7.3. As the purpose of this research was to identify desirable behaviours of RAF airmen, only the positive dimension of each construct is presented.

Table 7.3 - Positive poles of all constructs elicited during the interviews

CONSTRUCT	N	CONSTRUCT	N	CONSTRUCT	N
Reliable	62	Has high standards	14	Admit their mistakes	3
Hardworking/ Conscientious	55	Flexible	14	Social Background	3
Committed To The RAF	53	Takes criticism & Acts on it	13	Accepting	3
Teamwork	50	Dedicated	13	Quick Thinking	3
Trade Skills	48	Attention to detail	12	Qualified	3
Motivated	46	Discipline	11	Good written work	3
Smart		Outgoing	11	Satisfied with Job	3
Dress/Appearance	43	Respects others	10	Pride	3
Justifiable Confidence	41	Focussed	9	Goes the extra Mile	3
Intelligence	39	Organised	9	Genuine	3
Honest	32	Popular	9	Sporting	3
Effort	32	Participates	8	Has authority	2
Mature	31	Integrity	8	Well Rounded	2
Loyal	31	Autonomy/Can work on own	8	Courage	2
Communication Skills	29	Makes the most of RAF	7	Balances home & RAF life	2
Initiative	29	Resourceful	7	Never complains	2
Leadership	28	Approachable	7	High Flyer	2
Accepts Responsibility	27	Good Manager	7	Listens	2
Positive	24	Would ask questions	6	Good Personal Hygiene	2
Gets On With People	23	Copes under Pressure	6	Regards the rules	2
Willing To Help	23	Can solve problems	6	Law abiding	2
Trustworthy	22	Academic	6	Discrete	2
Respects Rank	22	Listens to reason	5	Optimistic	2
Good Sense Of Humour	22	Can see the bigger picture	5	Outside Interests	2
Ambitious	22	Good time keeping	5	Treats Opposite Sex well	2
Enthusiasm	21	Realises consequences	4	Wise	1
Respects RAF	21	Volunteers	4	Not Vain	1
Professional	21	Does secondary duties	4	Patient	1
Sociable	19	Assertive	4	Would not hurt a fly	1
Interpersonal Skills	18	Not sheep	4	Old & Bold WO	1
Forward looking/proactive	18	Seeks Opportunities	3	Adventurous	1
Tries to improve oneself	18	Fair	3	Helps in the community	1
Determined	18	Concentrates	3	Methodical	1
Self Disciplined	17			Works well across services	1
Common Sense	17	Keeps nose clean	3	Dynamic	1
Fit	17	Presence	3	Stable	1
Cares about others	16	Open minded	3	Energetic	1
Experienced	15	Unsquadie like behaviour	3	Not self opinionated	1
'Can do' attitude	15	Appropriate use of IQ	3	Computer skills	1
Unselfish	14	Guides Others	3		

7.4.2 Differences between Locations

Comparisons were made regarding the frequencies with which each construct was elicited from interviewees at each location. Table 4 shows the percentages mentioning the top 11 constructs overall and the percentage mentioning that construct at each location visited. The highlighted boxes show which constructs were mentioned most frequently at each station. The top 11 constructs are shown to allow for each location's top construct to be included. Where a box is empty that construct was not in the top 11 for that location.

Table 7.4 - Top 11 Constructs overall and by station

Construct	Overall N = 128	Cosford N = 13	Honington N = 16	Digby N = 21	Waddington N = 18	Lyneham N = 20	Cottesmore N = 17	Trade Sponsors N = 23
Reliable	51	4	0	8	11	11	11	13
Hardworking	55	4	0	15	8	12	5	9
Committed To RAF	52	5	5	7	6	5	9	14
Teamwork	50	3	8	7	6	8	7	11
Trade Skills	49	3	0	11	10	5	0	15
Motivated	46	6	9	8	8	6	0	9
Smart Dress/ Appearance	44	0	6	8	0	9	6	8
Justifiable Confidence	41	3	6	9	8	9	5	7
Intelligence	40	0	8	15	8	9	5	9
Honest	32	0	8	0	0	0	5	0
Effort	32	7	8	0	0	0	0	0

7.4.3 Analysis and Results of Ratings

For the purpose of data analysis each element was treated as a case and the scores given for each construct that they were assessed against was entered into SPSS. Each element would have only been rated on the constructs elicited by the interviewee who had identified them as an element. Therefore each element was not rated on every construct. Where elements were not rated on a construct the data was treated as missing. Each element was also placed into groups dependent on whether they were

examples of good, average or poor airmen. This produced 3 separate groups of airmen with ratings on various constructs.

ANOVAs were conducted (where sufficient data was available – Aron & Aron (1994) recommend ten as a minimum number in each group for conducting ANOVAs between three groups to identify a large effect) to examine whether there were significant differences between the good, average and poor airmen in the ratings they were given for each of the constructs. Tukey's post-hoc tests were used to check specific group differences. Using the constructs mentioned by ten or more interviewees (see table xx above) the majority differentiated between good, poor and average performers in some way. Of those, the means between each of the groups; good, average and poor airmen were significantly different for 34 constructs. A further 12 constructs produced groups that although the mean scores for good and poor performers were significantly different the average performers mean scores could fall either with the good or the poor performers or indeed both. Only one of these constructs (outgoing) did not differentiate between the three groups at all. Table 7.5 shows a summary and full details, of the ANOVAs and Post-hoc are shown in appendix B.

Table 7.5 - How the elicited constructs (with N > 10) distinguish between good, average and poor airmen

Constructs in which there were significant differences between good, average and poor airmen's mean scores	Constructs in which there were significant differences between good, and poor airmen's mean scores	Constructs in which there were no significant differences between good, average and poor airmen's mean scores
Reliable Hardworking/Conscientious Committed To The RAF Teamwork Trade Skills Motivated Smart Dress/Appearance Justifiable Confidence Intelligence Honest Effort Mature Loyal Communication Skills Initiative Leadership Accepts Responsibility Positive Gets On With People Willing To Help Trustworthy Respects Rank Ambitious Enthusiasm Respects RAF Professional Forward looking/proactive Self Disciplined Cares about others 'Can do' attitude Unselfish Has high standards Flexible Dedicated	Good Sense Of Humour Sociable Interpersonal Skills Tries to improve oneself Determined Common Sense Fit Experienced Takes criticism & Acts on it Attention to detail Discipline Respects others	Outgoing

7.4.4 Constructs Related to the Core Values

The constructs that were elicited during the interviews were linked to the Core Values. Where possible each construct was linked to one of the core values by the researcher and in agreement with the RAF project sponsor. Table 7.6 shows which constructs were related to which core value and also those constructs which could not be linked to any core value.

Table 7. 6 – Constructs Related To Core Values

VALUE	CONSTRUCTS ELICITED BY REPERTORY GRID INTERVIEWS
Integrity	Honest, Trustworthy, Reliable, Uses Cleverness Appropriately Discrete, Fair, Realises The Consequences Of Their Actions, Keeps Out Of Trouble, Stable, Integrity, Admits Mistakes Law Abiding
Courage	Determined, Fit, Dedicated, Discipline, Copes Under Pressure Assertive, Courage
Commitment	Committed To The RAF, Accepts Responsibility, Dedicated, Participates, Will Go The Extra Mile.
Professionalism	Reliable, Hardworking, Trade Skills, Communication Skills, Professional, Tries To Improve, Experience, High Standards, Takes Criticism And Acts Upon It, Attention To Detail, Good Timekeeping, Seeks Opportunities, Methodical, Organized, Motivated
Pride	Smart Dress And Appearance, Positive, Justifiable Confidence Self Disciplined, Pride, Regards Rules
Loyalty	Loyal, Respects Others, Respects Rank
Team Work	Team Work, Gets On With People, Willing To Help, Sociable, Interpersonal Skills, Unselfish, Flexible, Popular, Respects Other Services, Not Self Opinionated
Not used	Intelligence, Maturity, Initiative, Leadership, Good Sense Of Humour, Forward Looking/Proactive, Common Sense, Outgoing Resourceful, Good Manager, Academic, Can Solve Problems

For each core value, the total number of people mentioning at least one of the relevant constructs was calculated. As can be seen in Figure 7.4 all of the core values were mentioned by at least 40% of the interviewees.

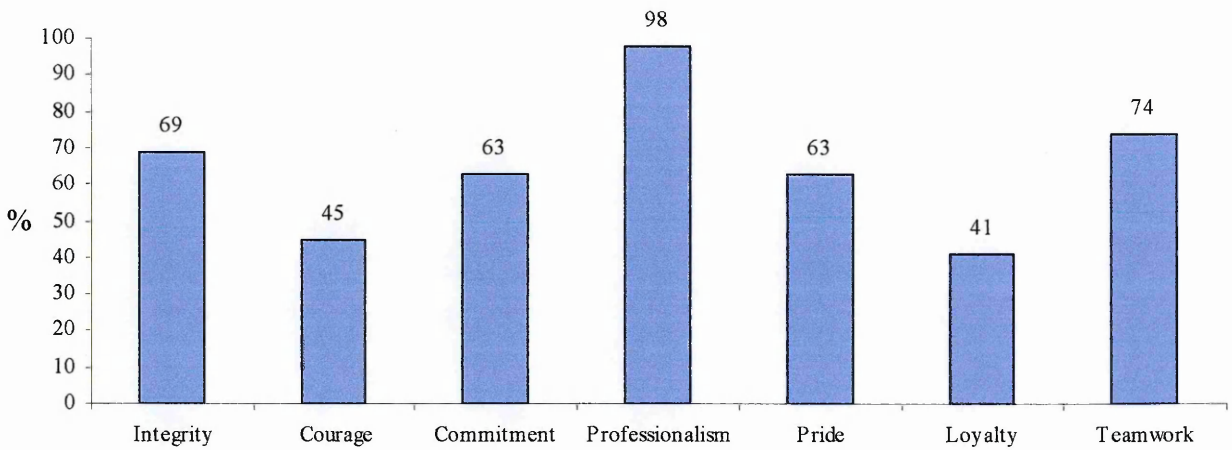


Figure 7.4 - Overall Percentages of Individuals Mentioning at Least One of the Constructs for Each Core Value.

7.4.5 Results of Laddering

As well as providing the constructs the interviewees were asked to provide examples of observable behaviours during the laddering element of the interview.

Each behaviour given as an example for demonstrating a construct was written on a piece of paper. As the area of interest was desirable behaviours, those that were given as examples of poor behaviour were ignored. Content analysis should reveal an overall set of behavioural constructs or dimensions relevant to the purpose for which the results have been analysed. The results of the study were to be used to design an instrument to assess the extent to which recruits/trainees display desirable behaviours. Therefore the observable behaviours as identified during the laddering process were organised into behavioural dimensions that were easily learnt by, or familiar to RAF instructors.

The examples of observable behaviours were sorted into piles of conceptually similar behaviours, for example 'turns up on time' was considered to be the same as 'is punctual'. Overall titles were given to these groups, and categories were defined and redefined. Large categories were subdivided into smaller groups, and categories that describe the same type of behaviour were placed together. This analysis was initially conducted by the team of researchers who conducted the interviews (n = 4).

The behaviour clusters were then examined and refined using a group of Subject Matter Experts, which included a number of RAF, personnel. This was to ensure the clusters and headings had relevance for the target audience. The only major change that resulted from this was that the cluster title that was initially labelled as 'demonstrates justifiable confidence' became 'shows strength of character' This was felt by the RAF personnel to represent the military aspect of the cluster more accurately. The full list of behaviour clusters and example behaviours can be found at appendix C.

The content analysis and clustering process produced 220 separate observable behaviours and these fell into 20 overall groups. Although the original aim was to provide a list of desirable behaviours it was found that in order to provide useful descriptors for the all the clusters, trait descriptions needed to be included. For example 'is reliable' and 'is honest' were included as 'behaviour clusters'. However, all of the clusters were supported by examples of specific observable behaviours. Therefore the list that was actually produced could be more accurately described as a list of desirable attributes. This list is shown below:

LIST OF THE DESIRABLE ATTRIBUTES GENERATED BY THIS STUDY:

1. Is Proactive (Comes up with clear well thought out ideas and suggestions)
2. Does more than the bare minimum - does over and above what is asked
3. Seeks and makes the most of opportunities for personal development
4. Strives to ensure work is always completed to a high standard
5. Represents the RAF in a positive manner
6. Displays Strength of Character
7. Utilises experience and training for the benefit of RAF
8. Shows respect
9. Communicates effectively
10. Works Hard
11. Is adaptable/flexible
12. Takes an active role in group activities
13. Is reliable
14. Is honest
15. Inspires and motivates self and others
16. Considers all available information when making decisions
17. Gets on with the task in hand regardless of obstacles
18. Puts themselves out for the benefit of others/RAF
19. Encourages, develops and Utilizes the skills of others
20. Uses good interpersonal skills

7.5 Linking the Desirable to Contextual/Citizenship Performance

These 20 desirable attributes were linked to the seven contextual behaviour groupings as suggested by Podaskoff et al. Table 7.7 shows the results.

Table 7.7 The behaviour cluster related to Podaskoff et al behaviour dimensions

BEHAVIOUR CLUSTER PRESENT STUDY	PODASKOFFS BEHAVIOUR GROUPINGS
Puts themselves out for the benefit of others/RAF Uses good interpersonal skills Encourages, develops and utilizes the skills of others Communicates Effectively	HELPING BEHAVIOUR
Takes an active role in group activities	SPORTMANSHIP
Represents the RAF in a positive manner Shows commitment to the RAF Works hard	ORGANIZATIONAL LOYALTY
Shows respect Is honest Is reliable Displays strength of character	ORGANIZATIONAL COMPLIANCE
Is Proactive Does more than the bare minimum Gets on with task appropriately overcoming obstacles Considers all available information before making decisions	INDIVIDUAL INITIATIVE
Inspires and motivates self and others	CIVIC VIRTUE
Utilizes experience, training and opportunities and opportunities for personal development for the benefit of the RAF	SELF- DEVELOPMENT

7.5 DISCUSSION

The aim of this discussion is to discuss the results of this study in relation to the implications for the next stage of the current research. Any discussion of the wider implications of the study is presented in chapter ten.

7.5.1 Overview

This study was the first stage of the overall research and the aim was to identify a list of desirable behaviours of RAF personnel that would provide the basis for the development of an instrument to assess and develop new recruits to the RAF.

7.5.2 Aims and Objectives:

1. To use an effective job analysis method to identify which behaviours are indicative of airman performance:
2. To produce a list of observable behaviours that could be validated in stage two of the research:

7.5.3 Summary of Results

Over 100 constructs and 200 separate observable behaviours were generated as a result of the study. This would indicate that the method used was an effective method of encouraging the participants to generate descriptors of the differences between good, average and poor airmen. This would offer support to the use of RTG outside of the clinical domain which is often debated in the literature (Marsden & Littler (2000). There appeared to be some commonality of thought between the SMEs, as many of the constructs used were mentioned by several individuals. This would support the suggestion made by Stewart & Stewart, (1997) that the RTG allows interviewees to describe the issue in question in their own words. There was certainly consistency with the words interviewees used to identify the desirable behaviours of RAF personnel. However, an alternative explanation may have been that many of the

constructs given related to the published core values or to terminology used in RAF appraisal forms, which may account for the frequency of citing of some of the constructs. As the largest proportion of interviewees had served in the RAF for between 21 and 25 years it may be that they have become used to thinking in those terms and have a common understanding of their meaning within the service environment. However, whether these constructs are as important for determining the success of a new recruit to the RAF today still needed to be determined.

It could be argued that the results indicated that the core values were valid as they were all represented by elicited constructs and at least 40% of participants mentioned the constructs related to each core value. However, the linking between the core values and constructs was purely subjective thus may not be a true reflection. Factor analysis may have produced more robust evidence to support the core values, however the numbers mentioning each construct did not allow for factor analysis to be conducted on the data.

Many of the constructs were subjective and not easily defined. Some participants had difficulty with explaining how they decided if an airman displayed a particular characteristic. When asked to describe constructs in behavioural terms, other general attributes were often used, eg when asked how they saw that someone was committed to the RAF, they would reply 'he is well motivated'. This would suggest that construct interpretation is highly subjective and probably quite abstract in nature – or at least difficult for participants to articulate in behavioural terms. When probed further the same behaviours would often be described for several constructs, again suggesting that the constructs are generally vague and it is actual behaviour that is

important. This study has offered an opportunity to translate these value indicators into behavioural terms and produce the list of 20 desirable attributes. However, that translation still needed to be validated across the RAF for all trade groups.

Arguably the list of 20 desirable attributes doesn't appear to be very different to the list of 'attitudinal goals' (see the introduction). However, the desirable attributes list does include examples of specific observable behaviours to illustrate each of the clusters. It will be interesting to investigate; first the validity of the desirable attributes list and subsequently the effectiveness of any tool developed using the list. As discussed in chapter three assessing the accuracy of job analysis is a matter of some debate. It was hoped that the results of studies two and three will provide this validation.

The more frequently a construct was mentioned the more likely it was to discriminate between good, average and poor airmen (see table 4). This could be argued to suggest that the most frequently cited constructs are the most valid and therefore should be used as a basis for the development of a tool to measure the desirable behaviours of RAF personnel. However, this result may have been due to effect of larger numbers on the statistical analysis. It was therefore felt that validation of the behaviours elicited was required to ensure that important but infrequently mentioned constructs were not wrongly omitted from the final instrument.

Further support of the necessity to validate the results of the data gathering procedure was the fact that only 2 constructs appeared consistently at the locations visited (see table 7.4). As the aim of the overall study was to develop a tool that could be used to

assess and develop desirable behaviours for airmen that covered the whole RAF regardless of trade group or rank, it was important to establish validity across the RAF.

One limitation of the study was that the terms good, average and poor airmen were not defined in the research, participants used their own judgement, which would have been subjective. However, the results were consistent, which would suggest participants were tending to agree. Again, any tool designed to measure behaviour in order to rate individuals as good, average or poor airmen would need to be carefully validated against appropriate criteria.

A further limitation was the selection of SMEs or rather the lack of selection. Stations Commanders were given the background to the project and asked to provide appropriate personnel to be interviewed. There is no way of knowing if the individuals themselves were good, average or poor examples of RAF personnel. As the literature shows, the attitudes and characteristics of SMEs can have an impact on how they rate others. (Mueller & Belcher (2000), Truxillo, Paronto, Collins & Sulzer (2004) & Landy & Vasey (1991).

During the interviews a number of personnel suggested that the responsibilities of different ranks of airmen would mean that a behavioural indicator could not be used for all ranks. It was suggested that some behaviours need to be core whilst others might need to be added as people move up the rank structure. This will need to be further investigated in the development and evaluation of the tool created to measure identified desirable behaviours.

The findings of the project seem to be consistent with other research in both military and non-military settings, in that attributes being identified are similar to those found to be important elsewhere. However, the major difference with this study is that the overall constructs have been broken down into actual behaviours, which can be observed, and those behaviours can be encouraged and developed in junior personnel.

7.6 CONCLUSIONS

This study has generated a list of 20 desirable attributes that could be used as a basis for designing an instrument to assess and develop desirable behaviours of RAF personnel. However, in order to ensure that the behaviour clusters are suitable for use across the whole RAF and with all Non-commissioned ranks a further validation study is required.

As the majority of the sample used to generate the behaviour clusters had been in the RAF for over 16 years the validation should include participants with less length of service. Also to ensure a wide spectrum of views the sample should be drawn from all ranks within the RAF from SAC to Air Commodore. In addition, there were some differences between locations and therefore possibly trade groups on opinions as to what makes a good airman. Therefore the validation study will need to cover as many location and trade groups as possible to ensure a generic tool is developed.

It is therefore concluded that the next phase of the research in the development of an instrument to assess and develop desirable behaviours of RAF airmen should be a full validation study of the behaviour clusters generated as a result of this study.

CHAPTER EIGHT

8 VALIDATION OF THE DESIRABLE ATTRIBUTES

8.1 INTRODUCTION

The overall aim of this research is to produce an instrument that would enable RAF instructors to assess and develop appropriate behaviours in RAF recruits. The first step in developing this instrument was to identify the desirable behaviours of RAF personnel. The behaviour elicitation study (Chapter seven) used repertory grid technique to generate a list of 20 desirable attributes for RAF non-commissioned ranks (airmen).

The next step in this research was to validate the list of desirable attributes. As a generic instrument was required, this validation study needed to ensure that those desirable attributes were suitable for use across the whole RAF and with all ranks of airmen. In addition to identifying whether the desirable attributes were valid across the RAF this study also aimed to identify which of the desirable attributes were most important and if any could be excluded from the overall list. The RAF was hoping for a list that would identify those behaviours that should be considered essential and those that could be considered desirable.

To achieve this aim it was relevant to examine the literature with regard to establishing the importance of items generated during job analysis.

In order to establish importance of the items generated during job analysis most studies involve subject matter experts (SMEs) rating identified job tasks or

requirements for importance and frequency (Cranny & Doherty 1988). Many studies ask SMEs to rate importance on a Likert scale using descriptions such as very important to not important at all (Sümer, Sümer, Demirutku & Çifci (2001), DiPerna & Elliot (1999)) Other studies ask SMEs to rank order items in terms of importance (Mullins, & Kimbrough 1988).

There is much is much debate in the literature as to the value of importance ratings. There are studies that have found evidence to support the use of importance and frequency ratings. For example, Yammarino & Waldman, (1993) found a consistent relationship between performance and importance ratings. Dierdorff and Wilson (2003) conducted a meta-analysis of interrater and intrarater reliability for job analysis data and found scales of frequency and importance were the most reliable when compared with difficulty, time-spent, and the Position Analysis Questionnaire. In contrast there are studies which do not support the use of importance and frequency data in job analysis. (Friedman, 1990 & Cranny & Doherty, 1988). Sanchez & Levine (2000) suggest that traditional methods of rating job analysis are of little practical value and that consequence criteria should be investigated.

As there was controversy in the literature regarding the use of importance ratings in job analysis it was felt that an alternative method of validating the behaviour list should be used in addition to the traditional method of SMEs identifying how important the items were. During the behaviour elicitation process (see chapter seven) SMEs were asked to rate individual airmen on their performance for each construct elicited. These ratings were then analysed in order to identify which constructs

discriminated between good, average and poor performers. As discussed in the results of the behaviour elicitation study, where there were enough people providing ratings for a construct, this method showed which items discriminated between good, average and poor performers on each construct. However, as the constructs were generated by the participants themselves, there was no overall consistency to the items rated. It was felt that applying the same rating criteria to the behaviour cluster list would provide a useful indication of which desirable attributes would discriminate best between good, average and poor performers and therefore arguably which desirable attributes were most important.

Another area of the literature that was relevant to explore in relation to this study was the composition of SMEs' groups. Research has shown that different groups of SMEs can produce different job analysis outcomes (Mullins & Kimbrough, 1988).

Job experience has been suggested as being a possible cause of the differences (Tross & Maurer, 2000). A large number of the subject matter experts who participated in the behaviour elicitation study had served in the RAF for over fifteen years. A concern with that study was whether the behaviours generated truly reflected the desired behaviours, rather than the espoused core values of the organisation or items already rated in the airmen appraisal system (F6000). Therefore the choice of SMEs to participate in this study needed careful thought and needed to include participants with less length of service. Also to ensure a wide spectrum of views from different ranks and trade/branch groups the sample should be drawn from all ranks within the RAF from SAC to Air Commodore and from various RAF stations, with different functions.

The literature also recommends a mixture of job incumbents and supervisors be involved in job analysis methods (Lawshe, 1975, Yammarino,& Waldman, 1993). Therefore this study included both airmen and officers as SMEs.

8.2 AIMS AND OBJECTIVES

8.2.1 Aim

The aim of this study was to validate the identified desirable attributes list's utility as a base for designing an instrument to assess and develop desirable behaviours of RAF recruits. As the instrument was to be for all airmen recruits, the desirable attributes list needed to demonstrate generalisability throughout the RAF and could not be rank or trade specific. If the desirable attributes identified during behaviour elicitation study are shown to be valid in this study, they will be used as a basis to develop the instrument to assess and develop behaviours of RAF personnel. The resulting instrument will be evaluated in the final phase of this research.

8.2.2 Objectives:

1. To validate the findings of study one:
2. To investigate the generalisability of the behaviours generated in study one:
3. To examine the differences between job incumbents and supervisors in their ranking of importance of identified behaviours.

8.3 METHODOLOGICAL CONSIDERATIONS

The primary aim of this study was to investigate the extent to which the 20 desirable attributes identified in the behaviour elicitation study were valid and transferable throughout the RAF, regardless of trade group and non-commissioned rank. The list of desirable attributes needed to be validated to ensure that they had relevance throughout the RAF and that no behaviours had been omitted.

In accordance with recommendations in the literature officers and airmen were included in this study, as airmen would be job incumbents and officers their supervisors.

In order to investigate whether the desirable attributes were generalisable throughout the RAF four locations were included in the study. These were RAF Benson, RAF Leeming (Main Operating Bases (MOB), RAF Halton (a training base), and RAF Innsworth (Headquarters Personnel and Training Command).

To establish the importance of the items, the method of ranking the desirable attributes in order of importance was chosen in preference to the method of rating them on a Likert scale. This was as a result of discussion with the project sponsors (RAF personnel) who felt that the SMEs would consider each of the desirable attributes to be very important or important.

To establish the effectiveness of each of the behaviours in discriminating between the performance of airmen, it was decided to ask participants to consider airmen that they had actually known so that they could think of how frequently they displayed the

behaviours rather than just thinking of imaginary ‘ideal airmen’. In order to obtain an equal sample of levels of performance each participant was asked to think of one good, one average and a poor airman.

8.4 METHOD

8.4.1 Participants

Interviews were conducted, with a range of personnel from four stations and from SAC to Air Commodore ranks. Interviews were carried out on a one to one basis and confidentiality and anonymity were assured. Overall 34 personnel were interviewed. The participants’ ranks are shown in Table 8.1, and locations in Table 8.2.

Table 8.1: Rank of SMEs interviewed

Rank	Frequency	Percent
AIRMEN		
SAC	4	11.8
Jnr Tech	1	2.9
Cpl	8	23.5
Sgt	5	14.7
Chf Tech	2	5.9
WO	2	5.9
OFFICERS		
Eg Off	3	8.8
Flt Lt	1	2.9
Sqn Ldr	1	2.9
Wg Cdr	2	5.9
Gp Capt	2	5.9
Air Cdre	3	8.8
Total	34	100.0

Table 8.2: Location of SMEs interviewed

Location	Frequency	Percent
Benson	9	26.5
Halton	10	28.4
Innsworth	5	14.7
Leeming	10	29.4
Total	34	100.0

The length of service of individuals ranged from 2 to 37 years with a mean of 17.75. Years. Figure 8.1 shows a breakdown of the length of service of the participants.

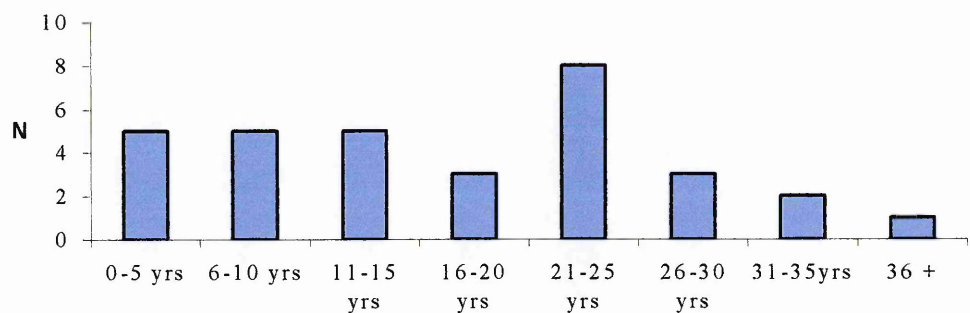


Figure 8.1: Length of service of those interviewed

For the purpose of analysis the length of service was broken down into 3 groups (Table 8.3) as done in previous studies (Tross & Mauer 2000). These groupings were chosen as they produced roughly equal size groups. None of the SMEs had less than 1 year’s service. This is recommended in the literature as being the minimum tenure for being included as an SME in job analysis (Tross & Mauer 2000).

Table 8.3: Breakdown of length of service groupings

	Frequency	Percent
Up to 14 years	11	34.4
15-24 years	11	34.4
25 plus	10	28.1
Missing System	1	3.1
Total	34	100.0

8.4.2 Qualitative Analysis

Each interviewee was given the list of twenty desirable attributes and the observable behaviours that made up each attribute. These were presented as in appendix C. Initially they were asked to look at the list and comment on the behaviours given and the attribute titles. These comments were recorded on the lists. Opinions as to whether any behaviours had been left out were also sought. Table 8.4 shows the desirable attributes list.

Table 8.4: The Desirable attributes

Desirable Attribute Number	Desirable Attribute (Behaviour Cluster) Title
1	Is pro-active (comes up with clear well thought out ideas and suggestions)
2	Does more than the bare minimum - does over and above what is asked
3	Strives to ensure work is always completed to a high standard
4	Utilises experience and training for the benefit of RAF
5	Represents the RAF in a positive manner
6	Displays strength of character
7	Seeks and makes the most of opportunities for personal development
8	Gets on with the task in hand regardless of obstacles
9	Puts themselves out for the benefit of others/RAF
10	Encourages, develops and utilises the skills of others
11	Uses good interpersonal skills
12	Shows respect
13	Communicates effectively
14	Works hard
15	Is adaptable and flexible
16	Takes an active role in group activities
17	Is reliable
18	Is honest
19	Inspires and motivates self and others
20	Considers all available information before making decisions

Although the titles of the desirable attributes were intended to give an overall indication of the behaviour sought, the full list of behaviours was still required for clarification and to provide observable examples of the behaviour being sought. The complete list of desirable attributes and example behaviours can be found at appendix C.

8.4.3 Ranking Order of Importance

Participants were asked to choose the five desirable attributes that they saw as being most important for the role of airman, and then rank those behaviours clusters on a scale of 1 – 5, with 1 being the most important. They were then asked to pick the five least important attributes and rank those from 16 - 20, and so on until all 20 behaviour clusters were ranked in order of importance.

8.4.4 Rating Individuals on Frequency of Performance of Each of the Desirable Attributes

After ranking the desirable attributes in order of importance, the participants were then asked to think of three airmen (any rank) who they knew well enough to indicate their behaviour. They were asked to think of one they would describe as being a good airman, one as average and one as poor. The rank in the RAF of the interviewee was recorded along with the rating and rank of each of their three selected airmen. The interviewees then indicated how often each of their chosen airmen demonstrated each behaviour cluster on the list. They were given the terms ‘always’, ‘frequently’, ‘sometimes’, ‘rarely’, ‘never’. The term ‘never had the opportunity to demonstrate this behaviour’ was also included to identify if any of the desirable attributes were not appropriate to any rank.

8.5 RESULTS

8.5.1 Qualitative Analysis

The first part of the validation study involved asking the interviewees to read the list and make any comments regarding the behaviours and/or the groupings. Most were happy with the groupings and felt that they made sense. There were some suggestions to improve the clarity of some of the example behaviours. Nobody suggested that any behaviours had been missed out, although there were suggestions that some were repeats. For example, 'work hard' was often cited as being the same as 'strives to ensure work is always completed to a high standard'. The item that caused most concern during this exercise was 'seeks and makes the most of opportunities for personal development'. A number of interviewees felt that this was a selfish activity rather than of benefit to the RAF.

8.5.2 Results of Ranking the Order of Importance of the Desirable Attributes

The participants were asked to rank the desirable attributes in order of importance. Most found this difficult to do as they felt all were important. One person was only able to choose his top five and then did not differentiate between the others. The data generated by this individual were not included in the overall analysis.

To identify an overall order of importance of the desirable attributes basic statistical analysis was conducted on the rankings given to each behaviour cluster. The mean ranking, the mode for each cluster and the range of rankings given for each cluster were calculated. Table 8.5 shows the details. In addition the frequency with which items appeared in the top five and bottom five was examined. All of the desirable

attributes were ranked in the top 4 most important, by at least one person, (see column 7 in table 8.5) with 13 of the 20 desirable attributes being ranked as the most important at least once. In contrast, almost all of the desirable attributes were also ranked in the 3 least important, with 12 clusters being ranked as the least important by at least one person.

The cluster with least variance in order of importance rankings was 'is honest', which could have been considered as the most important whether the mean ranking, the modal ranking or the range of rankings was used to determine the most important. The order of importance of the rest of the clusters would depend on which method of analysis was chosen. For the purpose of further analysis for this research, the order of importance was based on the mean ranking given, with the lowest mean score being considered the most important. The mean was chosen as it produced a clear priority list, whereas the other methods produced a number of tied places. Table 8.5 presents the list in the order of importance based on the mean scores.

Table 8.5: The Order of Importance of Individuals Ranking of The List

Attribute No	Attribute Name	Mean Ranking	Mode	Highest Ranked Position	Lowest Ranked Position	Range of Ranking	No. of times cited in top 5
18	Is honest	5.33	1	1	13	12	19
15	Is adaptable and flexible	6.18	4	1	15	14	17
3	Strives to ensure work is always completed to a high standard	6.58	3	1	19	18	18
17	Is reliable	7.88	1 & 14	1	19	18	11
1	Is pro-active (comes up with clear well thought out ideas and suggestions)	7.97	5	1	19	18	14
19	Inspires and motivates self and others	8.06	8	1	19	18	13
13	Communicates effectively	8.88	3	1	20	19	13
10	Encourages, develops and utilises the skills of others	9.42	4	3	18	15	11
14	Works hard	10.58	7 & 8	1	20	19	5
11	Uses good interpersonal skills	10.76	6 & 12	2	20	18	4
8	Gets on with the task in hand regardless of obstacles	10.79	6	1	20	19	7
6	Displays strength of character	10.85	10	1	19	18	5
20	Considers all available information before making decisions	11.58	8 & 9	4	20	16	2
2	Does more than the bare minimum - does over and above what is asked	11.64	20	2	20	18	7
5	Represents the RAF in a positive manner	12.09	15	1	20	19	8
12	Shows respect	12.91	12 & 17	2	20	18	3
9	Puts themselves out for the benefit of others/RAF	13.06	13 & 15	1	20	19	4
7	Seeks and makes the most of opportunities for personal development	14.15	18 & 20	1	20	19	6
4	Utilises experience and training for the benefit of RAF	14.91	15 & 16	8	20	12	1
16	Takes an active role in group activities	15.91	20	3	20	17	2

8.5.3 Officer/Airmen Differences in the Ranking of the Order of Importance of the Desirable Attributes

The differences between officer and airman rankings of order importance were investigated. As the data was ordinal ranked data a Mann-Whitney U test was conducted to identify if there were any significant differences to the mean order of importance between Officers and Airmen. There were two significant differences in the ranking of the order of importance desirable attributes. The mean ranked position for 'inspires and motivates self and others' was 20 for airmen and 12 for officers', indicating that airmen rated this attribute as less important than officers. The mean ranked position for 'is reliable' was 13 for airmen and 20 for officers, indicating that airmen rated this attribute as more important than officers. The full results are shown in appendix D.

8.5.4 Length of Service Differences in the Ranking of the Order of Importance of the Desirable Attributes

Kruskal-Wallis tests were conducted to investigate any differences between the rankings given to the desirable attributes by each group. The rankings were made in order of importance with the item being rated as most important being given a score of 1 and the least important being given a score of 20. Therefore the lower the mean score of an item the more important it was considered. The results indicated no significant differences between the groups. The full results are shown in appendix E.

8.5.5 Differences between Locations in the Ranking of the Order of Importance of the Desirable Attributes

In order to investigate whether the desirable attributes were generalizable throughout the RAF four locations were included in the study. Kruskal-Wallis tests were conducted to compare rankings given between the 4 stations. The results indicated that there were no significant differences between the locations. (See appendix F for full details).

8.5.6 Results of Rating Individuals on Frequency of Performance of Each of the Desirable Attributes

As described in the method section the participants were asked to consider three individual airmen who they knew well enough to rate their behaviour. They were asked to think of one they would describe as being a good airman, one as average and one as poor. The interviewees were given the terms; 'always'(5), 'frequently'(4), 'sometimes'(3), 'rarely'(2), 'never'(1) to indicate how often each of the airmen demonstrated each behaviour cluster on the list. The term 'never had the opportunity to demonstrate this behaviour' was also included to identify if any of the desirable attributes were not appropriate to any rank. The numbers in brackets show the score allocated to each frequency for purposes of analysis.

Generally, the participants did not find this difficult to do, even though during discussions some had felt that certain desirable attributes would only relate to Senior Non-Commissioned Officers.

This exercise generated three groups: good airmen, (n = 33) average airmen, (n = 33) and poor airmen, (n = 34) with scores for each of the desirable attributes. There is a difference in the group sizes as one individual rated good and average officers instead of airmen and these data were not included in the analysis. Table 8.6 shows the spread of scores given for each group.

Table 8.6 - Breakdown of frequencies given to the groups

	Mean score	Mode	Minimum	Maximum	Range	No Opportunity
B1 – Is Pro-active (Comes up with clear well thought out ideas and suggestions)						
Good Airmen (n=33)	4.48	5	3	5	2	
Average Airmen (n=33)	3.12	3	2	5	3	
Poor Airmen (n=34)	2.15	2	1	5	4	
B2 – Does more than the bare minimum - does over and above what is asked						
Good Airmen (n=33)	4.58	5	3	5	2	
Average Airmen (n=33)	3.48	4	2	5	3	
Poor Airmen (n=34)	2.26	2	1	4	3	
B3 – Strives to ensure work is always completed to a high standard						
Good Airmen (n=33)	4.82	5	4	5	1	
Average Airmen (n=33)	3.73	4	3	5	2	
Poor Airmen (n=34)	2.41	3	1	5	4	
B4 – Utilises experience, training for the benefit of RAF						
Good Airmen (n=33)	3.91	4	2	5	3	
Average Airmen (n=33)	3.19	4	1	5	4	
Poor Airmen (n=34)	2.15	2	1	5	4	
B5 – Represents the RAF in a positive manner						
Good Airmen (n=33)	4.33	5	2	5	3	
Average Airmen (n=33)	3.58	4	2	5	3	
Poor Airmen (n=34)	2.29	3	1	5	3	
B6 – Displays strength of character						
Good Airmen (n=33)	4.45	4	3	5	2	
Average Airmen (n=33)	3.33	3	2	5	3	
Poor Airmen (n=33)	2.36	2	1	5	4	1
B7 – Seeks and makes the most of opportunities for personal development						
Good Airmen (n=33)	3.59	3	2	5	3	
Average Airmen (n=33)	2.82	3	1	5	4	
Poor Airmen (n=34)	2.56	2	1	5	4	
B8 – Gets on with the task in hand regardless of obstacles						
Good Airmen (n=33)	4.39	5	3	5	2	
Average Airmen (n=33)	3.67	4	2	5	3	
Poor Airmen (n=34)	2.47	2	1	5	4	
B9 – Puts themselves out for the benefit of others/RAF						
Good Airmen (n=33)	4.0	4	1	5	4	
Average Airmen (n=33)	3.3	3	2	5	3	
Poor Airmen (n=34)	3.09	2	1	5	4	
B10- Encourages, develops and utilises the skills of others						
Good Airmen (n=32)	4.34	4	3	5	2	1
Average Airmen (n=32)	3.03	3	1	5	4	1
Poor Airmen (n=32)	2.0	1	1	4	3	2

Table 8.6 (Cont.) - Breakdown of frequencies given to the groups

	Mean score	Mode	Minimum	Maximum	Range	No Opportunity
B11- Uses good interpersonal skills						
Good Airmen (n=33)	4.36	5	3	5	2	
Average Airmen (n=33)	3.33	4	1	5	4	
Poor Airmen (n=34)	2.29	3	1	4	3	
B12 - Shows respect						
Good Airmen (n=33)	4.48	5	1	5	4	
Average Airmen (n=33)	4.06	4	3	5	2	
Poor Airmen (n=34)	2.88	3	1	5	4	
B13 - Communicates Effectively						
Good Airmen (n=33)	4.48	5	1	5	4	
Average Airmen (n=33)	3.48	3	1	4	3	
Poor Airmen (n=34)	2.82	3	1	4	3	
B14 - Works Hard						
Good Airmen (n=33)	4.82	5	4	5	1	
Average Airmen (n=33)	3.67	4	2	5	2	
Poor Airmen (n=34)	2.76	3	1	5	4	
B15 - Is adaptable and flexible						
Good Airmen (n=33)	4.36	5	3	5	2	
Average Airmen (n=33)	3.45	3	2	5	3	
Poor Airmen (n=34)	2.18	3	1	4	3	
B16 - Takes an active role in group activities						
Good Airmen (n=33)	3.88	4	4	5	1	
Average Airmen (n=33)	3.36	3	1	5	4	
Poor Airmen (n=34)	2.18	3	1	4	3	
B17 - Is reliable						
Good Airmen (n=33)	4.76	5	4	5	1	
Average Airmen (n=33)	4.00	4	2	5	3	
Poor Airmen (n=34)	2.68	3	1	5	4	
B18 - Is honest						
Good Airmen (n=33)	4.58	5	1	5	4	
Average Airmen (n=33)	4.30	5	3	5	2	
Poor Airmen (n=34)	3.38	3	1	5	4	
B19 - Inspires and motivates self and others						
Good Airmen (n=32)	4.41	4	3	5	2	1
Average Airmen (n=32)	3.03	3	1	5	4	1
Poor Airmen (n=34)	1.97	2	1	5	4	
B20 - Considers all available information before making decisions						
Good Airmen (n=33)	4.27	4	3	5	3	
Average Airmen (n=33)	3.33	3	1	5	4	
Poor Airmen (n=34)	2.24	3	1	4	3	

To identify whether there were significant differences between the frequencies with which good, average or poor airmen demonstrated each desirable attributes, the means of the ratings given were analysed. ANOVAs with Tukey post-hoc tests were conducted on these ratings to identify if the ratings given for each behaviour cluster would differentiate between those rated as good, average or poor airmen. Table 8.7 shows the F value (see appendix G for the full ANOVA results) and the breakdown of the frequency of behaviours and overall rating groups. Where there is no shading there were significant differences between the mean scores for each rating and the shading indicates where there was no significant difference between the means.

Table 8.7 – Breakdown of How Each Behaviour Cluster Distinguished Between Good, Average and Poor Airmen.

Desirable Attributes		RATING OF PERFORMANCE			
Attribute No	Attribute Name	ANOVA F	Mean score per each rating group		
			Good	Average	Poor
3	Strives to ensure work is always completed to a high standard	108.068	4.82	3.73	2.41
1	Is pro-active (comes up with clear well thought out ideas and suggestions)	82.791	4.48	3.12	2.15
2	Does more than the bare minimum - does over and above what is asked	79.116	4.58	3.48	2.26
19	Inspires and motivates self and others	73.205	4.41	3.03	1.97
15	Is adaptable and flexible	71.742	4.36	3.45	2.18
10	Encourages, develops and utilises the skills of others	66.035	4.34	3.03	2.00
14	Works hard	60.995	4.82	3.67	2.76
20	Considers all available information before making decisions	54.537	4.27	3.33	2.24
17	Is reliable	51.987	4.76	4.00	2.68
6	Displays strength of character	47.417	4.45	3.33	2.36
8	Gets on with the task in hand regardless of obstacles	45.372	4.39	3.67	2.47
13	Communicates effectively	44.103	4.48	3.48	2.82
11	Uses good interpersonal skills	43.472	4.36	3.33	2.29
5	Represents the raf in a positive manner	40.968	4.33	3.58	2.29
4	Utilises experience and training for the benefit of raf	35.157	3.91	3.19	2.15
12	Shows respect	23.502	4.48	4.06	2.88
18	Is honest	14.077	4.58	4.30	3.38
7	Seeks and makes the most of opportunities for personal development	9.187	3.59	2.82	2.56
16	Takes an active role in group activities	8.219	3.88	3.36	2.82
9	Puts themselves out for the benefit of others/RAF	1.093	4.00	3.30	2.88

For the overall data, the analysis showed that the frequency of demonstration of the majority of desirable attributes discriminated between good, average and poor airmen, with the following exceptions:

- a. 'Is honest' and 'shows respect' - did not distinguish between good and average airmen. However the mean scores on these items were significantly lower for poor airmen than for average or good airmen.
- b. Takes an active role in group activities – did not distinguish between good and average airmen or between average and poor airmen. However it did distinguish between good and poor airmen.
- c. Seeks and makes the most of opportunities for personal development did not distinguish between average and poor airmen. However the mean scores on these items were significantly higher for good airmen than for average or poor airmen.
- d. 'Puts themselves out for the benefit of others/RAF' - did not distinguish between good, average or poor airmen.

The F score was used to calculate the overall importance of the desirable attributes in terms of the power of discrimination. In Table 8.7, the behaviours are presented in the order of importance using this method.

8.5.7 Comparison Between the Different Methods of Identifying the Order of Importance of the Desirable Attributes

There were differences between the order of importance of individuals' ranking of the list and the order of importance according to how each behaviour cluster discriminated between good, average and poor airmen. Table 8.8 shows the

differences. Although there were some notable exceptions i.e. ‘does more than the bare minimum’ and ‘is honest’, the differences between the two lists for the majority of clusters were small. There was a significant correlation ($r = .604$) between the two orders of importance and the Wilcoxon matched-pairs ranks test indicated that there was no significance difference between the order of importance lists ($T = 77$)

Table 8.8 - Differences in Order of Importance between Rankings of Importance given and Discrimination in ratings given

BEHAVIOUR CLUSTER	Order of Importance Ranking	Order of Importance Discrimination Rating
Strives To Ensure Work Is Always Completed To A High Standard	3	1
Is Pro-Active (Comes Up With Clear Well Thought Out Ideas And Suggestions)	5	2
Is Adaptable And Flexible	2	5
Inspires And Motivates Self And Others	6	4
Is Reliable	4	9
Encourages, Develops And Utilises The Skills Of Others	8	6
Does More Than The Bare Minimum - Does Over And Above What Is Asked	14	3
Works Hard	10	7
Is Honest	1	17
Communicates Effectively	7	12
Gets On With The Task In Hand Regardless Of Obstacles	9	11
Considers All Available Information Before Making Decisions	13	8
Displays Strength Of Character	12	10
Uses Good Interpersonal Skills	11	13
Represents The RAF In A Positive Manner	15	14
Shows Respect	16	16
Utilises Experience And Training For The Benefit Of RAF	19	15
Seeks And Makes The Most Of Opportunities For Personal Development	18	18
Puts Themselves Out For The Benefit Of Others/RAF	17	20
Takes An Active Role In Group Activities	20	19

8.6 DISCUSSION

The main aim of this study was to examine the validity of the desirable attributes generated during the behaviour elicitation phase of the research. The analysis involved three different ways of establishing this validity. Firstly SMEs qualitatively evaluated the content of the behaviour list. They then ranked the behaviours in terms of importance. Finally, they rated individuals, whom they had identified as being good, average or poor airmen.

The results were varied. The qualitative comments suggested that the majority of items were valid. Nobody suggested that any behaviours had been missed out, although there were suggestions that some were repeats. The behaviours which were cited as being the same by the most people were 'works hard' and 'strives to ensure work is always completed to a high standard'. Following discussion with the RAF project sponsor it was decided to retain both of these items in the final validation study as it was argued that a person could be observed to be working hard using the example behaviours given, such as does extra hours, but may not necessarily strive to produce work of a high quality.

Some suggestions to increase the clarity of the behaviour examples were made. Some of these suggestions were accepted to improve the overall clarity of the full list. (See Appendix H for the new list). In addition the cluster 'gets on with the task in hand regardless of obstacles' was changed to 'gets on with the task in hand appropriately overcoming obstacles'.

The item that caused most concern during this exercise was 'seeks and makes the most of opportunities for personal development'. A number of interviewees felt that this was a selfish activity rather than of benefit to the RAF. As this item was obviously ambiguous, and it was rated as 18th in the order of importance by whichever method used, it was decided to disband the cluster. The example behaviours from that cluster were either included in the cluster 'utilises experience and training for the benefit of RAF', which was renamed 'utilises experience, training and opportunities for personal development for the benefit of RAF' to reflect the additions or were included in an additionally created cluster of shows commitment to the RAF.

The results of the ranking of importance produced more interesting results. If traditional methods (Sanchez and Levine, 2000) had been followed, i.e. where items with a high range of importance scores were dropped, none of the behaviours would have been considered valid.

There is debate in the literature as to how useful importance data is in job analysis (Friedman, 1990 & Cranny & Doherty, 1988). The results of this study could be argued to suggest that using SMEs to rank order items in order of importance does not produce a useful indication of the importance of specific contextual behaviours in predicting rating of airmen performance in the RAF. However, there are other explanations that need to be considered.

One possible reason for this finding could be that the job analysis method was so effective that the desirable attributes that were generated were all very important. Indeed that was the aim of the job analysis. If the SMEs agreed that the desirable

attributes are all equally important, producing a rank order would be meaningless and would result in inconsistent findings as other factors may randomly influence the order. For example, particular events may highlight the importance of particular behaviours and this would vary between SMEs. This suggestion was supported by the difficulty individuals had in producing a rank order for the items. Also feedback given during the task indicated that people felt that the rank order would change from day to day. One way of investigating this would be to include desirable attributes that were not generated by the job analysis method. If the job analysis was accurate and the importance rankings were accurate then these items should be consistently ranked as low in the order of importance.

Another possible reason for this finding could be the range of SMEs interviewed. There may well be differences between trade groups and between ranks as to which behaviours are considered important. As the aim of this study was to produce a generic list of desirable behaviours sought across the RAF, a wide range of SMEs was considered necessary. However, in terms of producing a rank importance of these desirable attributes, a wide range of SMEs may introduce inconsistency.

As there was concern at the beginning of this study that people who had been in the Service for a long time may have different ideas to desirable attributes than those who had been in the RAF for less time. There is also debate in the literature regarding the effect of job experience of SMEs on job analysis ratings (Mullins & Kimbrough, 1988, Landy & Vasey, 1991, Tross and Maurer, 2000). The results of this study suggest that length of service did not generally affect the ranking of order of importance given to the desirable attributes significantly. The only cluster where there was a significant difference in the mean ranking given was 'considers all available

information before making a decision' was rated as less important by those who had 25 years' or more service compared to the other two groups.

There could be various reasons for this finding: (a) sample size was very small, with a maximum group size of eleven, therefore the analysis may not identify effects that are really present. (b) The RAF has a well published list of core values and attributes that are regularly assessed in airmen via the appraisal system and therefore when rating order of importance those desirable attributes that were reflected in the core values booklet (AP1) may be given similar ratings. (d) The most likely explanation however, which seems to be supported by the overall analysis is that the pattern of order of importance rankings are entirely random and differences between groups would also be random and not significant. However, as the main purpose of investigating impact of length of service on order of importance was to ensure the validity of the initial job analysis, it is sufficient to conclude that for the purpose of this study, length of service of SMEs did not produce significantly different results, and that the 20 desirable attributes were consistently valid regardless of length of service of individual SMEs.

The impact of differences in the RAF rank of the interviewees on the ranking of order of importance of the desirable attributes was also considered. The results indicated that there were significant differences in the ranking of the order of importance in two desirable attributes. Officers' ranked 'inspires and motivates self and others' as more important than airmen and 'is reliable' as less important than airmen. These findings are not surprising with Officer focus being more on leadership, whereas airmen are more likely to rank reliability of their colleagues as important. As the aim of this comparison was to ensure that the desirable attributes were applicable across ranks then it could be argued that, overall, the items are generalisable across ranks.

A further indication that the desirable attributes can be generalised across the RAF is the fact that the 'no opportunity' category was not used very often. The most often was 4 times for the behaviour cluster 'encourages, develops and utilises the skills of others'. In all the cases where the 'no opportunity' option was given the rank of the airmen being assessed was SAC which is the lowest trained rank. The fact that the participants felt able to judge the frequency that the majority of their chosen airmen display most of the behaviour categories would suggest that the behaviours cluster were generalisable.

The implications of these findings are significant for the practice of job analysis. The first issue that must be considered is that if a thorough job analysis is conducted in order to produce a list of tasks, skills abilities or whatever, is there value in asking SMEs to provide a rank order of importance of these items? There is already debate in the literature in this area (Yammarino & Waldman, (1993), Dierdorff and Wilson (2003), Friedman (1990) and Cranny & Doherty (1988)). The results of this study would support those who suggest there is limited value in using importance ratings in job analysis. A limitation of this study is that it asked individuals to rank the items in order of importance, whereas many studies ask people to rate importance on a Likert scale (Sümer, Sümer, Demirutku & Çifci (2001), DiPerna & Elliot (1999)). It would be interesting to investigate if using this method of rating would have produced different results.

A possible limitation with studies investigating frequency/importance relationships is that the data was gathered concurrently either during job analysis or rating importance and performance of job skills. Arguably it would not be surprising if people rated activities that were performed frequently as being important. In order to overcome the

problem of validating job analysis data Sanchez and Levine (2000) suggested that consequence criteria should be investigated when validating job analysis methods.

In an attempt to approach the validation study from this angle, the effectiveness of the desirable attributes in discriminating between good, average and poor performers was investigated. This was done by asking the SMEs to rate individuals on their performance as airmen, and on the frequency with which they displayed each of the desirable attributes. The results of this produced interesting results: The majority of clusters did discriminate significantly between poor, average and good airmen. Those that did not produce three separate groups did, however, distinguish between good and poor airmen. The cluster 'puts themselves out for the benefit of others/RAF' was the only cluster that did not distinguish between good, average or poor airmen in any way.

It could be argued that these results were because the desirable attributes were all valid. However alternative explanations must be also considered. The first must be the impact of HALO effects, (Thorndike, 1920) it is possible that once an airmen was identified as being good, average or poor, the frequency with which they display desirable behaviours would automatically relate to these categories. It is interesting to note, although the complete range of frequencies were used for good, average and poor performers, the range of frequencies used was smaller for the good category, than for the average category and largest for the poor category when summed over all the desirable attributes. This may indicate that the 'good airmen' are considered good all rounders, whereas the 'poor airmen' are identified as such for poor performance in one or two particular areas. This would vary according to the individuals concerned.

This would be supported by the comments made during the behaviour elicitation study in which a 'good airman' was identified as being an 'all round good egg'.

A second possible explanation would be that the participants were asked to consider examples of good, average and poor airmen after they had seen the list of desirable attributes. This may have influenced who they chose to use as their examples. If they chose their examples based on the desirable attributes on the list, it would not be surprising that the behaviours on the list consequently discriminated between good, average and poor airmen.

If the traditional method of using the agreement between SMEs on the importance of the items was used to decide which of the items were kept from the job analysis none would have been used to develop the instrument. However, looking at which items discriminated between good, average and poor airmen, the majority of items appeared valid. When investigating the level of agreement between the orders of importance of the desirable attributes using both methods, there was strong agreement, with a couple of exceptions. These exceptions can however, be explained: The largest difference was for 'is honest'. It is suggested that 'is honest' would be rated as being important by everyone but would not discriminate between good and poor performers, because any body who had been proved to be dishonest would not remain in the RAF and would not have therefore been included in the study. 'Does more than the bare minimum' was rated as 14th in the order of importance yet was the 3rd most effective item for discriminating between good, poor and average airmen. This may have been because people were uncomfortable with saying more than the minimum standard was important. It could be argued that if a minimum standard is laid down then that is the

level which people should achieve. However, when deciding whether an airmen is good, average or poor, those that do more than the bare minimum may well stand out.

The majority of clusters did discriminate significantly between poor, average and good airmen and thus could be argued to be valid. Considering the variability of the results and the fact that there were only twenty desirable attributes it was decided, in negotiation with the project sponsors, to keep all of the clusters for the purpose of developing the tool, with the exception of the cluster 'seeks and makes the most opportunities for personal development'.

Although the two methods of breaking down the order of importance of the behaviour list did not produce an exact match there were some similarities. Where differences were evident (eg 'does more than the bare minimum') there will need to be further investigation into whether the behaviour is one that is essential or desirable.

Further work on the validity of the items is required to investigate the significance and reliability of these findings.

8.7 CONCLUSIONS

The objectives set at the beginning of this study were:

1. To validate the findings of study one:
2. To investigate the generalisability of the behaviours generated in study one:
3. To examine the differences between job incumbents and supervisors in their ranking of importance of identified behaviours.

It is felt that this study has validated the desirable attributes list as generated in study one with the exception of the item 'seeks and makes the most of opportunities for personal development' which was removed from the final list and replaced by 'shows commitment to the RAF'. Two other attribute titles were amended slightly; 'utilises experience and training for the benefit of RAF', was renamed 'utilises experience, training and opportunities for personal development for the benefit of RAF'; and 'gets on with the task regardless of obstacles' became 'gets on with the task appropriately overcoming obstacles'.

Overall, the desirable attributes could be argued to be generalisable across the RAF airmen, regardless of rank or trade group. There were only two differences between job incumbents (airmen) and supervisors (officers) in their ranking of importance of identified desirable attributes. These were 'is reliable' and 'inspires and motivates themselves and others'.

It is therefore concluded that the desirable attributes, with the associated observable behaviour examples, generated during this study would be a good starting point for the development of a tool to measure the desirable behaviours of RAF personnel.

It was hoped that the study would reduce the number of desirable attributes by identifying which were essential and which were just desirable. However, as the order of importance data produced some conflicting results it was felt that all the desirable attributes should be included in the development of the instrument in the amended forms.

Further evidence of the consequential validity of the desirable attributes is required. The next phase of the overall research was to design and evaluate an instrument to assess and develop these behaviours in RAF recruits.

CHAPTER NINE

DESIGN AND VALIDATION OF THE BEHAVIOUR MEASURING INSTRUMENT

9.1 INTRODUCTION

The previous studies in this research have identified those behaviours considered to be desirable for RAF personnel to display. These behaviours were clustered into groups to produce a list of twenty desirable attributes. The results of the validation study (chapter 8) indicated that these behaviour clusters would provide a useful basis for the development of an instrument to assess the desirable behaviours of recruits to the RAF.

The next stage of the research was to develop and evaluate the tool. In addition, during the research the benefits of using the tool as a development tool rather than just an assessment tool were highlighted to, and accepted by, the project sponsors. Therefore the development of the instrument needed to be considered as a development tool as well as an assessment tool.

9.1.2 The Behaviour Measuring Instrument (BMI)

The first part of this study was the development of the instrument, which was later named the 'Behaviour Measuring Instrument' (BMI). This name was chosen by the RAF. The original requirement was for a tool to assess the 'attitude' of new recruits with a view to dismissing those recruits who did not display the 'right attitude'.

However, during the initial phases of the research the benefits of using the tool as an aid for socialisation and development (Latham and Latham, 2000) of new recruits was highlighted to the RAF. Therefore the instrument's primary purpose had become to appraise individual's behaviours in order to develop and encourage those behaviours in new recruits in the RAF.

With this new emphasis for the tool, it was appropriate to explore the literature in relation to performance appraisal (see chapter five). The findings of this review supported the idea that the instrument should be a behavioural measure. The behavioural observation scale (BOS) format, (i.e. where observers report the frequency of specific behaviours) seemed more appropriate than the behaviourally anchored rating scales (BARs) (which use behavioural statements to illustrate rating levels) (Tziner & Latham 1989). This was because of the intention to use the BMI as a generic measure of airmen behaviour regardless of trade group. The BOS format has also been shown to reduce the effects of halo and leniency effects (Campbell, Dunette, Arvey, Hellervik and Lowell, 1973)

Therefore, the instrument was designed with a BOS format as a basis using the list of desirable attributes as a framework and the behaviour examples to provide clarification of the cluster requirements. These were generated by the repertory grid interviews in the first study and then validated and refined in the second study. As discussed in the previous chapter it was felt that using all 200 behaviours separately would reduce the commitment of the instructors using the instrument. Therefore, the observable behaviours were clustered in to conceptually similar groups and these groups were

given overall titles. Some items were expressed in terms of personality predispositions for example; “is proactive” and “is honest” and other items were expressed in terms of behaviour for example “does more than the bare minimum”. However, for both types of items the list of example behaviours indicated which behaviours needed to be observed in order to make a judgement on the overall category. This format was used to ensure that the instrument covered the full range of behaviours required, without becoming too lengthy in administration.

The aim of using an instrument was to provide an accurate and reliable assessment of the desirable behaviours of recruits to the RAF. Any such tool must be fair, objective and easy to use. In order to be worth using any instrument should have high reliability, high validity and good discriminatory powers. (Kline 1998). If any conclusions are to be drawn from the data gathered using the instrument there has to be a level of confidence of the usefulness of that tool, therefore it is important that the reliability and validity of the instrument are fully investigated.

In order to try to increase usefulness and accuracy, the instrument included a record of specific examples of behaviour. The reason for this was twofold; firstly, as an aid to reducing rater bias (Wherry & Bartlett, 1982). And secondly, to provide the basis of the action plan and the use of the instrument as a developmental tool for trainees.

9.2 AIMS AND OBJECTIVES

9.2.1 Aims

The aims of this study were to develop and evaluate an instrument to assess and develop desirable behaviours in RAF recruits at Recruit Training Squadron (RTS). This was to be achieved using the list of desirable attributes identified and validated in the first two stages of this research.

9.2.2 Objectives

1. To design and evaluate an instrument to measure and develop desirable attributes in RAF recruits at Recruit Training Squadron:
2. To ensure the instrument is reliable and valid for use at the Recruit Training Squadron (RTS):
3. To validate the findings of studies one and two:

9.3 METHOD

9.3.1 Development of the BMI

The tool design was based on the Behaviour Observation Scale (BOS) format using the overall titles given to the clusters i.e the desirable attribute list as discussed in the elicitation of the desirable behaviour study. The completion of the tool involved instructors noting how frequently recruits demonstrated each of the desirable attributes on the list. The clusters of examples of observable behaviours were also provided to

ensure clarity and common understanding of how the attributes were demonstrated. The frequency of demonstration of each of the attributes was recorded on a five point Likert scale. The points were: always, frequently, sometimes, rarely and never. An additional point of ‘no opportunity’ was included so that recruits were not marked as never displaying behaviours when they had not had the opportunity to do so. These terms were defined to encourage consistent ratings. (Table 9.1)

Table 9.1 - Definitions and Scores given to the Frequency Terms.

TERMS		
5	Always	Displays the behaviour whenever has the opportunity to do so
4	Frequently	Will display the behaviour more often than not, when has the opportunity to do so
3	Sometimes	Will display the behaviour as many times as will not when has the opportunity to do so
2	Rarely	More often does not display the behaviour when has the opportunity to do so
1	Never	Will not ever display the behaviour given the opportunity
0	No Opportunity	Has never had the opportunity to display the behaviour

A copy of the BMI as used for the trial can be found at appendix H. The first page was for the recording of how frequently the trainees displayed the behaviours. The second was for the recording of specific examples of behaviours, where they were shown and where the trainee had an opportunity to display a particular attribute but did not do so. The intended purpose of this information was to facilitate the development of an action plan to help the trainee develop appropriate behaviours.

9.3.2 Preparation for the Trials

9.3.2.1 Instructors

As the instructors needed to complete the assessment with care and consideration in order to produce useful results (Latham & Latham 2000), it is important that they are properly trained and understand the purpose of the tool. Therefore, those instructors who were involved in the trial were given a briefing on the development and use of the BMI. As part of the briefing they had time to familiarise themselves with the instrument, discuss any of the desirable attributes and behaviour examples and how those behaviours related to their particular trades. The instructors identified past trainees that they would rate as being examples of good, average and poor airmen and used the BMI to indicate how frequently those trainees displayed each of the behaviours. Wherever possible the instructors rated the same individuals. This was to give them a chance to discuss the behaviours displayed by trainees and to come to a shared understanding of rating the desirable attributes.

9.3.2.2 Trainees

The trainees who were going to be assessed during the trials were given a briefing about the BMI and given a copy of the instrument. They were given the opportunity not to take part in the trial if they wished. Nobody asked to be excluded from the trial.

9.3.3 The Trials

At the Recruit Training Squadron (RTS), where phase 1 training is conducted, four flights (course intakes) took part in the trial. Instructors were asked to complete the tool

three times for each recruit/trainee through basic training. The training is broken up into three elements. Elements one and three were conducted at the main RTS School and were overseen by the Officer Commanding the flight. Element two was conducted by the Ground Defence Training School (GDT) and was overseen by the instructors from the RAF Regiment. The BMI was completed at the end of each element. This meant that review two was carried out by the instructors from the RAF regiment and thus different instructors from reviews one and three. The BMI was completed in addition to the Recruit Training Final Report. The current method of assessment at RTS involved an overall performance score, ten individual subject scores, the General Service Knowledge Exam and a fitness test. The overall performance scores and the individual subject scores are graded on scales of 1-3 where 1 = Marginal, 2 = Satisfactory and 3 = Good. The individual subjects were; discipline, appearance and bearing, communication, common sense, physical education, determination, general reliability/integrity, confidence, attitude and ground defence training.

The data were collected by a co-ordinator at each training squadron and sent in hard copy to the researcher.

9.3.4 Treatment of Data

The scores for each individual, for each attribute, were input into SPSS for each review. The scores were allocated as follows: Always = 5: Frequently = 4: Sometimes = 3: Rarely = 2: Never = 1: No opportunity to display the attribute was treated was given a score of 0. In addition a total score for each individual for each review was calculated.

9.3.5 Qualitative Information

In order to gather qualitative information about the practicalities of the using the BMI focus groups were conducted with all the instructors who had completed the BMI assessments. They were asked to give feedback on the trial, including giving perceived examples of benefits and constraints of using the BMI.

9.4 RESULTS

9.4.1 Recruit Training Squadron Data

Complete data, i.e scores for each of the three reviews, were gathered for 137 trainees from a range of trade groups. Table 9.2 shows the breakdown of trade groups.

Table 9.2 – Trade Groups of trainees assessed during RTS

TRADE GROUPS OF TRAINEES	RECRUIT TRADING SQUADRON
Aviation Tech	21
Chef	2
Electronics Tech	11
FOA	3
General Tech	11
Intelligence Analyst	7
Medical Assistant	1
Military Transport Driver	11
Personnel Admin	7
Propulsion Tech	28
Physical Training Instructor	8
Supplier	13
Technical Communication Officers	2
Weapons Tech	12
Total	137

9.5 RELIABILITY

9.5.1 Test Re-test Reliability.

The BMI was completed on three separate occasions for each trainee as they went through basic training at RTS. Pearson’s r was computed between the total scores of each review, i.e. the scores of review 1 were correlated with the score at review 2 and review 3 etc. As can be seen in Table 9.3, the correlations were all over 0.8 and thus the BMI has high test-retest reliability (Kline (1986 p.3) “*The minimum satisfying figure for test reliability is 0.7.*”

Table 9.3: Pearson’s r correlations for the BMI reviews completed during recruit training

	Score Review 1	Score Review 2	Score Review 3
Score Review 1	1	.877** (N = 136)	.810** (N = 136)
Score Review 2	.877** (N = 136)	1	.802** (N = 136)
Score Review 3	.810** (N = 136)	.802** (N = 136)	1

** Correlation is significant at the 0.01 level (2-tailed)

9.5.2 Inter-rater Reliability.

This is a special form of reliability that needs to be calculated when ratings of behaviour are made by observers. This type of reliability is assessed by calculating the extent to which another observer makes the same ratings of the same behaviour. This form of inter-judge agreement can also be used to confirm whether judges think that items are about what they are supposed to be about (Loewenthal 2001). The first and third reviews of the BMI were carried out by General Service Training Instructors and the second review by the Regiment Instructors which allows for inter-rater reliability to be

assessed. As can be seen in table 1, the correlation coefficients obtained between these reviews were higher than generally required to indicate acceptable reliability. This would suggest that the BMI has good inter-rater reliability.

9.5.3 Internal Consistency

Two ways of calculating internal consistency are generally used in test construction: Cronbach’s Alpha and Split-half reliability. Cronbach’s Alpha is based on the number of items on a test and the ratio of the average inter-item covariance to the average item variance. Split-half Reliability is where the items are split into two groups and the relationship between those groups is calculated. The Spearman-Brown Formula is used to calculate split-half reliability. Both methods indicate that the BMI has high levels of internal consistency. (Table 9.4)

Table 9.4 Results of tests of internal consistency

	Cronbach’s Alpha	Spearman-Brown
Review 1	.9757	.9659
Review 2	.9721	.9659
Review 3	.9789	.9694

9.6 VALIDITY

9.6.1 Face Validity

During the BMI training the instructors were asked to comment on the desirable attributes and example behaviours regarding their relevance to the RAF and their particular training course. The majority liked the BMI and felt the clusters were useful and relevant. Some minor alterations were made to the behaviour examples to make them more appropriate to the training syllabus. For example, 'covering for the boss' was removed from the examples as trainees would not have the opportunity to demonstrate this behaviour during recruit training and it was felt leaving it as an example would confuse the instructors. The attribute titles were not altered. The BMI version at appendix H is the one that was used in the RTS trial.

The instructors were also asked for feedback after the trials. This feedback was very positive, even instructors who were reticent during the training were positive about the benefits of using the BMI following the trials. They said that they liked the instrument and that they found it useful in helping them assess their trainees. For example one instructor said 'my grey men aren't grey anymore'. No one suggested that any behaviours had been left out or made any suggestions for additions or changes to the BMI.

During the feedback session it transpired that the instructors from one flight had not attended the briefing prior to the trial. These instructors had not found the BMI as useful as those who had received training before using it. Although arguably the data gathered

from this flight should not have been included in the analysis it was decided to include it as it was felt that in reality not every instructor will be trained prior to using the BMI. Therefore including this data in the analysis would probably reflect a more realistic use of the instrument.

9.6.2 Concurrent Validity

The current method of assessment at RTS involves an overall performance score, the sum of ten individual subject scores: the General Service Knowledge Exam (GSKE) and a fitness test. The overall performance scores and the individual subject scores are graded on scales of 1-3 where 1 = Marginal, 2 = Satisfactory and 3 = Good. These scores were collected along with the BMI data. As can be seen in Table 9.5, all the correlations between these and the BMI scores were statistically significant, which indicates that scores on the BMI relate to the scores on the existing RTS measures.

Table 9.5 - Concurrent validity results at RTS (Pearson's r)

	Total Review 1	Total Review 2	Total Review 3	Overall Performance score	Sum Individual scores	Exam score
Review 1	1	.877** (n = 136)	.810** (n = 136)	.459** (n = 136)	.521** (n = 136)	.257** (n = 136)
Review 2		1	.802** (n=136)	.435** (n = 133)	.487** (n = 133)	.210* (n = 133)
Review 3			1	.522** (n = 133)	.598** (n = 133)	.379** (n = 133)
Overall RTS score				1	.846** (n = 136)	.252** (n = 136)
Sum RTS scores					1	.317** (n = 136)
Exam score						1

** Correlation is significant at the 0.01 (2-tailed)

* Correlation is significant at the 0.05 (2-tailed)

9.6.3. Predictive Validity

Predictive validity refers to the ability of a test to predict a relevant criterion. Arguably, for the BMI this could be a successful RAF career. At this stage, there is no measure of success as the recruits have not yet begun their RAF careers. The best that can be obtained is their success in trade training, but even this is difficult as the trainees are from a range of trades and there is no generic measure for phase 2 training. However as there is a significant correlation between the BMI results and the RTS score it could be argued that the BMI predicts success at RTS and therefore has predictive validity for RTS. Whether this predicts success in the RAF remains to be established.

9.6.4 Construct Validity.

The initial aim of the study was to attempt to design an instrument to measure the 'right attitude' for the RAF. One of the items rated on the existing RTS assessment forms (see section 9.3.3) is attitude. The relationships of this item with the BMI results were explored using a stepwise multiple regression for each of the reviews.

Variables included in the overall models varied across the three reviews, however there was one behaviour that contributed to 'attitude' in all three reviews and that was 'utilizes experience and training for the benefit of the RAF'. Table 9.6 shows the details.

Table 9.6 Results of the step-wise multiple regression to the item ‘attitude’

Review No	Contributing Desirable Attribute s	R
1	Shows commitment (B7)	.322
	Utilizes experience and training for the benefit of the RAF (B4)	.386
2	Gets on with the task regardless of obstacles (B8)	.293
	Utilizes experience and training for the benefit of the RAF (B4)	.366
	Is honest (B18)	.413
	Inspires and motivates self and others (B19)	.447
3	Does more than the bare minimum – does over and above what is asked (B2)	.388
	Utilizes experience and training for the benefit of the RAF (B4)	.426
	Is honest (B18)	.460

9.7 DISCRIMINATORY POWER

Discriminatory power relates to how much the test discriminates between individuals being assessed. “*Discriminatory Power is measured by Ferguson’s delta (δ) and is at its highest with a score of 1 (Kline 1986 p.8)*”. For the RTS trial the BMI $\delta = .9916$ and thus has high discriminatory power on RTS.

9.8 ITEM ANALYSIS

One of the initial aims of this research was to identify those behaviours that could be considered essential and those which are desirable for RAF airmen. The analysis which has been carried so far has treated the instrument as a test of the ‘right attitude’ for the trainee, to which all the behaviours contribute equally. However it may be that some desirable attributes are more important than others. The results of the behaviour validation study also indicated that there may be a difference in the attributes that

people say are important and those attributes that discriminate most between good, poor and average airmen.

Item analysis treats each item (in this case each behaviour cluster) individually. Items can be analysed qualitatively, in terms of their content and form, and quantitatively in terms of their statistical properties.

9.8.1 Item Difficulty and Distribution of Test Scores

For most testing purposes, the difficulty of an item is defined in terms of the percentage of people who answer correctly. (Anastasi, 1997). This would not be appropriate for the BMI as the items do not have right or wrong answers. However, the item would not add much to the RTS process if every trainee was rated as always displaying the behaviour from day one of training. By the same token, if all trainees never displayed the behaviour then the item would not be of much use either. Therefore it is important to look at the distribution of the ratings for each item.

Table 9.7 shows the percentages of individuals obtaining each rating for each of the reviews. The majority of the behaviours were demonstrated 'sometimes' by most trainees. The exceptions to this were for 'shows respect', 'honesty', 'works hard' and 'takes an active role in group activities' which were seen to occur more frequently. The 'no opportunity' box was included for behaviours which, although agreed as 'desirable' were not able to be demonstrated at RTS. The only behaviour cluster for which this was used was 'utilises experience, training and opportunities for personal development for

the benefit of the RAF'. Indeed, examination of where this category was used showed that it was only used by one group of instructors who had not had received the training briefing. Therefore they gave this rating as a blanket score as they had not understood how a trainee could demonstrate this behaviour cluster, whilst still on training.

All of the desirable attributes significantly correlated with the overall score indicating that they are all relevant to the instrument.

Table 21: Percentages of individuals rated in each category for each behaviour

KEY: = Most Frequent Rating	Always	Frequently	Sometimes	Rarely	Never	No Opportunity
B1 – Is Pro-active (Comes up with clear well thought out ideas and suggestions)						
Review 1	3.6	11.7	65.0	17.5	2.2	0
Review 2	6.6	16.1	60.6	16.1	0.7	0
Review 3	10.2	17.5	62.8	8.8	0.7	0
B2 – Does more than the bare minimum - does over and above what is asked						
Review 1	7.3	27.7	55.5	9.5	0	0
Review 2	9.5	24.8	56.9	8.0	0.7	0
Review 3	13.9	27.7	52.6	5.8	0	0
B3 – Strives to ensure work is always completed to a high standard						
Review 1	16.1	27.0	52.6	4.4	0	0
Review 2	15.3	23.4	55.5	5.8	0	0
Review 3	18.2	29.9	48.9	2.9	0	0
B4 – Utilises experience, training and opportunities for personal development for the benefit of RAF						
Review 1	14.3	22.9	58.6	4.3	0	0
Review 2	7.7	19.8	64.8	7.7	0	0
Review 3	9.5	16.8	42.3	4.4	0	27
B5 – Represents the RAF in a positive manner						
Review 1	14.6	27.0	54.7	3.6	0	0
Review 2	11.7	32.8	53.3	2.2	0	0
Review 3	19.0	29.9	49.6	1.5	0	0
B6 – Displays strength of character						
Review 1	10.9	30.7	43.8	13.9	0.7	0
Review 2	9.5	32.1	48.2	9.5	0.7	0
Review 3	13.1	30.7	48.2	8.0	0	0
B7 – Shows commitment to the RAF						
Review 1	15.3	27.0	54.0	3.6	0.7	0
Review 2	8.8	35.8	51.1	4.4	0	0
Review 3	20.4	32.1	46.7	.7	0	0
B8 – Gets on with the task in hand appropriately overcoming obstacles						
Review 1	11.7	33.6	50.4	4.4	0	0
Review 2	13.1	24.1	54.7	8.0	0	0
Review 3	16.1	33.6	48.2	2.2	0	0
B9 – Puts themselves out for the benefit of others/RAF						
Review 1	7.3	21.9	58.4	12.4	0	0
Review 2	7.3	17.5	62.0	13.1	0	0
Review 3	15.3	24.8	54.7	5.1	0	0

Table 21 (cont.): Percentages of individuals rated in each category for each behaviour

	Always	Frequently	Sometimes	Rarely	Never	No Opportunity
B10- Encourages, develops and utilises the skills of others						
Review 1	5.8	21.9	62.0	8.8	1.5	0
Review 2	6.6	16.8	60.6	14.6	1.5	0
Review 3	10.2	22.6	58.4	8.0	0.7	0
B11- Uses good interpersonal skills						
Review 1	6.6	28.5	53.3	10.2	1.5	0
Review 2	8.0	24.8	54.0	12.4	0.7	0
Review 3	11.7	29.9	52.6	5.1	0.7	0
B12 - Shows respect						
Review 1	24.1	38.0	34.3	3.6	0	0
Review 2	29.2	46.0	21.9	2.9	0	0
Review 3	38.7	38.0	20.4	2.9	0	0
B13 - Communicates Effectively						
Review 1	9.5	33.6	49.6	6.6	0.7	0
Review 2	11.7	32.1	47.4	8.0	0.7	0
Review 3	13.1	32.8	51.1	2.2	.7	0
B14 - Works Hard						
Review 1	20.4	38.7	39.4	1.5	0	0
Review 2	19.0	48.2	30.7	2.2	0	0
Review 3	26.3	48.2	24.1	1.5	0	0
B15 - Is adaptable and flexible						
Review 1	5.8	29.9	59.9	4.4	0	0
Review 2	8.8	24.1	59.1	8.0	0	0
Review 3	12.4	27.7	56.9	2.9	0	0
B16 - Takes an active role in group activities						
Review 1	13.9	34.3	47.4	4.4	0	0
Review 2	14.6	37.2	44.5	3.6	0	0
Review 3	18.2	40.1	40.1	1.4	0	0
B17 - Is reliable						
Review 1	19.7	35.0	41.6	3.6	0	0
Review 2	16.8	35.8	46.0	1.5	0	0
Review 3	25.5	35.8	36.5	2.2	0	0
B18 - Is honest						
Review 1	21.2	34.3	43.8	0.7	0	0
Review 2	34.1	37.2	38.7	0	0	0
Review 3	37.2	34.3	27.7	0.7	0	0
B19 - Inspires and motivates self and others						
Review 1	9.5	23.4	56.9	10.2	0	0
Review 2	11.7	19.0	59.9	9.5	0	0
Review 3	13.1	26.3	55.5	5.1	0	0
B20 - Considers all available information before making decisions						
Review 1	8.0	22.6	62.0	7.3	0	0
Review 2	7.3	21.9	65.0	5.8	0	0
Review 3	10.9	21.9	65.0	2.2	0	0

9.9 THE BMI AS A DEVELOPMENTAL TOOL

The mean score for the overall BMI increased over the three reviews (Figure 9.1), which indicates that the frequency with which trainees were displaying the desirable attributes increased during their time at RTS. However the differences between reviews were not statistically significant. (ANOVA F-Score=.616 sig =.514). The maximum possible score for the overall BMI was 100.

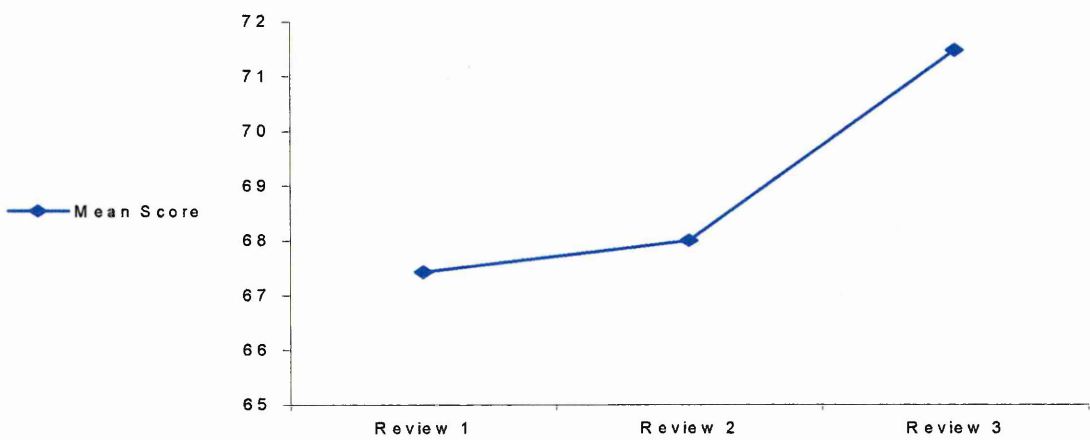


Figure 9.1 - Mean total BMI score on each Review at RTS

9.10 DISCUSSION

This discussion relates to the effectiveness of the BMI as an assessment and development tool for the RAF. The implications of the results of the research for the study of applied psychology are discussed in the next chapter.

9.10.1 Objectives

1. To design and evaluate an instrument to measure and develop desirable attributes in RAF recruits at Recruit Training Squadron:
2. To ensure the instrument is reliable and valid for use at the Recruit Training Squadron (RTS):
3. To validate the findings of studies one and two:

9.10.2 SUMMARY OF RESULTS

An instrument (the Behaviour Measuring Instrument (BMI)) was designed and evaluated at the Recruit Training Squadron. The instructors were able to use the instrument to assess those desirable attributes identified during studies one and two.

The effectiveness of the instrument can be evaluated by using the definition given in the introduction. I.e. In order to be worth using any instrument should have high reliability, high validity and good discriminatory powers. (Kline 1986).

9.10.3 Reliability and Validity of the BMI

The results of this study indicate that the BMI has high validity and reliability, and discriminatory powers for use at the Recruit Training Squadron. (RTS). However, caution should be exercised as the overall numbers used for the analysis was relatively small ($n = 137$). Further analysis should be conducted when more data has been gathered. A computerised version of the BMI has now been introduced at RTS, which should facilitate the collection of data for future validation studies.

9.10.4 Training of Instructors

Research has shown that rater training is an important part of any formal assessment procedure (Woehr and Huffcutt, 1994). The results of the present study have also indicated this to be the case. By mistake one group of instructors from one of the four flights had not received training on the use of the BMI. The instructors on this flight were not clear as to the purpose of the tool and how to rate the desirable attributes. Indeed they had not even been given the full list of example behaviours. These instructors found the tool less useful and the results from this group proved to be less reliable than those from instructors who had received the training. It is imperative that if the tool is used effectively, a system is established that ensures that all users are appropriately trained.

9.10.5 The BMI as a Development Tool

This initial analysis has indicated that the frequencies with which the behaviours were displayed during recruit training increased over the training period. Feedback from the instructors indicated that they found the BMI helpful to define and focus on specific behaviours and to encourage trainees to discuss their areas for improvement. Latham and Latham (2000) suggested that appraisal should facilitate the improvement of employees and the results of this study indicate that the BMI has been successful in doing that.

However, alternative explanations for the results should also be considered. Figure xx showed that the overall scores for the BMI increased over the three reviews. The

preferred reason for this result would be that trainees were demonstrating the desirable attributes more frequently as time progressed. However, research has shown that this may not be the case. In this case 'context' as presented in the Landy and Farr (1980) model may be contributing to the result. Context refers to those factors that exist within the rating environment that may add systematic error to ratings. It could be that the instructors felt that, as they were responsible for developing the recruits, not showing progress on the BMI would reflect poorly on their success as trainers.

9.10.6 The BMI as A Measure of Recruit Attitude

Although as a result of the literature review the emphasis of the research has moved from the measurement of the right 'attitude' this is not an issue that can be ignored as it is one that is important to lay people, managers, employers etc. It is interesting to compare the scores given for the individual behaviours with the scores given for 'attitude' on the existing RTS measures. It would appear that 'attitude' may be made up of different factors at different times of the course. This could be due to the instructors getting to know the trainees better or it could be a function of requirements and expectations changing as time progresses on the course. It is also interesting that there is one desirable attribute that remains a constant factor during all three reviews and that is 'Utilizes experience and training for the benefit of the RAF'. However in the validation study (chapter 8) this item was rated as 19th in the order of importance by SMEs and 15th in order of discrimination.

This highlights an issue that needs to be considered by any research of this nature. That is the generalisability of the findings. Is what is required during training the same as what is required during productive service?

9.11 CONCLUSIONS

Overall the objectives of this study have been met. The BMI was developed and evaluated successfully at RTS. The success of the BMI also indicates that the results of the behaviour elicitation study and the behaviour validation study were valid.

In terms of usefulness for the RAF the BMI has proved to be very successful, with it not only being used as a development tool at RTS, but also many requests have been made for it's use in phase two training schools. Feedback from the instructors at those schools has also been very positive, with a reported improvement in trainee behaviour where it is being used.

Following this perceived success of the BMI for airmen, a similar study is now underway to identify desirable behaviours of RAF Officers.

CHAPTER TEN

10 DISCUSSION and CONCLUSION

10.1 OVERVIEW

The overall aim of this research was to apply the study of psychology to resolve a perceived problem within the RAF. This problem was how to assess whether new recruits have the 'right attitude' to serve in the Royal Air Force.

The research was conducted in three distinct studies: Each of these studies has been reported separately and a discussion of the results made in those chapters respectively.

The overall aim of this chapter is to discuss the overall results in relation how those findings may contribute to some of the issues raised during the literature review. Therefore this chapter will discuss the findings in the same order as the introductory chapters are presented.

In the initial introduction it was suggested that earlier attempts to solve the problem had not linked the theories of psychology to the practice within the RAF. Therefore one objective of this research was to try and address that issue and apply the theories to resolve the problem.

10.2 Identification of the Problem

The first issue was the identification of the problem. A lot of effort has been made to try to resolve the problem of recruits not having the 'right attitude' to be in the military. For example work by Dandeker & Paton (1997) Rugg-Gunn, McLeod, Cunningham, and Green (2001) and Archer (2001) all attempt to address the issue by focusing on the required attitudes and values to match military ethos. Indeed the present research began with that aim in mind. However, an examination of the literature resulted in this project having a change of emphasis from measuring attitude to identifying and measuring and developing the desirable behaviours of RAF personnel.

10.3 The Importance of Attitude to Work Performance

The findings of the overall study may have something to offer the area of attitude research. Locke and Cooper (2000) suggest that the links between theory and practice are often not made. This research seems to support this assumption. The implications seem to be that whatever the evidence from research suggests, lay people still believe that they can infer attitude from behaviour alone. Although as a result of the literature review the emphasis of the research moved from the measurement of the right 'attitude' this is not an issue that can be ignored as it is one that is important to lay people, managers employers etc.

Study three evaluated the Behaviour Measuring Instrument. When ratings for trainee attitude, given by instructors, were compared with the desirable attributes it seems that factors were contributing to the 'right attitude' at differing times. Only the attribute 'utilizes experience and training for the benefit of the RAF' was consistent across the three reviews. Instructors were arguably interpreting this as having the 'right' attitude. It could be argued that this could be an 'attitude' that could be measured using the component model of attitude, with affective, cognitive, and as shown in this study, behavioural components. Is it possible that researchers could provide employers what they are asking for .i.e. 'a way of assessing the right attitude'. The major hurdle here would be for acceptance that there is such a thing as a 'right' or 'wrong' attitude. However, if this was contextually specific and appropriately defined, would this be such an issue?

10.4 Work Performance

As discussed in chapter three work performance tends to consider that work consists of two categories: Task Performance and Contextual Performance (Borman and Motowildlo, 1993). In the introduction it was argued that the focus of this study needed to be on those contextual behaviours, as the aim was to develop a generic tool rather than a job or task specific instrument. However, when looking at the overall constructs elicited during the interviews it is interesting to note that there are a mixture of constructs both relating to task specific behaviours and contextual behaviours (See table 7.3 - page 60). For example, trade skills, professional, and good written work, could be argued to be task

specific. However, when the behaviours given during the laddering process were merged and clustered and given a title all of the behaviours could be clustered into generic clusters that would be applicable to regardless of the trade group to which the airman belonged. Again this generalisability was supported by the results of studies two and three. The validation study indicated that the twenty behaviour clusters given were inclusive of all the behaviours required to be a good airman.

This result could be due to the way in which the interviews were conducted: The aim of the project was explained at the beginning of the interviews, which may have caused interviewees to focus on the contextual behaviours rather than task specific behaviours. However, it is felt that this is unlikely as the construct 'trade skills' was the fifth most frequently mentioned construct, being mentioned by 48 of the interviewee (Table 7.3 page 60).

An alternative explanation could be that both dimensions of work performance; contextual and task specific are influenced by a core set of behaviour clusters as captured in the BMI. Could these behaviours reflect the illusive 'right attitude' as sought at beginning of this research?

Another finding that could contribute to this debate is the fact that in the final study where the tool was evaluated at RTS, the internal consistency analysis indicated that the tool was unidimensional i.e. that there is only one factor. The literature on OCBs would

suggest that this would not be the case so further work would need to be conducted to explore the reasons for this finding.

These findings are also relevant to the debate on the dimensionality of the construct. The current research identified 20 overall clusters of desirable attributes for RAF personnel. Comparing these to the groupings suggested in the literature did not produce an exact match to any of the theories, although there was a lot of crossover and connections between the theories. Using the seven groupings as suggested by Podsakoff et al (2000) allowed for all (see table 7.7 – page 68).

There are limitations to this explanation of the findings. The grouping was done subjectively and thus was open to interpretation; other people may have a different perception of where the behaviour clusters may sit in relation to the behaviour dimensions. It would have been interesting to use factor analysis to investigate any underlying structure to the items, however the numbers were too small ($n = 34$) to make this meaningful. Kline (1999) recommends a sample size of at least 200 for factor analysis to be meaningful. A suggestion for future research would be to conduct a larger validation study which would allow for factor analysis to be conducted.

Another possible explanation for the differences is the way in which the behaviour examples were grouped within each cluster. There may have been specific example behaviours that would have fitted in differently if they were individually linked to the behaviour dimensions, rather than the behaviours being clustered and then dimension

titles given. It was decided not to cluster the behaviour examples to prescribed dimensions, as the RAF specifically wanted an instrument that used their language and was easy for the instructors to understand and use.

If the links suggested above are accepted then this would offer support to the importance of contextual behaviours to overall work performance. However, much of the information is subjective and open to interpretation. In order for theories to be practical use to practitioners they need to offer completeness, (Locke & Cooper 2000). Although the theories of contextual performance may be true, there does not yet appear to be an overall completeness to the construct which would allow practitioners to use the theory and easily translate it for the context in which they are concerned. Again relevance is an issue here, as the language used to describe OCBs, for example Sportsmanship, Civic virtue, may make it difficult to convince managers of the relevance for their organizations. This study has taken the theory of OCB/contextual performance and considered it in the context of the organization to which it was to be applied. Thus a relevant instrument which is useful to the organization was produced.

Another of the issues highlighted in the introduction was the question of whether OCBs were really extra-role or in-role behaviours. The evidence from this study would support those who argue that the distinction between in-role and citizenship behaviour is not that clear (Morrison, 1994, Allen & Rush, 1998; Motowildo & Scotter, 1994 and Werner, 1994).

In the present study participants were asked to identify those behaviours that differentiated between good, poor and average performers in the RAF. The behaviour clusters that emerged as a result of the study included behaviour clusters that translated directly on to the Podsakoff et al (2000) 7 behavioural dimensions (table 7.7 page 68). This would suggest that when considering work performance, RAF personnel certainly consider OCBs/contextual performance as important.

There could be alternative explanations for these results. The most obvious being the nature of the questions used to elicit the behaviours. As the information was required to develop a generic tool, participants were specifically asked to focus on individuals as airmen as opposed to trade specialists. This may well account for the nature of the behaviours elicited. Even so the participants were able to consider performance in these terms without difficulty indicating that supervisors do consider contextual behaviours when evaluating individual's performance. However, the findings may also be specific to the RAF or the military. Geraghty and Collins (2000) found conceptual inconsistencies between the contextual performance literature and this may also hold true for these results. Further research would be required to investigate if these results would be replicated in non military organizations. If these findings were generalisable across different organizations then there would be implications for theories of work performance.

It may be that there are not two distinct categories of work performance as widely accepted in the literature but just overall work performance. Alternatively the two

category model of work performance may be correct but both are affected by the same individual differences. (Hunter, Schmit, Rauchenberger and Jayne, 2000) have suggested a 'g' factor of work performance that is determined by two characteristics: general mental ability and conscientiousness. This present research would support a 'g' factor. General mental ability was deliberately not included as a factor within the BMI as the aim was to reflect the 'right attitude' rather than ability of individuals. It could be that the 'right attitude' is conscientiousness. This concept would be interesting to investigate further.

An alternative explanation that has to be considered is that within the RAF contextual behaviour is important and this may also be the case with other organizations. In fact the similarities between these findings and other studies eg Scholarios and Lockyer (1999) would support generalisability. Implications for organizations is that they should consider this in their recruitment and selection processes, which seems not to be the case at present as they seem to select employees on the basis of job skills rather than their fit with the organizational culture.

10.5 Identifying Desirable Work Behaviours

As a result of a separate literature review (White, 2000) and a pilot study (Johansen, 2000) it was decided to use the repertory grid technique (RTG) as a basis for identifying desirable behaviours of RAF airmen. This method generated over 100 constructs and 200 separate observable behaviours. These were then analysed, which produced a list of 20 clusters of observable behaviours and attributes that were used in the validation study two of the research.

There is debate in the literature regarding the validity of using RTG outside of the clinical domain; (Marsden & Littler, 2000). The results of the first study support the views of Stewart & Stewart, (1997) in that it indicated that RTG was effective in generating a list of desirable behaviours of airmen. This was further supported by the results of the second and third studies, with these demonstrating the validity of the job analysis (study two) and the validity of the outcome i.e. the BMI, (study three).

Traditional methods of assessing job analysis accuracy rely on assessing the level of agreement between SMEs on the importance of the various items (Sanchez and Levine, 2000) The results of the validation study provide some interesting issues for consideration in this respect. If those traditional methods had been followed where items with a high range of importance scores were dropped none of the behaviours would have been considered valid (See table 8.5).

However, there is debate in the literature as to how useful importance data is in job analysis (Friedman (1990) & Cranny & Doherty (1988)). The results of this study could be argued to suggest that using SMEs to rank order items in order of importance does not produce a useful indication of the importance of specific contextual behaviours in predicting rating of airmen performance in the RAF. Other possible explanations for this finding are discussed in chapter eight.

Morgeson and Campion (1997) suggested that there are many potential social and cognitive sources of inaccuracy in job analysis. Other research on the effectiveness of SMEs have indicated that the ratings given by SMEs may be subject to influence by the social desirability of the tasks, and thus the ability of SMEs to reliably link job tasks to work attributes is questionable. (Muellar & Belcher 2000).

Two methods of establishing the importance of the behaviour clusters were used (see chapter 8). One method asked the SMEs to rank order the items in order of importance. The other method asked SMEs to rate how frequently good, average and poor performers displayed each of the behaviour clusters. These scores were then used to see how effectively each of the behaviour cluster discriminated between good, average and poor performers. A comparison of the order of importance produced by these two methods was made (see Table 8.5). There was agreement between the two lists with the exception of 'is honest' and 'does more than the bare minimum'. Explanations for why these differences were found are offered in chapter eight. The agreement between the two lists would again offer support for the validity of the method of job analysis. In addition the

success of the BMI would suggest that SMEs are able to identify which behaviours contribute to whether an individual is a good airman.

Morgeson and Campion (2000) suggest that the problem of job analysis accuracy may be more due the problem of defining that accuracy. To overcome this problem Sanchez and Levine (2000) focused on consequential validity as a standard for job analysis accuracy. The results of the evaluation of the instrument designed using the results of the job analysis could be argued to suggest that the job analysis was valid.

10.6 CONCLUSION

The RAF has tried various ways of assessing whether new recruits have the 'right attitude' to be in the RAF, with limited success in the past. Having used knowledge gained from the literature an effective job analysis was conducted, focusing on trying to identify desirable behaviours which could easily be observed rather than an intangible indefinable attitude. Having validated the job analysis a behavioural scale was designed that would allow instructors to assess and encourage recruits to display those desirable behaviours during recruit training throughout trade training and on into productive service.

The Behaviour Measuring Instrument (BMI) has now been fully implemented into phase 1 training in the RAF. It is being gradually introduced into phase 2 training schools. A computer web-based version has also been designed to increase the utility of the

instrument. Research is also being conducted to design a similar instrument for use in Officer initial training.

In addition to a useful instrument having been developed to assess and develop the desirable attributes of RAF airmen. The instrument could provide a useful tool for use in research. As mentioned in the discussion the use of the tool has thrown up many interesting ideas for further research not least the possibility of defining the indefinable 'right' attitude for RAF personnel. The instrument or the methodology used to develop it could be used by researchers to investigate whether the findings of this study are generalisable to other organizations.

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APPENDIX A

TRAINING FOR 'DESIRABLE BEHAVIOUR' INTERVIEWS

The aim of this paper is to provide some guidelines on how interviews in general should be conducted, and the specific techniques employed to facilitate data collection for the 'Desirable Behaviours' project.

CONTENTS

1. BACKGROUND INFORMATION

2. INTERVIEWING GUIDELINES

3. INTERVIEW INTRODUCTION

4. REPERTORY GRID TECHNIQUE

- i) STAGE 1**
- ii) STAGE 2**
- iii) STAGE 3**

5. CLOSING

6. EXERCISES

1. BACKGROUND INFORMATION

CSSB was tasked by TD Pol 3 to examine the nature of underlying attitudes as demonstrated by observable behaviours exhibited by RAF personnel. However, following a review of research into attitude measurement, and the inferential nature of results regarding attitudes, it was concluded that it would be more valid to define 'essential/ desirable' behaviours, and develop tools through which these could be measured directly. These are the behaviours that RAF personnel expect to be demonstrated by other servicemen/ women irrespective of rank, trade, branch, or length of service.

The current phase of the project focuses on the behaviours expected from airmen, although it is anticipated that the next phase will explore the behaviours of officers.

To determine what these 'desirable behaviours' are and to gain a representative perspective, interview participants are selected from a range of trades/ branches and seniority levels. Although the interviewees are asked to only consider airmen for the purposes of the study, they themselves can be drawn from any rank group.

A Point of Contact is recruited at each unit, and it is this person who either requests volunteers to participate in the study, or identifies suitable candidates. In order to facilitate the process of identifying desirable behaviours, it is practical to interview personnel with enough experience/ service history to be able to isolate exactly what these desirable attributes may be, and how they would expect them to be demonstrated. Therefore the participants tend to be ranked corporal and above.

2. INTERVIEWING GUIDELINES

Although there are many different types of interview, ranging from those involved in selection and appraisals to career counselling or data collection purposes, specific methods have been developed to ensure standardisation and efficacy of the procedure.

1. The setting for the interview should be non- threatening so it is important to adjust the environment accordingly. This can easily be achieved by altering the arrangement of the chairs so they are angled toward each other. It can be less uncomfortable for a participant if there is no desk between them and the interviewer, which may otherwise give the impression of formality. If this is not possible, the chair of the interviewer could be moved more to the edge of the desk nearest the participant, again avoiding the confrontational stance of being directly opposite. Also make sure that the room is quiet and the interview unlikely to be interrupted.
2. To ensure that the participant is relaxed, and therefore feels comfortable to present full and truthful responses, it is important for the interviewer to appear empathetic, non-judgemental and unbiased. This is usually most simply achieved by sitting in an open manner, avoiding closed gestures such as crossed arms or body posture turning away from the interviewee.
3. Maintaining eye contact when asking a question will give the impression of sincerity and interest, and although it might be necessary to make notes during the participant's response, looking up at regular intervals and leaning slightly forward during their dialogue will reassure them that you are listening and that their opinion is of value to you.
4. Also vital to conveying an open and positive attitude is the use of active listening. Examples of this include nodding to demonstrate understanding of what the participant is explaining, smiling to show understanding and encouragement, or simple vocal expressions. Mirroring the body language of the interviewee is also a good listening technique, although one which many people do unconsciously to indicate rapport.
5. Interviews generally avoid the use of closed questions. Open questions allow the interviewer the opportunity to gain a far greater wealth of information from the interview subject than a simple 'yes/no' answer will provide, although of course sometimes a single word answer is all that is required. An example of an open question could be 'how do you feel about..' or 'what do you think about..' This type of question should be used when the interviewee's attitudes or opinions are being sought. Closed questions include those which cover general information such as 'how many years have you served ..' or 'where are you based?' Make sure that only one question at a time is being asked, to avoid overloading the subject and losing valuable information.

6. Leading questions describe items that infer to the participant that there is a right or wrong answer, or seem to be encouraging them to answer in a particular way. An example of this could be, 'You do enjoy serving in the RAF, don't you?' Not only is this a statement more than a question, but there is also a value judgement inferred, in that there seems to be an expectation by the interviewer that the participant should be demonstrating a particular opinion or feeling.
7. It is important to pay attention to the silences in an interview as well as the dialogue. It is wise to sit and wait if the participant appears to be thinking, as they may simply need time to formulate a response and any further clarification may act as an interruption. More in depth information can be elicited by a lengthier pause, as the participant may feel they are being given the space to add more detail, however to judge this it is important to use their body language cues. If a participant is thinking about their answer they can sometimes be observed looking away or into the distance, sitting still rather than fidgeting. Wait to make sure that they have finished answering one question before moving on to the next. An interviewee will often indicate that they are ready to move during that pause by saying, 'I think that's it for now', or 'what's next?'
8. The interviewee may indicate that they are having difficulty thinking of a response if they look at you or appear uncomfortable. A prompt may be necessary in order to clarify or recap on the question asked. This may simply involve repeating the question using slightly different wording, or expanding upon it.
9. Under the circumstance where an answer has been given but the interviewer feels that more information could be gathered, it may be useful to probe further. This could take the form of a general question such as 'is there anything else you could think of', 'can you tell me some more about' or could even be a closed question used to clear up a specific point.
10. Part of the process of active listening is the use of paraphrasing to reflect a response back to the interviewee for confirmation that the point made was understood accurately. Examples of reflective questions include, 'If I understand you correctly, you...?', or 'am I right in thinking that..' which can clear up any ambiguity before recording the comment.
11. If the interviewee is not making a point very clearly but the interviewer thinks they know what is meant they could use a phrase such as 'would it be right to say..' or 'so you thought, perhaps, that...' which attempts to avoid influencing the response directly but still manages to get a more concise definition of the point being made.
12. Avoid making judgements about the person being interviewed, and only record what the interviewee has actually said, to eliminate the potential for personal

interpretations. Also be aware that the role of the interviewer is primarily to listen and facilitate the information exchange process, not to provide advice or find solutions.

13. At the beginning of the interview it may be necessary to use phrases such as 'tell me about' or 'what do you think of' to get the dialogue flowing. Similarly, if the interviewee seems to need steering back to the original question, it can be useful to use a closed question to regain control of the interaction, then move on to the next part of the interview.

'DESIRABLE BEHAVIOUR' PROJECT INTERVIEWING

The previous section covered general points to be aware of in an interview context. The rest of this paper deals specifically with how to conduct an interview used for data collection in the CSSB 'Desirable Behaviours' Project.

3. INTERVIEW INTRODUCTION

It will depend on the type of interview being conducted as to the specific details to be included in the introduction. The following are guidelines for the introduction to the CSSB 'Desirable Behaviours' interview.

1. The introduction to the interview should begin by the interviewer welcoming the participant. Shaking hands and inviting them into the room/ to take a seat/ make him/herself comfortable should 'break the ice'. At this stage the participants are unlikely to know what to expect and may feel a little apprehensive. Brief, informal conversation about the weather or their journey may encourage the participant to feel more at ease.
2. As the interviewer you need to introduce yourself and establish your credentials. Outline who you work for, what the Branch does and what your role is as a member of the Branch.
3. By providing details and objectives of the project the interviewee should be able to draw some conclusions as to what their role is and what will be expected of them. A useful opener may be to ask the participant what information they already have about the project. Responses usually indicate that they have little prior knowledge, which will give you the opportunity to give them some brief background details. This could include some or all of the following information.
 - a) CSSB was initially tasked by the Recruit Training School (RTS) at RAF Halton, to investigate methods of measuring behaviours to help determine the attitudes of recruits.
 - b) Research suggests that attitudes cannot be reliably linked to behaviours. It was then agreed that measuring behaviours directly would be more useful than attempting to link them to specific attitudes, as attitudes are both difficult to define and measure.
 - c) Once the aim of the project was agreed between CSSB and the sponsor, it was decided that the study should examine the desirable behaviours of RAF personnel in general, not just recruits.

- d) The objective of the interviews is to determine what are the desirable behaviours of RAF personnel. Through interviewing a broad sample of personnel it is hoped that a list of core desirable behaviours can be obtained, which could eventually be developed as a measurement tool and used in the training of RAF personnel.
4. At this stage you can ask if they have any questions. Before proceeding, assure the participant that the interview will remain completely confidential and anonymous. The only details you need to take from them are their rank, sex, and length of time they have spent in the service to date for use in analysis of the findings (Annex A). Similarly, it is also necessary to establish which trade they work in, or if they serve in a branch, which trade group (title and number) they have responsibility for.

It may also be useful to reassure the interviewee that the questions that they will be asked will require them to think carefully, but that there are no right or wrong answers. Similarly, there are no trick questions, and although some questions may seem to be asking the interviewee to state the obvious, this is in fact exactly what is required. Notes will be taken throughout the interview, and explain that this is to make sure that the views of the participant are accurately recorded.

4. REPETORY GRID TECHNIQUE

i) STAGE 1

1. When the personal details section at the top of the first sheet have been completed, you can go on to explain to the interviewee that you will be asking them to describe to you what the qualities/ characteristics are that they feel are important to being a good airman. Describe that later in the interview you will go into these in more depth, and will be asking the participant to explain how they know if someone demonstrates this quality, how these attributes are represented through behaviour.
2. The first part of the interview will be facilitated by using the number cards (Annex B).
 - a) Lay the cards on the table between you, and ask the interviewee to think about airmen who he has worked with or has supervised during his career. Then indicate that on cards number one and two you would like them to write the initials of an airman/ woman who stood out to them as being a really good RAF airman, demonstrating all the qualities they might hope to see in a representative of the Air Force. Explain that you do not need to know whom they are thinking of; the initials are to aid their memory only. You may need to give them a few moments to think of someone.
 - b) On card '3' you will ask the interviewee to write the initials of an airman whom they consider to be fairly mediocre. On cards '4' and '5' will be the initials of airmen whom the interviewee would rate as rather poor.
3. Moving the other cards to one side, put cards '1' and '2' next to each other, and card number '5' below them. Explain to the interviewee that you would like them to think about the similarities airmen '1' and '2' share, and what the differences are between them and number '5'. This method should elicit a number of 'Constructs'- which represent some form of judgement or evaluation about the 'Element'- a person, object, event or anything that can be evaluated. In this case the elements are the airmen that are being considered.
4. A construct should have two contrasting poles, for example reliable/ unreliable, lazy/ hardworking, which differentiate between the 'good' and 'poor' airmen. It does not matter if the opposite pole to the stated construct is not completed at this stage as they can always be filled in later. Write the constructs into the spaces provided on the repertory grid.
5. Repeat this process, next asking for the similarities between '4' and '5' and differences between them and number '3', and finally using the combination '1' and '2' similarities and differences with number '3'. By the last combination the interviewee may have exhausted all of their constructs, however it is important to explore all three combinations. Finally, lay all five cards out and ask if there is

anything else they can think of that they haven't already mentioned, before moving on.

ii) STAGE 2

6. The next stage involves exploring the constructs further in order to elicit information on the desirable behaviours of airmen, using a technique known as laddering. Taking the top construct on the list and working through them, ask the interviewee to describe what sort of behaviours indicate the presence of the construct. For example, taking the first construct as hardworking, you might ask 'what behaviours demonstrate to you that an individual is hardworking?' write the construct in the box at the top, and fill the gaps in beneath with behaviours elicited (Annex C). It may be necessary to reiterate the point that it is the behaviours that we are trying to ascertain, as many interviewees find it quite difficult to think in these terms.
7. Depending on how easy the interviewee finds the technique it may or may not be necessary to explore the behaviours representative of the opposite pole, as some participants may include it in their answer, while others may need prompting.
8. Continue with this procedure until all of the constructs have been explored fully.

iii) STAGE 3

9. The final part of the interview will involve returning to the initial grid sheet and asking the interview participant to score each of the airman represented on cards one to five, in terms of each of the constructs. Write the numbers '1' to '5' across the top of the grid, so that each vertical column beneath that number will correspond to a score on each construct for that individual.
10. Explain to the interviewee that the scores will range from 1 to 5, with 5 being the highest score. The same score can be given to more than one candidate, but no half marks can be given.
11. Proceed through each construct, attributing scores on each for each person until the grid is completed.

5. CLOSING

Once the interview schedule is complete the interviewee can be asked if there is anything else they would like to add, before thanking them for their time. They may ask when the project will be completed, in which case you can explain that interviewing is the first stage of the process, although it is hoped that we will have some preliminary results by the autumn.

6. EXERCISES

1. COMPLETE A PRACTICE INTERVIEW WITH YOUR TRAINING SUPERVISOR, ASSUMING THE ROLE OF INTERVIEWEE
2. COMPLETE A PRACTICE INTERVIEW WITH YOUR TRAINING SUPERVISOR, ASSUMING THE ROLE OF INTERVIEWER
3. ACT AS AN OBSERVER DURING A 'DESIRABLE BEHAVIOUR' INTERVIEW
4. CONDUCT AN INTERVIEW WHILE OBSERVED BY AN EXPERIENCED INTERVIEWER

APPENDIX B

Results of ANOVAs to compare means of rating of airmen on constructs

		Sum of Squares	df	Mean Square	F	Sig.
Respects RAF	Between Groups	186.700	2	93.350	149.165	.000
	Within Groups	63.833	102	.626		
	Total	250.533	104			
Mature	Between Groups	227.894	2	113.947	168.709	.000
	Within Groups	102.661	152	.675		
	Total	330.555	154			
Trade skills	Between Groups	256.725	2	128.363	173.902	.000
	Within Groups	174.938	237	.738		
	Total	431.663	239			
Professional	Between Groups	151.771	2	75.886	109.829	.000
	Within Groups	70.476	102	.691		
	Total	222.248	104			
Team Work	Between Groups	387.204	2	193.602	271.857	.000
	Within Groups	175.900	247	.712		
	Total	563.104	249			
Committed to the RAF	Between Groups	375.725	2	187.862	188.098	.000
	Within Groups	261.671	262	.999		
	Total	637.396	264			
Honest	Between Groups	270.881	2	135.441	219.643	.000
	Within Groups	96.813	157	.617		
	Total	367.694	159			
Confident	Between Groups	251.626	2	125.813	141.679	.000
	Within Groups	179.379	202	.888		
	Total	431.005	204			
Trustworthy	Between Groups	200.923	2	100.461	111.314	.000
	Within Groups	96.568	107	.903		
	Total	297.491	109			
Gets on with people	Between Groups	148.848	2	74.424	79.732	.000
	Within Groups	104.543	112	.933		
	Total	253.391	114			
Works hard	Between Groups	506.049	2	253.025	427.398	.000
	Within Groups	161.027	272	.592		
	Total	667.076	274			
Leadership	Between Groups	222.252	2	111.126	228.466	.000
	Within Groups	66.151	136	.486		
	Total	288.403	138			

		Sum of Squares	df	Mean Square	F	Sig.
Intelligence	Between Groups	213.200	2	106.600	136.029	.000
	Within Groups	150.462	192	.784		
	Total	363.662	194			
Accepts responsibility	Between Groups	255.156	2	127.578	227.116	.000
	Within Groups	74.148	132	.562		
	Total	329.304	134			
Disciplined	Between Groups	82.936	2	41.468	32.921	.000
	Within Groups	65.500	52	1.260		
	Total	148.436	54			
Cares about others	Between Groups	115.763	2	57.881	81.871	.000
	Within Groups	54.438	77	.707		
	Total	170.200	79			
High Standards	Between Groups	118.414	2	59.207	113.804	.000
	Within Groups	34.857	67	.520		
	Total	153.271	69			
Respects Rank	Between Groups	155.536	2	77.768	94.608	.000
	Within Groups	87.955	107	.822		
	Total	243.491	109			
Motivated	Between Groups	371.876	2	185.938	326.670	.000
	Within Groups	129.207	227	.569		
	Total	501.083	229			
Communication skills	Between Groups	172.466	2	86.233	118.113	.000
	Within Groups	103.672	142	.730		
	Total	276.138	144			
Effort	Between Groups	273.884	2	136.942	220.265	.000
	Within Groups	97.609	157	.622		
	Total	371.494	159			
Reliable	Between Groups	517.973	2	258.986	397.336	.000
	Within Groups	200.105	307	.652		
	Total	718.077	309			
Initiative	Between Groups	231.050	2	115.525	187.242	.000
	Within Groups	87.612	142	.617		
	Total	318.662	144			
Interpersonal Skills	Between Groups	97.706	2	48.853	51.674	.000
	Within Groups	82.250	87	.945		
	Total	179.956	89			

		Sum of Squares	df	Mean Square	F	Sig.
Can do attitude	Between Groups	101.520	2	50.760	69.218	.000
	Within Groups	52.800	72	.733		
	Total	154.320	74			
Good Sense of Humour	Between Groups	128.782	2	64.391	61.466	.000
	Within Groups	112.091	107	1.048		
	Total	240.873	109			
Will help Other	Between Groups	173.435	2	86.717	123.485	.000
	Within Groups	78.652	112	.702		
	Total	252.087	114			
Sociable	Between Groups	111.443	2	55.721	44.366	.000
	Within Groups	115.547	92	1.256		
	Total	226.989	94			
Unselfish	Between Groups	126.420	2	63.210	89.766	.000
	Within Groups	50.700	72	.704		
	Total	177.120	74			
Self-disciplined	Between Groups	177.224	2	88.612	163.393	.000
	Within Groups	44.471	82	.542		
	Total	221.694	84			
Organised	Between Groups	51.633	2	25.817	35.040	.000
	Within Groups	30.944	42	.737		
	Total	82.578	44			
Common sense	Between Groups	138.159	2	69.079	88.794	.000
	Within Groups	63.794	82	.778		
	Total	201.953	84			
Enthusiam	Between Groups	174.833	2	87.417	140.734	.000
	Within Groups	63.357	102	.621		
	Total	238.190	104			
Smart dress Appearance	Between Groups	264.447	2	132.223	163.726	.000
	Within Groups	171.209	212	.808		
	Total	435.656	214			
Flexible	Between Groups	125.621	2	62.811	141.456	.000
	Within Groups	29.750	67	.444		
	Total	155.371	69			
Loyal	Between Groups	270.005	2	135.003	268.591	.000
	Within Groups	75.897	151	.503		
	Total	345.903	153			

		Sum of Squares	df	Mean Square	F	Sig.
Forward looking	Between Groups	137.128	2	68.564	104.701	.000
	Within Groups	56.972	87	.655		
	Total	194.100	89			
Experienced	Between Groups	87.537	2	43.768	40.342	.000
	Within Groups	79.200	73	1.085		
	Total	166.737	75			
Attention to detail	Between Groups	81.150	2	40.575	64.996	.000
	Within Groups	35.583	57	.624		
	Total	116.733	59			
Takes criticism and acts on it	Between Groups	118.208	2	59.104	63.644	.000
	Within Groups	57.577	62	.929		
	Total	175.785	64			
Tries to improve oneself	Between Groups	139.167	2	69.583	86.208	.000
	Within Groups	70.222	87	.807		
	Total	209.389	89			
Fit	Between Groups	91.776	2	45.888	50.093	.000
	Within Groups	75.118	82	.916		
	Total	166.894	84			
Determined	Between Groups	132.011	2	66.006	110.906	.000
	Within Groups	51.778	87	.595		
	Total	183.789	89			
Respects others	Between Groups	58.880	2	29.440	21.756	.000
	Within Groups	63.600	47	1.353		
	Total	122.480	49			
Ambitious	Between Groups	197.486	2	98.743	170.599	.000
	Within Groups	61.932	107	.579		
	Total	259.418	109			
Positive	Between Groups	235.575	2	117.788	192.407	.000
	Within Groups	71.625	117	.612		
	Total	307.200	119			
Dedicated	Between Groups	116.823	2	58.412	119.948	.000
	Within Groups	30.192	62	.487		
	Total	147.015	64			

Multiple Comparisons

Tukey HSD

Dependent Variable I J			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Respects RAF	1	2	1.29(*)	.211	.000	.78	1.79
		3	2.98(*)	.173	.000	2.57	3.39
	2	1	-1.29(*)	.211	.000	-1.79	-.78
		3	1.69(*)	.211	.000	1.19	2.19
	3	1	-2.98(*)	.173	.000	-3.39	-2.57
		2	-1.69(*)	.211	.000	-2.19	-1.19
Mature	1	2	1.00(*)	.181	.000	.57	1.43
		3	2.69(*)	.148	.000	2.34	3.04
	2	1	-1.00(*)	.181	.000	-1.43	-.57
		3	1.69(*)	.181	.000	1.27	2.12
	3	1	-2.69(*)	.148	.000	-3.04	-2.34
		2	-1.69(*)	.181	.000	-2.12	-1.27
Trade	1	2	1.19(*)	.152	.000	.83	1.55
Skills		3	2.31(*)	.124	.000	2.02	2.60
	2	1	-1.19(*)	.152	.000	-1.55	-.83
		3	1.13(*)	.152	.000	.77	1.48
	3	1	-2.31(*)	.124	.000	-2.60	-2.02
		2	-1.13(*)	.152	.000	-1.48	-.77
Prof	1	2	.95(*)	.222	.000	.42	1.48
		3	2.67(*)	.181	.000	2.24	3.10
	2	1	-.95(*)	.222	.000	-1.48	-.42
		3	1.71(*)	.222	.000	1.19	2.24
	3	1	-2.67(*)	.181	.000	-3.10	-2.24
		2	-1.71(*)	.222	.000	-2.24	-1.19
Team Work	1	2	1.25(*)	.146	.000	.91	1.59
		3	2.78(*)	.119	.000	2.50	3.06
	2	1	-1.25(*)	.146	.000	-1.59	-.91
		3	1.53(*)	.146	.000	1.19	1.87
	3	1	-2.78(*)	.119	.000	-3.06	-2.50
		2	-1.53(*)	.146	.000	-1.87	-1.19
Committed To RAF	1	2	1.1916(*)	.16894	.000	.7934	1.5898
		3	2.6539(*)	.13695	.000	2.3310	2.9767
	2	1	-1.1916(*)	.16894	.000	-1.5898	-.7934
		3	1.4623(*)	.16920	.000	1.0634	1.8611
	3	1	-2.6539(*)	.13695	.000	-2.9767	-2.3310
		2	-1.4623(*)	.16920	.000	-1.8611	-1.0634
Honest	1	2	.7344(*)	.17001	.000	.3321	1.1367
		3	2.8438(*)	.13882	.000	2.5153	3.1722
	2	1	-.7344(*)	.17001	.000	-1.1367	-.3321
		3	2.1094(*)	.17001	.000	1.7071	2.5117
	3	1	-2.8438(*)	.13882	.000	-3.1722	-2.5153
		2	-2.1094(*)	.17001	.000	-2.5117	-1.7071

Dependent Variable I J			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Confiden	1	2	1.33(*)	.181	.000	.90	1.76
		3	2.47(*)	.147	.000	2.12	2.81
	2	1	-1.33(*)	.181	.000	-1.76	-.90
		3	1.14(*)	.182	.000	.71	1.57
	3	1	-2.47(*)	.147	.000	-2.81	-2.12
		2	-1.14(*)	.182	.000	-1.57	-.71
Trustwor	1	2	.9091(*)	.24806	.001	.3195	1.4987
		3	2.9773(*)	.20254	.000	2.4959	3.4587
	2	1	-.9091(*)	.24806	.001	-1.4987	-.3195
		3	2.0682(*)	.24806	.000	1.4786	2.6578
	3	1	-2.9773(*)	.20254	.000	-3.4587	-2.4959
		2	-2.0682(*)	.24806	.000	-2.6578	-1.4786
Getsonpe	1	2	1.3414(*)	.24958	.000	.7486	1.9342
		3	2.5291(*)	.20038	.000	2.0532	3.0051
	2	1	-1.3414(*)	.24958	.000	-1.9342	-.7486
		3	1.1877(*)	.25044	.000	.5929	1.7826
	3	1	-2.5291(*)	.20038	.000	-3.0051	-2.0532
		2	-1.1877(*)	.25044	.000	-1.7826	-.5929
Hardwork	1	2	1.3000(*)	.12707	.000	1.0006	1.5994
		3	3.0273(*)	.10375	.000	2.7828	3.2718
	2	1	-1.3000(*)	.12707	.000	-1.5994	-1.0006
		3	1.7273(*)	.12707	.000	1.4278	2.0267
	3	1	-3.0273(*)	.10375	.000	-3.2718	-2.7828
		2	-1.7273(*)	.12707	.000	-2.0267	-1.4278
Leader	1	2	1.5714(*)	.16142	.000	1.1889	1.9539
		3	2.8260(*)	.13240	.000	2.5122	3.1397
	2	1	-1.5714(*)	.16142	.000	-1.9539	-1.1889
		3	1.2545(*)	.16191	.000	.8709	1.6382
	3	1	-2.8260(*)	.13240	.000	-3.1397	-2.5122
		2	-1.2545(*)	.16191	.000	-1.6382	-.8709
Intell	1	2	1.3333(*)	.17361	.000	.9233	1.7434
		3	2.3333(*)	.14175	.000	1.9985	2.6682
	2	1	-1.3333(*)	.17361	.000	-1.7434	-.9233
		3	1.0000(*)	.17361	.000	.5899	1.4101
	3	1	-2.3333(*)	.14175	.000	-2.6682	-1.9985
		2	-1.0000(*)	.17361	.000	-1.4101	-.5899
Accresp	1	2	1.5185(*)	.17666	.000	1.0998	1.9373
		3	3.0741(*)	.14424	.000	2.7322	3.4160
	2	1	-1.5185(*)	.17666	.000	-1.9373	-1.0998
		3	1.5556(*)	.17666	.000	1.1368	1.9743
	3	1	-3.0741(*)	.14424	.000	-3.4160	-2.7322
		2	-1.5556(*)	.17666	.000	-1.9743	-1.1368

Dependent Variable I J			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Discipli	1	2	.6818	.41445	.236	-.3181	1.6817
		3	2.6818(*)	.33839	.000	1.8654	3.4982
	2	1	-.6818	.41445	.236	-1.6817	.3181
		3	2.0000(*)	.41445	.000	1.0001	2.9999
	3	1	-2.6818(*)	.33839	.000	-3.4982	-1.8654
Care		2	-2.0000(*)	.41445	.000	-2.9999	-1.0001
	1	2	1.2188(*)	.25745	.000	.6035	1.8340
		3	2.6875(*)	.21021	.000	2.1851	3.1899
	2	1	-1.2188(*)	.25745	.000	-1.8340	-.6035
		3	1.4688(*)	.25745	.000	.8535	2.0840
Highstan	3	1	-2.6875(*)	.21021	.000	-3.1899	-2.1851
		2	-1.4688(*)	.25745	.000	-2.0840	-.8535
	1	2	.8214(*)	.23610	.003	.2555	1.3873
		3	2.8571(*)	.19277	.000	2.3951	3.3192
	2	1	-.8214(*)	.23610	.003	-1.3873	-.2555
Resrank		3	2.0357(*)	.23610	.000	1.4698	2.6016
	3	1	-2.8571(*)	.19277	.000	-3.3192	-2.3951
		2	-2.0357(*)	.23610	.000	-2.6016	-1.4698
	1	2	.9318(*)	.23674	.000	.3691	1.4945
		3	2.6364(*)	.19330	.000	2.1769	3.0958
Motivate	2	1	-.9318(*)	.23674	.000	-1.4945	-.3691
		3	1.7045(*)	.23674	.000	1.1419	2.2672
	3	1	-2.6364(*)	.19330	.000	-3.0958	-2.1769
		2	-1.7045(*)	.23674	.000	-2.2672	-1.1419
	1	2	1.2065(*)	.13624	.000	.8851	1.5279
Comminca		3	2.8370(*)	.11124	.000	2.5745	3.0994
	2	1	-1.2065(*)	.13624	.000	-1.5279	-.8851
		3	1.6304(*)	.13624	.000	1.3090	1.9518
	3	1	-2.8370(*)	.11124	.000	-3.0994	-2.5745
		2	-1.6304(*)	.13624	.000	-1.9518	-1.3090
Effort	1	2	1.0000(*)	.19433	.000	.5397	1.4603
		3	2.4310(*)	.15867	.000	2.0552	2.8068
	2	1	-1.0000(*)	.19433	.000	-1.4603	-.5397
		3	1.4310(*)	.19433	.000	.9708	1.8913
	3	1	-2.4310(*)	.15867	.000	-2.8068	-2.0552
		2	-1.4310(*)	.19433	.000	-1.8913	-.9708
	1	2	1.2969(*)	.17071	.000	.8929	1.7008
		3	2.9219(*)	.13939	.000	2.5921	3.2517
	2	1	-1.2969(*)	.17071	.000	-1.7008	-.8929
		3	1.6250(*)	.17071	.000	1.2211	2.0289
	3	1	-2.9219(*)	.13939	.000	-3.2517	-2.5921
		2	-1.6250(*)	.17071	.000	-2.0289	-1.2211

Dependent Variable I J			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Reliable	1	2	1.1532(*)	.12558	.000	.8575	1.4490
		3	2.8790(*)	.10253	.000	2.6376	3.1205
	2	1	-1.1532(*)	.12558	.000	-1.4490	-.8575
		3	1.7258(*)	.12558	.000	1.4301	2.0216
	3	1	-2.8790(*)	.10253	.000	-3.1205	-2.6376
		2	-1.7258(*)	.12558	.000	-2.0216	-1.4301
Iniative	1	2	1.6646(*)	.18026	.000	1.2377	2.0916
		3	2.8001(*)	.14524	.000	2.4561	3.1441
	2	1	-1.6646(*)	.18026	.000	-2.0916	-1.2377
		3	1.1355(*)	.18076	.000	.7073	1.5636
	3	1	-2.8001(*)	.14524	.000	-3.1441	-2.4561
		2	-1.1355(*)	.18076	.000	-1.5636	-.7073
Intersp	1	2	.7778(*)	.28068	.019	.1085	1.4471
		3	2.3056(*)	.22918	.000	1.7591	2.8520
	2	1	-.7778(*)	.28068	.019	-1.4471	-.1085
		3	1.5278(*)	.28068	.000	.8585	2.1971
	3	1	-2.3056(*)	.22918	.000	-2.8520	-1.7591
		2	-1.5278(*)	.28068	.000	-2.1971	-.8585
Candoatt	1	2	1.2000(*)	.27080	.000	.5519	1.8481
		3	2.6000(*)	.22111	.000	2.0709	3.1291
	2	1	-1.2000(*)	.27080	.000	-1.8481	-.5519
		3	1.4000(*)	.27080	.000	.7519	2.0481
	3	1	-2.6000(*)	.22111	.000	-3.1291	-2.0709
		2	-1.4000(*)	.27080	.000	-2.0481	-.7519
Gsoh	1	2	.9545(*)	.26726	.002	.3193	1.5898
		3	2.4091(*)	.21821	.000	1.8904	2.9277
	2	1	-.9545(*)	.26726	.002	-1.5898	-.3193
		3	1.4545(*)	.26726	.000	.8193	2.0898
	3	1	-2.4091(*)	.21821	.000	-2.9277	-1.8904
		2	-1.4545(*)	.26726	.000	-2.0898	-.8193
Willhelp	1	2	1.1522(*)	.21401	.000	.6438	1.6605
		3	2.7391(*)	.17474	.000	2.3241	3.1542
	2	1	-1.1522(*)	.21401	.000	-1.6605	-.6438
		3	1.5870(*)	.21401	.000	1.0786	2.0953
	3	1	-2.7391(*)	.17474	.000	-3.1542	-2.3241
		2	-1.5870(*)	.21401	.000	-2.0953	-1.0786
Sociable	1	2	1.2821(*)	.31934	.000	.5213	2.0428
		3	2.4049(*)	.25545	.000	1.7963	3.0134
	2	1	-1.2821(*)	.31934	.000	-2.0428	-.5213
		3	1.1228(*)	.32066	.002	.3589	1.8867
	3	1	-2.4049(*)	.25545	.000	-3.0134	-1.7963
		2	-1.1228(*)	.32066	.002	-1.8867	-.3589

Dependent Variable I J			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Unselfis	1	2	1.3000(*)	.26536	.000	.6650	1.9350
		3	2.9000(*)	.21667	.000	2.3815	3.4185
		1	-1.3000(*)	.26536	.000	-1.9350	-.6650
	2	3	1.6000(*)	.26536	.000	.9650	2.2350
		1	-2.9000(*)	.21667	.000	-3.4185	-2.3815
		2	-1.6000(*)	.26536	.000	-2.2350	-.9650
Selfdisc	1	2	.9412(*)	.21875	.000	.4190	1.4633
		3	3.1765(*)	.17861	.000	2.7501	3.6028
		1	-.9412(*)	.21875	.000	-1.4633	-.4190
	2	3	2.2353(*)	.21875	.000	1.7131	2.7575
		1	-3.1765(*)	.17861	.000	-3.6028	-2.7501
		2	-2.2353(*)	.21875	.000	-2.7575	-1.7131
Organise	1	2	1.0000(*)	.35042	.018	.1487	1.8513
		3	2.3889(*)	.28612	.000	1.6938	3.0840
		1	-1.0000(*)	.35042	.018	-1.8513	-.1487
	2	3	1.3889(*)	.35042	.001	.5375	2.2402
		1	-2.3889(*)	.28612	.000	-3.0840	-1.6938
		2	-1.3889(*)	.35042	.001	-2.2402	-.5375
Commonse	1	2	.7647(*)	.26200	.012	.1393	1.3901
		3	2.7941(*)	.21392	.000	2.2835	3.3048
		1	-.7647(*)	.26200	.012	-1.3901	-.1393
	2	3	2.0294(*)	.26200	.000	1.4040	2.6548
		1	-2.7941(*)	.21392	.000	-3.3048	-2.2835
		2	-2.0294(*)	.26200	.000	-2.6548	-1.4040
Enthusia	1	2	1.6190(*)	.21064	.000	1.1181	2.1200
		3	2.8810(*)	.17198	.000	2.4719	3.2900
		1	-1.6190(*)	.21064	.000	-2.1200	-1.1181
	2	3	1.2619(*)	.21064	.000	.7609	1.7629
		1	-2.8810(*)	.17198	.000	-3.2900	-2.4719
		2	-1.2619(*)	.21064	.000	-1.7629	-.7609
Smartdre	1	2	.9302(*)	.16784	.000	.5341	1.3264
		3	2.4651(*)	.13704	.000	2.1417	2.7886
		1	-.9302(*)	.16784	.000	-1.3264	-.5341
	2	3	1.5349(*)	.16784	.000	1.1387	1.9310
		1	-2.4651(*)	.13704	.000	-2.7886	-2.1417
		2	-1.5349(*)	.16784	.000	-1.9310	-1.1387
Flexible	1	2	1.0000(*)	.21812	.000	.4772	1.5228
		3	2.9643(*)	.17809	.000	2.5374	3.3911
		1	-1.0000(*)	.21812	.000	-1.5228	-.4772
	2	3	1.9643(*)	.21812	.000	1.4415	2.4871
		1	-2.9643(*)	.17809	.000	-3.3911	-2.5374
		2	-1.9643(*)	.21812	.000	-2.4871	-1.4415

Dependent Variable I J			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Loyal	1	2	1.0323(*)	.15595	.000	.6631	1.4014
		3	2.9387(*)	.12785	.000	2.6360	3.2413
	2	1	-1.0323(*)	.15595	.000	-1.4014	-.6631
		3	1.9064(*)	.15638	.000	1.5362	2.2766
	3	1	-2.9387(*)	.12785	.000	-3.2413	-2.6360
		2	-1.9064(*)	.15638	.000	-2.2766	-1.5362
Forward Looking	1	2	1.6389(*)	.23360	.000	1.0819	2.1959
		3	2.7500(*)	.19074	.000	2.2952	3.2048
	2	1	-1.6389(*)	.23360	.000	-2.1959	-1.0819
		3	1.1111(*)	.23360	.000	.5541	1.6681
	3	1	-2.7500(*)	.19074	.000	-3.2048	-2.2952
		2	-1.1111(*)	.23360	.000	-1.6681	-.5541
Experinced	1	2	.9000(*)	.32245	.018	.1286	1.6714
		3	2.4000(*)	.26894	.000	1.7566	3.0434
	2	1	-.9000(*)	.32245	.018	-1.6714	-.1286
		3	1.5000(*)	.32245	.000	.7286	2.2714
	3	1	-2.4000(*)	.26894	.000	-3.0434	-1.7566
		2	-1.5000(*)	.32245	.000	-2.2714	-.7286
Attention to detail	1	2	.9583(*)	.27934	.003	.2861	1.6306
		3	2.5833(*)	.22808	.000	2.0345	3.1322
	2	1	-.9583(*)	.27934	.003	-1.6306	-.2861
		3	1.6250(*)	.27934	.000	.9528	2.2972
	3	1	-2.5833(*)	.22808	.000	-3.1322	-2.0345
		2	-1.6250(*)	.27934	.000	-2.2972	-.9528
Takes criticism and acts on it	1	2	.8462(*)	.32734	.032	.0601	1.6322
		3	2.9615(*)	.26727	.000	2.3197	3.6033
	2	1	-.8462(*)	.32734	.032	-1.6322	-.0601
		3	2.1154(*)	.32734	.000	1.3294	2.9014
	3	1	-2.9615(*)	.26727	.000	-3.6033	-2.3197
		2	-2.1154(*)	.32734	.000	-2.9014	-1.3294
Triesimp	1	2	1.5278(*)	.25935	.000	.9094	2.1462
		3	2.7778(*)	.21176	.000	2.2728	3.2827
	2	1	-1.5278(*)	.25935	.000	-2.1462	-.9094
		3	1.2500(*)	.25935	.000	.6316	1.8684
	3	1	-2.7778(*)	.21176	.000	-3.2827	-2.2728
		2	-1.2500(*)	.25935	.000	-1.8684	-.6316

Dependent Variable I J			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Fit	1	2	.7353(*)	.28431	.031	.0567	1.4139
		3	2.2941(*)	.23213	.000	1.7400	2.8482
	2	1	-.7353(*)	.28431	.031	-1.4139	-.0567
		3	1.5588(*)	.28431	.000	.8802	2.2375
	3	1	-2.2941(*)	.23213	.000	-2.8482	-1.7400
		2	-1.5588(*)	.28431	.000	-2.2375	-.8802
Determin	1	2	.8056(*)	.22270	.001	.2745	1.3366
		3	2.6667(*)	.18183	.000	2.2331	3.1002
	2	1	-.8056(*)	.22270	.001	-1.3366	-.2745
		3	1.8611(*)	.22270	.000	1.3301	2.3921
	3	1	-2.6667(*)	.18183	.000	-3.1002	-2.2331
		2	-1.8611(*)	.22270	.000	-2.3921	-1.3301
Repecoth	1	2	.8000	.45053	.189	-.2903	1.8903
		3	2.4000(*)	.36786	.000	1.5097	3.2903
	2	1	-.8000	.45053	.189	-1.8903	.2903
		3	1.6000(*)	.45053	.003	.5097	2.6903
	3	1	-2.4000(*)	.36786	.000	-3.2903	-1.5097
		2	-1.6000(*)	.45053	.003	-2.6903	-.5097
Ambitiou	1	2	1.8636(*)	.19865	.000	1.3915	2.3358
		3	2.9773(*)	.16220	.000	2.5918	3.3628
	2	1	-1.8636(*)	.19865	.000	-2.3358	-1.3915
		3	1.1136(*)	.19865	.000	.6415	1.5858
	3	1	-2.9773(*)	.16220	.000	-3.3628	-2.5918
		2	-1.1136(*)	.19865	.000	-1.5858	-.6415
Positive	1	2	1.3125(*)	.19560	.000	.8482	1.7768
		3	3.1250(*)	.15971	.000	2.7459	3.5041
	2	1	-1.3125(*)	.19560	.000	-1.7768	-.8482
		3	1.8125(*)	.19560	.000	1.3482	2.2768
	3	1	-3.1250(*)	.15971	.000	-3.5041	-2.7459
		2	-1.8125(*)	.19560	.000	-2.2768	-1.3482
Dedicated	1	2	.9615(*)	.23704	.000	.3923	1.5307
		3	2.9615(*)	.19354	.000	2.4968	3.4263
	2	1	-.9615(*)	.23704	.000	-1.5307	-.3923
		3	2.0000(*)	.23704	.000	1.4308	2.5692
	3	1	-2.9615(*)	.19354	.000	-3.4263	-2.4968
		2	-2.0000(*)	.23704	.000	-2.5692	-1.4308

* The mean difference is significant at the .05 level.

APPENDIX C

The full list of examples of behaviours produced following the job analysis

Is Pro-active (Comes up with clear well thought out ideas and suggestions)
<ul style="list-style-type: none"> Looks for ways to improve work environment Looks for and makes suggestions for the best way to complete tasks Identify and resolve potential problems Will explore every avenue to enable them to complete task Will know where to find answers to problems/questions/makes an effort to find out Plans ahead/anticipates requirements Takes positive action/is proactive Able to think laterally/look at all angles Improvise and sort things out for themselves/think for themselves Can learn new skills without training Progress tasks logically Tempers enthusiasm with practicality Formulates plans and ideas quickly Doesn't accept things uncritically Can flex from topic to topic quickly Does research about topic Able to prioritise tasks Takes care of trivia so the boss doesn't have to Research something in order to find the truth
Does more than the bare minimum – does over and above what is asked
<ul style="list-style-type: none"> Will volunteer/look for extra work when task is completed Volunteers for unpleasant jobs Does extra tasks/work Works extra hours Does more than the bare minimum (ie does implicit tasks)without being told Does secondary/voluntary duties Will makes sure shifts are always covered before going home Covered for manager while away Take on extra responsibilities
Strives to ensure work is always completed to a high standard
<ul style="list-style-type: none"> Consistently ensures work is completed to a high standard and on time Meticulous and thorough/pays attention to detail Follows instructions does what is asked/gets it right first time Able to correctly diagnose faults Repairs vehicles correctly and quickly Uses good working practices Looks after tools and equipment Working area is kept clean Sound grasp of fundamentals of most equipment Can hold own in argument with commercial firm Has respect for consequences of error Will do job again (or get others to) if not up to standard Completes management information records e.g. 540, stats etc Good technical IT knowledge Want to make a difference for the trade/unit Does not cut corners Works to best of ability

Utilises experience and training for the benefit of RAF
<p>Recognises and uses own abilities/strengths/experience/knowledge/limitations</p> <p>Can do more than one task at a time</p> <p>Learns from and applies previous experience/learning</p> <p>Know when appropriate to say yes and no</p>
Represents the RAF in a positive manner
<p>Accepts responsibility for own actions and effects on others</p> <p>Isn't disruptive</p> <p>Good standard of dress and appearance (clean & ironed uniform, polished shoes hair cut, shaved moustache trimmed etc)</p> <p>Talks with authority/knowledge</p> <p>Does not complain/whinge</p> <p>Sticks to standards/regulations/is disciplined BTRs</p> <p>Good conduct</p> <p>Has an all round interest in RAF want to learn about it new events etc</p> <p>Puts a high degree of importance on primary role</p> <p>Understand the need to represent the service well</p> <p>Good bearing</p> <p>Carries self well, good deportment in and out of uniform</p> <p>Put effort in to look the part and represent the RAF</p> <p>Smart on & off duty</p> <p>Keeps quarters tidy</p> <p>Looks good in uniform</p> <p>Good personal hygiene</p> <p>Wears appropriate clothes for functions</p> <p>Ceremonial Kit is kept impeccable</p> <p>Talk about the service positively</p> <p>Sets a good example</p> <p>Proud of job/to serve</p>
Displays Strength of Character
<p>Is not led by the crowd</p> <p>Happy to approach/talk to others regardless of rank</p> <p>Will ask questions to clarify understanding or seek advice or ask for help</p> <p>Body language (eye contact, upright)</p> <p>Will admit when wrong/can't do something</p> <p>Forthright – will tell you what they really think/feel even if to own disadvantage</p> <p>Will give same opinion irrespective of the rank asking the question</p> <p>Will tell others if see something that is wrong</p> <p>Projects self forward in senior company</p> <p>Will take the lead or stand back as appropriate</p> <p>Will stand by colleague in trouble</p> <p>Has the mental strength to be tough if necessary</p> <p>Will assert authority when required</p> <p>Makes decisions and stands by them</p> <p>Will take unpopular decisions</p> <p>Carries the can if something goes wrong</p> <p>Does not seek approval or praise</p> <p>Will fight robustly for the troops</p> <p>Able to assume rank and act accordingly</p> <p>Will confront superiors for clear vision</p> <p>Pushes on in the face of adversity</p> <p>Shows moral courage</p>

Seeks and makes the most of opportunities for personal development

Signs up for further service in order to pursue RAF career
Learns new skills (improves themselves/attends courses) to keep up with changing environment
Keeps up to date with current information
Passes tests/exams
Knows another language
Will take criticism/advice and improve as a result (does not sulk)
Committed to RAF and wants to succeed get promotion, good reports etc
Wants to get more out of what doing
Develop self to fit into the rank they want to be
Joins relevant trade organisation
Willing to learn from others experience
Will attempt new things
Gives a clear understanding of what they want to achieve in the RAF
Shows ambition for a career in the RAF
Seeks promotion
Wants a commission/attends commissioning clubs
Does trade training to high standard
Want to be the best/in front
Stands out in a crowd
Keeps fit on own choice

Gets on with the task in hand regardless of obstacles

Puts problems behind him and focuses on team and getting job done
Will deliver on any given task
Sees the good things in life
Stick together even if don't want to be there
Is enthusiastic about any task
Prepared to fight or die
Accepts decisions
Immediate reaction to a request is I can do it
Gets on with job/task and completes it without reminding (regardless of obstacles)

Puts themselves out for the benefit of others/RAF

Gives up own time/put themselves out for the benefit of RAF/others
Subordinates own interests for those of the team/RAF
Goes where sent and does what is required in support of RAF, even if detrimental to personal commitments
Can call on them at any time
Willing to help/offers help when needed
Helps others when finished own work

Encourages, develops and Utilizes the skills of others

Teaches, encourages or helps others
Understands and uses attributes of others in the team
Involves everyone in activities
Has an interest in what everyone else is doing
Able to show others how to do something
Will give tasks to juniors and will guide and praise them
Uses criticism constructively

Uses good interpersonal skills
<p>Good social interaction</p> <p>Asks if others are ok/ shows concern for fellow work mates</p> <p>Deals fairly and Consistently with people</p> <p>Easy going/relaxed able to relax rules to ease the stress of environment- decrease formality</p> <p>Friendly & polite to everyone, (smiles, gets up to greet you, body language)</p> <p>Shows tolerance and restraint towards others</p> <p>Responsive to others</p> <p>Deals with people without upsetting them</p> <p>Extravert</p> <p>Listens to and considers others; ideas, opinions, problems etc</p> <p>Appears happy and smiling</p> <p>Relates to people in order to get info from them</p>
Shows respect
<p>Respects others private space eg no loud music etc</p> <p>Respects others</p> <p>Does not have or show personal biases</p> <p>Knows not to cross rank line</p> <p>Don't talk about others behind their backs</p> <p>Stands up when senior ranks enter the room</p> <p>Will use title ('Sir/Sarge') appropriately</p> <p>Knocks on the door of seniors</p> <p>Respects Age</p> <p>Uses salute appropriately</p> <p>Will stand by chain of commands decision and explain it to the troops (even if disagree)</p> <p>Accepts boundaries set by others even if don't agree</p>
Communicates effectively
<p>Uses the spoken word well</p> <p>Can give good briefings to seniors</p> <p>Can present information logically, cohesively, fluidly and accurately/take complex ideas and express them simply</p> <p>Has a good telephone manner</p> <p>Gets people talking</p> <p>Is approachable (uses first name)</p> <p>Stays calm even when dealing with a difficult customer</p> <p>Clear written communication/ good spelling</p> <p>Explain why can't complete a task rather than just say no</p> <p>Can judge the best means of communication</p> <p>Adapt the communication to the intended audience</p> <p>Considers other people</p> <p>Able to live together in the mess</p> <p>Checks wider understanding</p> <p>Consults others</p> <p>Keeps superior informed</p>

Works Hard
Carries out mundane tasks happily Is always busy Give maximum effort with minimum encouragement Can talk and work at the same time Happy to work hard even if not his turn Finishes work quickly/produces a lot of work Tea breaks not too long or too many
Is adaptable/flexible
Can do tasks outside of usual work/routine/training Can absorb changes in routine Shows flexibility Flexible approach to the rules
Takes an active role in group activities
Gets involved with discussions/decision making Participates/Organizes in social functions/activities Shares (disseminates) information, ideas, knowledge, opinions Does sports (even if not very good at them) Gets involved with local community has outside interests Prepared to get hands dirty
Is reliable
Turns up in right place on time/early with all correct equipment If they say they will do something it will be done Will work without supervision Will maintain a confidence Is aware of what others expect of them Fulfills responsibilities - admin, domestic, technical etc. Adhere to values own and others Appropriate use of change of command
Is honest
Can believe what they say/always tells the truth If finds lost property hands it in Will let others know if they have a personal problem Will tell the full story with no hidden facts
Inspires and motivates self and others
Organises/ coordinates self and others Can motivate self and others Gains respect from others/ instills confidence in others (others will go to them when a problem needs solving) Has a strong physical presence vs invisible personality Professional Aura - uses manner to achieve results can get staff to follow them though personality not rank Even when don't want to do something will lead others with enthusiasm Instill in juniors the need for the service to come first In stressful situations makes decisions and take command Tell others which jobs to do Make sure that subordinates know what they should be doing
Considers all available information when making decisions
Has a knowledge of what is going on in the world Know jobs of seniors and RAF policy Listens to, and is aware of what is going on around them Aware of broader picture Considers problems and what can and can't be done/thinks about implications/bigger picture Thinks things through to avoid pitfalls

APPENDIX D

Comparison of Officer/Airmen Difference in rank order of attribute list

Ranks

	Group Rank	N	Mean Rank	Sum of Ranks
PROACTIV	airmen	20	16.10	322.00
	officer	13	18.38	239.00
	Total	33		
MOREBARE	airmen	20	16.15	323.00
	officer	13	18.31	238.00
	Total	33		
STRIVES	airmen	20	17.52	350.50
	officer	13	16.19	210.50
	Total	33		
USEEXP	airmen	20	16.65	333.00
	officer	13	17.54	228.00
	Total	33		
REPSRAF	airmen	20	17.77	355.50
	officer	13	15.81	205.50
	Total	33		
STHCHAR	airmen	20	19.60	392.00
	officer	13	13.00	169.00
	Total	33		
PERDEVT	airmen	20	17.95	359.00
	officer	13	15.54	202.00
	Total	33		
GETSON	airmen	20	16.23	324.50
	officer	13	18.19	236.50
	Total	33		
PUTSOUT	airmen	20	18.77	375.50
	officer	13	14.27	185.50
	Total	33		
ENCOUR	airmen	20	14.88	297.50
	officer	13	20.27	263.50
	Total	33		
INTERPER	airmen	20	17.20	344.00
	officer	13	16.69	217.00
	Total	33		
RESPECT	airmen	20	15.83	316.50
	officer	13	18.81	244.50
	Total	33		
COMMUN	airmen	20	19.08	381.50
	officer	13	13.81	179.50
	Total	33		

	Group Rank	N	Mean Rank	Sum of Ranks
ADAPFLEX	airmen	20	17.68	353.50
	officer	13	15.96	207.50
	Total	33		
GROUP	airmen	20	18.18	363.50
	officer	13	15.19	197.50
	Total	33		
RELIABLE	airmen	20	13.15	263.00
	officer	13	22.92	298.00
	Total	33		
HONEST	airmen	20	14.95	299.00
	officer	13	20.15	262.00
	Total	33		
INSPIRES	airmen	20	20.25	405.00
	officer	13	12.00	156.00
	Total	33		
WORKSHAR	airmen	20	15.83	316.50
	officer	13	18.81	244.50
	Total	33		
BIGPICTU	airmen	20	17.30	346.00
	officer	13	16.54	215.00
	Total	33		

- a Not corrected for ties.
- b Grouping Variable: GRPRANK

Test Statistics(b)

Test Statistics(b)

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Exact Sig. [2*(1-tailed Sig.)]
PROACTIV	112.000	322.000	-.665	.506	.524(a)
MOREBARE	113.000	323.000	-.629	.530	.548(a)
STRIVES	119.500	210.500	-.388	.698	.703(a)
USEEXP	123.000	333.000	-.260	.795	.813(a)
REPSRAF	114.500	205.500	-.573	.567	.573(a)
STHCHAR	78.000	169.000	-1.921	.055	.057(a)
PERDEVT	111.000	202.000	-.704	.481	.501(a)
GETSON	114.500	324.500	-.572	.567	.573(a)
PUTSOUT	94.500	185.500	-1.312	.190	.194(a)
ENCOUR	87.500	297.500	-1.573	.116	.118(a)
INTERPER	126.000	217.000	-.148	.882	.899(a)
RESPECT	106.500	316.500	-.869	.385	.392(a)
COMMUN	88.500	179.500	-1.534	.125	.128(a)
ADAPFLEX	116.500	207.500	-.501	.616	.624(a)
GROUP	106.500	197.500	-.876	.381	.392(a)
RELIABLE	53.000	263.000	-2.847	.004	.004(a)
HONEST	89.000	299.000	-1.522	.128	.137(a)
INSPIRES	65.000	156.000	-2.404	.016	.016(a)
WORKSHAR	106.500	316.500	-.868	.385	.392(a)
BIGPICTU	124.000	215.000	-.222	.824	.842(a)

a Not corrected for ties.

b Grouping Variable: SMEGRPRA

APPENDIX E

Comparison of length of service differences in ranking of the order of importance Ranks

Ranks

	Length of service	N	Mean Rank
PROACTIV	Up to 14 years	11	17.14
	15-24 years	11	11.86
	25 years +	10	20.90
	Total	32	
MOREBARE	Up to 14 years	11	16.27
	15-24 years	11	16.36
	25 years +	10	16.90
	Total	32	
STRIVES	Up to 14 years	11	17.14
	15-24 years	11	17.91
	25 years +	10	14.25
	Total	32	
USEEXP	Up to 14 years	11	21.50
	15-24 years	11	14.64
	25 years +	10	13.05
	Total	32	
REPSRAF	Up to 14 years	11	19.77
	15-24 years	11	16.09
	25 years +	10	13.35
	Total	32	
STHCHAR	Up to 14 years	11	18.09
	15-24 years	11	15.18
	25 years +	10	16.20
	Total	32	
PERDEVT	Up to 14 years	11	18.23
	15-24 years	11	17.55
	25 years +	10	13.45
	Total	32	
GETSON	Up to 14 years	11	13.55
	15-24 years	11	18.91
	25 years +	10	17.10
	Total	32	
PUTSOUT	Up to 14 years	11	19.09
	15-24 years	11	17.64
	25 years +	10	12.40
	Total	32	
ENCOUR	Up to 14 years	11	18.82
	15-24 years	11	13.41
	25 years +	10	17.35
	Total	32	

	Length of service	N	Mean Rank
INTERPER	Up to 14 years	11	18.05
	15-24 years	11	14.14
	25 years +	10	17.40
	Total	32	
RESPECT	Up to 14 years	11	14.09
	15-24 years	11	20.86
	25 years +	10	14.35
	Total	32	
COMMUN	Up to 14 years	11	13.50
	15-24 years	11	17.95
	25 years +	10	18.20
	Total	32	
WORKSHAR	Up to 14 years	11	12.00
	15-24 years	11	18.00
	25 years +	10	19.80
	Total	32	
ADAPFLEX	Up to 14 years	11	15.27
	15-24 years	11	21.36
	25 years +	10	12.50
	Total	32	
GROUP	Up to 14 years	11	16.68
	15-24 years	11	18.95
	25 years +	10	13.60
	Total	32	
RELIABLE	Up to 14 years	11	18.45
	15-24 years	11	11.68
	25 years +	10	19.65
	Total	32	
HONEST	Up to 14 years	11	15.86
	15-24 years	11	13.55
	25 years +	10	20.45
	Total	32	
INSPIRES	Up to 14 years	11	14.45
	15-24 years	11	20.32
	25 years +	10	14.55
	Total	32	
BIGPICTU	Up to 14 years	11	14.82
	15-24 years	11	12.68
	25 years +	10	22.55
	Total	32	

Test Statistics(a,b)

	Chi-Square	df	Asymp. Sig.
PROACTIV	4.969	2	.083
MOREBARE	.027	2	.987
STRIVES	.881	2	.644
USEEXP	4.980	2	.083
REPSRAF	2.507	2	.286
STHCHAR	.547	2	.761
PERDEVT	1.584	2	.453
GETSON	1.866	2	.393
PUTSOUT	2.930	2	.231
ENCOUR	1.969	2	.374
INTERPER	1.096	2	.578
RESPECT	3.658	2	.161
COMMUN	1.731	2	.421
WORKSHAR	4.077	2	.130
ADAPFLEX	5.047	2	.080
GROUP	1.756	2	.416
RELIABLE	4.535	2	.104
HONEST	2.953	2	.228
INSPIRES	2.800	2	.247
BIGPICTU	6.386	2	.041

a Kruskal Wallis Test

b Grouping Variable: TRITIME

APPENDIX F

Comparisons between Locations in the ranking of the order of importance

	Location	N	Mean Rank
PROACTIV	Leeming	10	11.70
	Halton	10	17.90
	Innsworth	4	24.50
	Benson	9	18.56
	Total	33	
MOREBARE	Leeming	10	13.15
	Halton	10	21.50
	Innsworth	4	16.88
	Benson	9	16.33
	Total	33	
STRIVES	Leeming	10	18.35
	Halton	10	18.45
	Innsworth	4	13.63
	Benson	9	15.39
	Total	33	
USEEXP	Leeming	10	19.85
	Halton	10	14.30
	Innsworth	4	12.50
	Benson	9	18.83
	Total	33	
REPSRAF	Leeming	10	19.55
	Halton	10	17.25
	Innsworth	4	10.25
	Benson	9	16.89
	Total	33	
STHCHAR	Leeming	10	18.25
	Halton	10	15.75
	Innsworth	4	13.63
	Benson	9	18.50
	Total	33	
PERDEVT	Leeming	10	18.30
	Halton	10	14.95
	Innsworth	4	13.63
	Benson	9	19.33
	Total	33	
GETSON	Leeming	10	16.30
	Halton	10	19.95
	Innsworth	4	17.88
	Benson	9	14.11
	Total	33	

	Location	N	Mean Rank
PUTSOUT	Leeming	10	19.15
	Halton	10	17.60
	Innsworth	4	10.63
	Benson	9	16.78
	Total	33	
ENCOUR	Leeming	10	19.75
	Halton	10	10.85
	Innsworth	4	24.50
	Benson	9	17.44
	Total	33	
INTERPER	Leeming	10	14.10
	Halton	10	17.40
	Innsworth	4	20.38
	Benson	9	18.28
	Total	33	
RESPECT	Leeming	10	17.95
	Halton	10	15.45
	Innsworth	4	19.25
	Benson	9	16.67
	Total	33	
COMMUN	Leeming	10	18.85
	Halton	10	14.40
	Innsworth	4	23.38
	Benson	9	15.00
	Total	33	
WORKSHAR	Leeming	10	15.45
	Halton	10	18.65
	Innsworth	4	19.38
	Benson	9	15.83
	Total	33	
ADAPFLEX	Leeming	10	18.10
	Halton	10	17.80
	Innsworth	4	9.75
	Benson	9	18.11
	Total	33	
GROUP	Leeming	10	16.45
	Halton	10	21.00
	Innsworth	4	8.38
	Benson	9	17.00
	Total	33	
RELIABLE	Leeming	10	17.60
	Halton	10	16.45
	Innsworth	4	20.13
	Benson	9	15.56
	Total	33	

	Location	N	Mean Rank
HONEST	Leeming	10	15.05
	Halton	10	17.90
	Innsworth	4	25.50
	Benson	9	14.39
	Total	33	
INSPIRES	Leeming	10	18.20
	Halton	10	15.30
	Innsworth	4	13.75
	Benson	9	19.00
	Total	33	
BIGPICTU	Leeming	10	18.60
	Halton	10	14.40
	Innsworth	4	20.25
	Benson	9	16.67
	Total	33	

Test Statistics(a,b)

	Chi-Square	df	Asymp. Sig.
PROACTIV	5.765	3	.124
MOREBARE	3.821	3	.281
STRIVES	1.166	3	.761
USEEXP	2.875	3	.411
REPSRAF	2.672	3	.445
STHCHAR	1.044	3	.791
PERDEVT	1.661	3	.646
GETSON	1.827	3	.609
PUTSOUT	2.290	3	.514
ENCOUR	7.349	3	.062
INTERPER	1.572	3	.666
RESPECT	.585	3	.900
COMMUN	3.234	3	.357
WORKSHAR	.926	3	.819
ADAPFLEX	2.607	3	.456
GROUP	5.042	3	.169
RELIABLE	.694	3	.875
HONEST	4.306	3	.230
INSPIRES	1.310	3	.727
BIGPICTU	1.471	3	.689

a Kruskal Wallis Test

b Grouping Variable: NOLOC2

APPENDIX G

Comparisons of mean scores for good, average and poor airmen for each desirable attributes

		Sum of Squares	df	Mean Square	F	Sig.
PROACTIV	Between Groups	92.218	2	46.109	82.791	.000
	Within Groups	54.022	97	.557		
	Total	146.240	99			
MOREBARE	Between Groups	89.589	2	44.795	79.116	.000
	Within Groups	54.921	97	.566		
	Total	144.510	99			
STRIVES	Between Groups	97.350	2	48.675	108.068	.000
	Within Groups	43.690	97	.450		
	Total	141.040	99			
USEEXP	Between Groups	52.638	2	26.319	35.157	.000
	Within Groups	71.867	96	.749		
	Total	124.505	98			
REPSRAF	Between Groups	71.337	2	35.669	40.968	.000
	Within Groups	84.453	97	.871		
	Total	155.790	99			
STHCHAR	Between Groups	72.263	2	36.131	47.417	.000
	Within Groups	73.152	96	.762		
	Total	145.414	98			
PERDEVT	Between Groups	18.949	2	9.475	9.187	.000
	Within Groups	99.010	96	1.031		
	Total	117.960	98			
GETSON	Between Groups	63.317	2	31.659	45.372	.000
	Within Groups	67.683	97	.698		
	Total	131.000	99			
PUTSOUT	Between Groups	69.220	2	34.610	47.304	.000
	Within Groups	70.970	97	.732		
	Total	140.190	99			
ENCOUR	Between Groups	88.313	2	44.156	66.035	.000
	Within Groups	62.188	93	.669		
	Total	150.500	95			
INTERPER	Between Groups	71.731	2	35.866	43.472	.000
	Within Groups	80.029	97	.825		
	Total	151.760	99			
RESPECT	Between Groups	46.349	2	23.175	23.502	.000
	Within Groups	95.651	97	.986		
	Total	142.000	99			

		Sum of Squares	df	Mean Square	F	Sig.
COMMUN	Between Groups	46.764	2	23.382	44.103	.000
	Within Groups	51.426	97	.530		
	Total	98.190	99			
WORKSHAR	Between Groups	70.880	2	35.440	60.995	.000
	Within Groups	56.360	97	.581		
	Total	127.240	99			
ADAPFLEX	Between Groups	81.001	2	40.500	71.742	.000
	Within Groups	54.759	97	.565		
	Total	135.760	99			
GROUP	Between Groups	18.657	2	9.329	8.219	.001
	Within Groups	110.093	97	1.135		
	Total	128.750	99			
RELIABLE	Between Groups	74.498	2	37.249	51.987	.000
	Within Groups	69.502	97	.717		
	Total	144.000	99			
HONEST	Between Groups	25.643	2	12.822	14.077	.000
	Within Groups	86.530	95	.911		
	Total	112.173	97			
INSPIRES	Between Groups	98.107	2	49.054	73.205	.000
	Within Groups	63.658	95	.670		
	Total	161.765	97			
BIGPICTU	Between Groups	69.714	2	34.857	54.537	.000
	Within Groups	61.996	97	.639		
	Total	131.710	99			

Multiple Comparisons

Tukey HSD

Dependent Variable (I) (J)			Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
PROACTIV	Good	average	1.36(*)	.184	.000	.93	1.80
		poor	2.34(*)	.182	.000	1.90	2.77
	average	Good	-1.36(*)	.184	.000	-1.80	-.93
		poor	.97(*)	.182	.000	.54	1.41
	poor	Good	-2.34(*)	.182	.000	-2.77	-1.90
		average	-.97(*)	.182	.000	-1.41	-.54
MOREBARE	Good	average	1.09(*)	.185	.000	.65	1.53
		poor	2.31(*)	.184	.000	1.87	2.75
	average	Good	-1.09(*)	.185	.000	-1.53	-.65
		poor	1.22(*)	.184	.000	.78	1.66
	poor	Good	-2.31(*)	.184	.000	-2.75	-1.87
		average	-1.22(*)	.184	.000	-1.66	-.78
STRIVES	Good	average	1.09(*)	.165	.000	.70	1.48
		poor	2.41(*)	.164	.000	2.02	2.80
	average	Good	-1.09(*)	.165	.000	-1.48	-.70
		poor	1.32(*)	.164	.000	.93	1.71
	poor	Good	-2.41(*)	.164	.000	-2.80	-2.02
		average	-1.32(*)	.164	.000	-1.71	-.93
USEEXP	Good	average	.72(*)	.215	.003	.21	1.23
		poor	1.76(*)	.211	.000	1.26	2.27
	average	Good	-.72(*)	.215	.003	-1.23	-.21
		poor	1.04(*)	.213	.000	.53	1.55
	poor	Good	-1.76(*)	.211	.000	-2.27	-1.26
		average	-1.04(*)	.213	.000	-1.55	-.53
REPSRAF	Good	average	.76(*)	.230	.004	.21	1.30
		poor	2.04(*)	.228	.000	1.50	2.58
	average	Good	-.76(*)	.230	.004	-1.30	-.21
		poor	1.28(*)	.228	.000	.74	1.82
	poor	Good	-2.04(*)	.228	.000	-2.58	-1.50
		average	-1.28(*)	.228	.000	-1.82	-.74
STHCHAR	Good	average	1.12(*)	.215	.000	.61	1.63
		poor	2.09(*)	.215	.000	1.58	2.60
	average	Good	-1.12(*)	.215	.000	-1.63	-.61
		poor	.97(*)	.215	.000	.46	1.48
	poor	Good	-2.09(*)	.215	.000	-2.60	-1.58
		average	-.97(*)	.215	.000	-1.48	-.46
PERDEVT	Good	average	.78(*)	.252	.008	.18	1.38
		poor	1.03(*)	.250	.000	.44	1.63
	average	Good	-.78(*)	.252	.008	-1.38	-.18
		poor	.26	.248	.550	-.33	.85
	poor	Good	-1.03(*)	.250	.000	-1.63	-.44
		average	-.26	.248	.550	-.85	.33

Dependent Variable (I) (J)			Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ETSON	Good	average	.73(*)	.206	.002	.24	1.22
		poor	1.92(*)	.204	.000	1.44	2.41
	average	Good	-.73(*)	.206	.002	-1.22	-.24
		poor	1.20(*)	.204	.000	.71	1.68
	poor	Good	-1.92(*)	.204	.000	-2.41	-1.44
		average	-1.20(*)	.204	.000	-1.68	-.71
PUTSOUT	Good	average	.70(*)	.211	.004	.20	1.20
		poor	2.00(*)	.209	.000	1.50	2.50
	average	Good	-.70(*)	.211	.004	-1.20	-.20
		poor	1.30(*)	.209	.000	.81	1.80
	poor	Good	-2.00(*)	.209	.000	-2.50	-1.50
		average	-1.30(*)	.209	.000	-1.80	-.81
ENCOUR	Good	average	1.31(*)	.204	.000	.83	1.80
		poor	2.34(*)	.204	.000	1.86	2.83
	average	Good	-1.31(*)	.204	.000	-1.80	-.83
		poor	1.03(*)	.204	.000	.54	1.52
	poor	Good	-2.34(*)	.204	.000	-2.83	-1.86
		average	-1.03(*)	.204	.000	-1.52	-.54
INTERPER	Good	average	1.03(*)	.224	.000	.50	1.56
		poor	2.07(*)	.222	.000	1.54	2.60
	average	Good	-1.03(*)	.224	.000	-1.56	-.50
		poor	1.04(*)	.222	.000	.51	1.57
	poor	Good	-2.07(*)	.222	.000	-2.60	-1.54
		average	-1.04(*)	.222	.000	-1.57	-.51
RESPECT	Good	average	.42	.244	.197	-.16	1.01
		poor	1.60(*)	.243	.000	1.02	2.18
	average	Good	-.42	.244	.197	-1.01	.16
		poor	1.18(*)	.243	.000	.60	1.76
	poor	Good	-1.60(*)	.243	.000	-2.18	-1.02
		average	-1.18(*)	.243	.000	-1.76	-.60
COMMUN	Good	average	1.00(*)	.179	.000	.57	1.43
		poor	1.66(*)	.178	.000	1.24	2.08
	average	Good	-1.00(*)	.179	.000	-1.43	-.57
		poor	.66(*)	.178	.001	.24	1.08
	poor	Good	-1.66(*)	.178	.000	-2.08	-1.24
		average	-.66(*)	.178	.001	-1.08	-.24
WORKSHAR	Good	average	1.15(*)	.188	.000	.70	1.60
		poor	2.05(*)	.186	.000	1.61	2.50
	average	Good	-1.15(*)	.188	.000	-1.60	-.70
		poor	.90(*)	.186	.000	.46	1.35
	poor	Good	-2.05(*)	.186	.000	-2.50	-1.61
		average	-.90(*)	.186	.000	-1.35	-.46

Dependent Variable (I) (J)			Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ADAPFLEX	Good	average	.91(*)	.185	.000	.47	1.35
		poor	2.19(*)	.184	.000	1.75	2.62
	average	Good	-.91(*)	.185	.000	-1.35	-.47
		poor	1.28(*)	.184	.000	.84	1.72
		Good	-2.19(*)	.184	.000	-2.62	-1.75
GROUP	Good	average	-1.28(*)	.184	.000	-1.72	-.84
		poor	.52	.262	.127	-.11	1.14
	average	Good	1.06(*)	.260	.000	.44	1.67
		poor	-.52	.262	.127	-1.14	.11
		Good	.54	.260	.100	-.08	1.16
RELIABLE	Good	average	-1.06(*)	.260	.000	-1.67	-.44
		poor	-.54	.260	.100	-1.16	.08
	average	Good	.76(*)	.208	.001	.26	1.25
		poor	2.08(*)	.207	.000	1.59	2.57
		Good	-.76(*)	.208	.001	-1.25	-.26
HONEST	Good	average	1.32(*)	.207	.000	.83	1.82
		poor	-2.08(*)	.207	.000	-2.57	-1.59
	average	Good	-1.32(*)	.207	.000	-1.82	-.83
		poor	.27	.235	.479	-.29	.83
		Good	1.20(*)	.237	.000	.64	1.76
INSPIRES	Good	average	-.27	.235	.479	-.83	.29
		poor	.93(*)	.237	.000	.36	1.49
	average	Good	-1.20(*)	.237	.000	-1.76	-.64
		poor	-.93(*)	.237	.000	-1.49	-.36
		Good	1.38(*)	.205	.000	.89	1.86
BIGPICTU	Good	average	2.44(*)	.202	.000	1.96	2.92
		poor	-1.38(*)	.205	.000	-1.86	-.89
	average	Good	1.06(*)	.202	.000	.58	1.54
		poor	-2.44(*)	.202	.000	-2.92	-1.96
		Good	-1.06(*)	.202	.000	-1.54	-.58
BIGPICTU	Good	average	.94(*)	.197	.000	.47	1.41
		poor	2.04(*)	.195	.000	1.57	2.50
	average	Good	-.94(*)	.197	.000	-1.41	-.47
		poor	1.10(*)	.195	.000	.63	1.56
		Good	-2.04(*)	.195	.000	-2.50	-1.57
BIGPICTU	Good	average	-1.10(*)	.195	.000	-1.56	-.63
		poor	1.10(*)	.195	.000	.63	1.56
	average	Good	-2.04(*)	.195	.000	-2.50	-1.57
		poor	1.10(*)	.195	.000	.63	1.56
		Good	-2.04(*)	.195	.000	-2.50	-1.57

* The mean difference is significant at the .05 level.

APPENDIX H **THE BEHAVIOUR MEASURING INSTRUMENT**

NAME..... Service Number.....

TRADE

	Always	Frequently	Sometimes	Rarely	Never	No Opportunity
Is Pro-active (Comes up with clear well thought out ideas and suggestions)						
Does more than the bare minimum - does over and above what is asked						
Strives to ensure work is always completed to a high standard						
Utilises experience, training and opportunities for personal development for the benefit of RAF						
Represents the RAF in a positive manner						
Displays strength of character						
Shows commitment to the RAF						
Gets on with the task in hand appropriately overcoming obstacles						
Puts themselves out for the benefit of others/RAF						
Encourages, develops and utilises the skills of others						
Uses good interpersonal skills						
Shows respect						
Communicates Effectively						
Works Hard						
Is adaptable and flexible						
Takes an active role in group activities						
Is reliable						
Is honest						
Inspires and motivates self and others						
Considers all available information before making decisions						

APPENDIX H **THE BEHAVIOUR MEASURING INSTRUMENT**

Name.....

No of weeks on course.....

Examples of behaviours shown

Examples where there were opportunities to show behaviour but different behaviour was shown

Trainees Comments

Action Plan

Assessors Signature:
 Date:

Trainees Signature:
 Date:

APPENDIX H
THE BEHAVIOUR MEASURING INSTRUMENT

TERMS		
5	Always	Displays the behaviour whenever has the opportunity to do so
4	Frequently	Will display the behaviour more often than not, when has the opportunity to do so
3	Sometimes	Will display the behaviour as many times as will not when has the opportunity to do so
2	Rarely	More often does not display the behaviour when has the opportunity to do so
1	Never	Will not ever display the behaviour given the opportunity
0	No Opportunity	Has never had the opportunity to display the behaviour

APPENDIX H

THE BEHAVIOUR MEASURING INSTRUMENT

Is Pro-active (Comes up with clear well thought out ideas and suggestions)

Identify and resolve potential problems
 Will explore every avenue to enable them to complete task
 Will know where to find answers to problems/questions/makes an effort to find out
 Plans ahead/anticipates requirements
 Takes positive action/is proactive
 Able to think laterally/look at all angles
 Improvise and sort things out for themselves/think for themselves
 Can learn new skills without training
 Progress tasks logically
 Tempers enthusiasm with practicality
 Formulates plans and ideas quickly
 Doesn't accept things uncritically
 Can flex from topic to topic quickly
 Does research about topic
 Able to prioritise tasks
 Research something in order to find the answer

Does more than the bare minimum - does over and above what is asked

Will volunteer/look for extra work when task is completed
 Volunteers for unpleasant jobs
 Does more than the bare minimum (ie does implicit tasks) without being told
 Will cover for others duties

Strives to ensure work is always completed to a high standard

Consistently ensures work is completed to a high standard and on time
 Meticulous and thorough/pays attention to detail
 Follows instructions does what is asked/gets it right first time
 Uses good working practices
 Looks after tools and equipment
 Working area is kept clean
 Sound grasp of fundamentals of most equipment
 Has respect for consequences of error
 Will do job again (or get others to) if not up to standard
 Want to make a difference for the trade/unit
 Does not cut corners
 Works to best of ability

APPENDIX H

THE BEHAVIOUR MEASURING INSTRUMENT

Utilises experience, training and opportunities for personal development for the benefit of RAF

Recognises and uses own abilities/strengths/experience/knowledge/limitations
 Learns from and applies previous experience/learning
 Know when appropriate to say yes and no
 Wants to get more out of what doing
 Learns new skills (improves themselves/attends courses) to keep up with changing environment Will attempt new things
 Willing to learn from others experience
 Joins relevant trade organisation
 Passes tests/exams Does trade training to high standard
 Will take criticism/advice and improve as a result (does not sulk)
 Want to be the best/in front

Represents the RAF in a positive manner

Accepts responsibility for own actions and effects on others
 Isn't disruptive
 Good standard of dress and appearance (clean & ironed uniform, polished shoes hair cut, shaved moustache trimmed etc)
 Does not complain/whinge
 Sticks to standards/regulations/is disciplined BTRs
 Good conduct
 Has an all round interest in RAF want to learn about it
 Understand the need to represent the service well
 Good bearing
 Carries self well, good deportment in and out of uniform
 Good personal hygiene
 Wears appropriate clothes for functions
 Ceremonial Kit is kept impeccable
 Talks about the service positively
 Sets a good example
 Proud of job/to serve

Displays Strength of Character

Is not led by the crowd
 Confident to approach/talk to others regardless of rank
 Will ask questions to clarify understanding or seek advice or ask for help
 Body language (eye contact, upright)
 Will admit when wrong/can't do something
 Forthright – will tell you what they really think/feel even if to own disadvantage
 Will give same opinion irrespective of the rank asking the question
 Will tell others if see something that is wrong
 Will take the lead or stand back as appropriate
 Will show justifiable loyalty for colleagues
 Has the mental strength to be tough if necessary
 Takes responsibility for own mistakes
 Does not seek approval or praise
 Pushes on in the face of adversity
 Shows moral courage

APPENDIX H

THE BEHAVIOUR MEASURING INSTRUMENT

Shows commitment to the RAF

Signs up for further service in order to pursue RAF career
 Committed to RAF and wants to succeed get promotion, good reports etc
 Develops self to fit into the rank they want to be
 Keeps up to date with current information
 Gives a clear understanding of what they want to achieve in the RAF
 Shows ambition for a career in the RAF
 Seeks promotion
 Wants a commission/attends commissioning clubs

Gets on with the task in hand appropriately overcoming obstacles

Puts problems behind him and focuses on team and getting job done
 Will deliver on any given task
 Sees the good things in life
 Stick together even if don't want to be there
 Is enthusiastic about any task
 Accepts decisions without complaining
 Immediate reaction to a request is I can do it
 Gets on with job/task and completes it without reminding (regardless of obstacles)
 Maintains perspective

Puts themselves out for the benefit of others

Gives up own time/put themselves out for the benefit of RAF/others
 Subordinates own interests for those of the team/RAF
 Goes where sent and does what is required in support of RAF, even if detrimental to personal commitments
 Can call on them at any time
 Willing to help/offers help when needed
 Helps others when finished own work

Encourages, develops and Utilizes the skills of others

Teaches, encourages or helps others
 Understands and uses attributes of others in the team
 Involves everyone in activities
 Has an interest in what everyone else is doing
 Able to show others how to do something
 Uses criticism constructively

APPENDIX H

THE BEHAVIOUR MEASURING INSTRUMENT

Uses good interpersonal skills

Good social interaction
 Asks if others are ok/ shows concern for fellow work mates
 Friendly & polite to everyone, (smiles, gets up to greet you, body language)
 Shows tolerance and restraint towards others
 Responsive to others
 Deals with people without upsetting them
 Outgoing
 Listens to and considers others; ideas, opinions, problems etc
 Appears happy and smiling
 Relates to people in order to get info from them

Shows respect

Respects others private space eg no loud music etc
 Respects others
 Does not have or show personal biases
 Knows not to cross rank line
 Don't talk about others behind their backs
 Stands up when senior ranks enter the room
 Will use title ('Sir/Sergeant') appropriately
 Knocks on the door of seniors
 Respects Age
 Uses salute appropriately
 Accepts boundaries set by RTS even if doesn't agree
 Considers other people
 Able to live together in the mess

Communicates effectively

Uses the spoken word well
 Can present information logically, cohesively, fluidly and accurately/take complex ideas and express them simply
 Gets people talking
 Consults others
 Keeps bosses informed

Works Hard

Carries out mundane tasks happily
 Is always busy
 Give maximum effort with minimum encouragement
 Can talk and work at the same time
 Finishes work quickly/produces a lot of work
 NAFFI breaks not too long or too many

Is adaptable/flexible

Can do tasks outside of usual work/routine/training
 Can absorb changes in routine
 Shows flexibility
 Flexible approach to the rules

APPENDIX H

THE BEHAVIOUR MEASURING INSTRUMENT

Takes an active role in group activities

Gets involved with discussions/decision making
 Socially interacts with Flight
 Shares (disseminates) information, ideas, knowledge, opinions
 Prepared to get hands dirty

Is reliable

Turns up in right place on time/early with all correct equipment
 If they say they will do something it will be done
 Will work without supervision
 Will maintain a confidence
 Is aware of what others expect of them
 Fulfils responsibilities - admin, domestic, technical etc.
 Adhere to values own and others
 Appropriate use of chain of command

Is honest

Can believe what they say/always tells the truth
 If finds lost property hands it in
 Will let others know if they have a personal problem
 Will tell the full story with no hidden facts

Inspires and motivates self and others

Organises/ coordinates self and others
 Can motivate self and others
 Gains respect from others/ instills confidence in others (others will go to them when a problem needs solving)
 Has a strong presence vs invisible personality
 Even when don't want to do something will lead others with enthusiasm
 Tell others which jobs to do

Considers all available information when making decisions

Has a knowledge of what is going on in the world
 Understands the responsibility of rank
 Listens to, and is aware of what is going on around them
 Aware of broader picture
 Considers problems and what can and can't be done/thinks about implications/bigger picture
 Thinks things through to avoid pitfalls