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An exploration of work dimensions in the Western Australian public service: A factor analysis of job skills and their contexts

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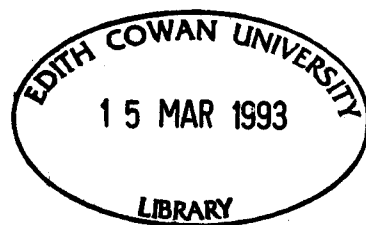
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ABSTRACT

The dimensions underlying the structure of work in the Western Australian public sector were analysed and compared with the structure of work as ascertained by Functional Job Analysis and the Position Analysis Questionnaire. A questionnaire was developed by the Skills Resource Management Unit to determine the importance attached to work skills in a variety of public sector occupations. One hundred and ninety four subjects of mixed gender were randomly selected from public sector agencies and were surveyed through workshops. Results were subjected to exploratory factor analyses. Confirmatory factor analysis then investigated the fit of the data to the following contradictory hypotheses as to the structure of work in the public sector. The dimensionality of work resembles three dimensions: *Working with People, Working With Information*, and, *Using Machines and Equipment* as based on Sydney Fine's (1971) factors, Data, People and Things. The dimensionality of work resembles six dimensions: *Information Input, Mental Processes, Work Output, Relationships with Other People, Job Context*, and *Other Job Characteristics* as based on an information processing model by McCormick, Jeanneret, & Mecham (1972). Results indicated that the structure of work fitted neither model well. However it approximated Fine's (1971) model more closely than the PAQ model. Implications of ascertaining a structure of work in the public sector and future research prospects were suggested.

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Declaration

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signature

Date _Feb 16, 1993_

Table of Contents

Abstract

Declaration

Acknowledgement

List of Tables

Chapters

CHAPTER 1

Introduction

Bemis, Belenky, & Soder (1983) note that the cost of employment of human resources frequently represents eighty to ninety percent of organisational budgets. The survival of these organisations is dependent on their cost effective, flexible and productive use of human and material resources to achieve their goals. Peters and Waterman (1984) and Kantor (1985) have emphasised that 'excellent' and 'productive' organizations recognise the paramount value of the contributions of people through the recognition and use of their skills, knowledge and attitudes. The use of dimensional information about jobs is critical for efficient operation and productivity of organisations as well as the well-being of employees (Ghorpade and Atchison, 1980). McIntosh (1990) confirms job analytic processes as essential parts of effective human resource management by reporting that of the thirty six productive organisations surveyed, twenty nine recognised that job analysis in human resource management increased their companies' performance.

Ghorpade (1988, p. 2) has defined job analysis as "a managerial activity ... directed at gathering, analyzing, and synthesizing information about jobs, ... for organizational planning and design, human resource management and other managerial functions." Job analyses provide lists of job behaviours across many jobs, which may be analysed to form a few job dimensions underlying the structure of work. Job dimensions are often used to describe job families. These provide useful information for recruitment, selection, promotion, transfer, compensation, and training

1

decisions (Pearlman, 1980).

Job analysis provides a foundation for many practical and theoretical efforts in human resource management (Campbell, 1989; Fleishman & Mumford, 1991). In Western Australia, the Public Service Commission has stated that implementation of a new skills oriented competency-based job-analytic process would eventually lead to a more efficient, effective, equitable and rewarding work environment for employees. There would be establishment of recruitment, training, and promotion criteria, mobility, career planning, skills audits, performance management, trainer-training and appeals procedures based on new job analytic processes (SRM, 1991).

Uses of job analyses in the theoretical literature include job descriptions, job design, job classifications, job evaluation, personnel selection, training, career planning, performance appraisal and resource planning. Each of these uses will be described in Section 2.

Statement of Problem and Purpose of the Study

Ascertaining job dimensions may be undertaken through many job analytic techniques. These job analytic approaches are categorised by Cornelius, Carron and Collins (1979) as job or task oriented, worker-oriented, and attribute or ability requirements. Job-oriented classification is a process which classifies job content through units of work activities, often grouped into task families. Instruments, however, tend to be specific to individual jobs. In worker-oriented and ability-oriented ap-

proaches, the underlying theory asserts that there is an common structure underlying the domain of human work which may be represented in a few units or dimensions across jobs. These latent dimensions provide a way to develop questionnaires which represent jobs completely and which enable a comparison of tasks performed across a range of jobs.

Perhaps the most widely disseminated work-oriented job analytic methods are Functional Job Analysis and the Position Analysis Questionnaire. Functional Job Analysis possesses three Worker Function Scales with skills ranked hierarchically from specific functions to broad functions for *Data, People* and *Things*. The PAQ is based on a standardised inventory which described work related elements that characterise human behaviours involved in jobs. The theoretical framework uniting these job elements from the PAQ was the 'information processing' paradigm, or, in more operational terms, *information input, mediation processes, output, interpersonal relations associated with work, the job context*, and *miscellaneous work aspects*.

Three difficulties are inherent in the worker-oriented approach. Firstly, work is often categorised into two distinctive streams; managerial and worker. Unfortunately, difficulties have been found in identifying dimensions which describe jobs across all levels, managerial, as well as worker. The distinctive nature of managerial work fails to be recognised by researchers who have failed to develop job analysis instruments ranging across both lower and upper salary categories. Advantages of ascertaining general work dimensions across managerial and lower levels include reducing the distance between salary levels, and permitting

employees to develop and demonstrate skills which have traditionally been restricted to management. Secondly, reading difficulties with some of the worker job analytic questionnaires have emphasised the specificity of these questionnaires occupationally, geographically and culturally and the need to develop questionnaires using the skills, language and examples specific to cultural groups. Thirdly, many job analytic processes have focussed on the private sector as opposed to the public sector. Private industry is frequently perceived as differing from public sector employment in being more concerned with output than with process.

The goals of this research are two. One goal is to explore the dimensions of work underlying public sector jobs in Western Australia. The second goal is to compare these dimensions with work dimensions suggested by two theoretical models, functional job analysis and the PAQ. To achieve these goals, an instrument has been developed to ascertain work skills in West Australia by the Public Service Commission. The instrument analyses the skills used in the public sector and the contexts or circumstances in which these skills are used. The language of public sector employees ascertained from workshops was used to make the questionnaire more readily readable and familiar to public sector workers.

Research Questions

Worker-oriented instruments such as the Position Analysis Questionnaire (PAQ) or the Job Element Inventory (JEI) being used in American industries have suggested different dimensions in the structure of work. The structure of the PAQ suggested that the structure of work was

4

based on the information processing model. Job dimensions were related to *information input, mediation processes* and *information output*. This approach contrasts with the *Data, People* and *Things* dimensions found in Functional Job Analysis.

By exploring the underlying structure of work across the public sector, the ascertained work dimensions were tested against specific theoretical hypotheses relating to the structure of work. Through confirmatory analyses, comparisons of work dimensions will contribute to theory related to the structure of work and will investigate the construct validity of the new instrument.

In the following review, the broader context of job analysis has been summarised under the headings of uses, examples and categorisation of job analyses. An examination of job analytic worker-oriented instruments was undertaken for work. Information was then provided on the Skills Resource Management project, and the process used to develop a questionnaire to explore the structure of work.

CHAPTER 2

Review of the Literature

General Literature: Applications and Examples

Many claims have been made for the indispensability of job analysis processes in organisational psychology for generating summary descriptions of job behaviours (Bemis, Belenky, & Soder, 1983). Zerga (1934, cited in Prien, 1977) has listed over twenty different uses for job analysis. Some theoretical reasons given for the contributions of job analysis are outlined using the cyclical stages of the human resource management model suggested by Bemis, Belenky, & Soder (1983): job descriptions, job design, job classifications, job evaluation, personnel selection, training, career planning, performance appraisal and resource planning. Examples are also given of instruments designed to accomplish these purposes.

Job descriptions emerge from job analysis. Effective, relevant job descriptions are brief, cogent statements of importance of each job in an organisation, the responsibilities and duties of the job for job applicants, and criteria for success in a job (Busi, 1990; Mona, 1991; Ungerson, 1983). Such information is useful for setting priorities for recruitment and selection of personnel. The processes provide information on tasks involved in work and skills required by employees to perform these tasks (Ungerson, 1983).

Job design is based on job analysis. As organizations change, new needs emerge and existing needs diminish. Productivity, morale, satisfaction

6

and the quality of work experiences of organisational employees may be improved by job analysis and redesigning jobs (Hackman, 1980). Jobs design involves identifying a match of employees' attributes and skills, a productive work environment, and changing organizational needs (Crystal and Deems, 1983; Charters, 1984). Campion and Thayer (1985) report a taxonomy of job design approaches, including a motivational approach from organisational psychology (Hackman & Oldham, 1976), a mechanistic approach from classic industrial engineering, a biological approach from work physiology and biomechanics, and a perceptual/motor approach from experimental psychology. Motivational jobs have satisfied, motivated workers, who perform well and demonstrate reduced absenteeism. Well designed mechanistic jobs have efficient employees, with acceptable use of equipment and training requirements. Well designed jobs using the biological approach require reduced effort, with infrequent aches and pains, and reduced injuries. Well designed jobs using the Perceptual/Motor approach have workers who were less likely to suffer accidents, errors, stress, or overload.

Numerous instruments using job analysis exist to aid job design. The Multimethod Job Design Questionnaire (MJDQ) was developed by Campion and Thayer (1985). It analyses jobs using the four approaches as described above. Through job analysis Hackman and Oldham (1976) produced the well known Job Diagnostic Survey (JDS) which ascertains job characteristics and their relations to feelings of intrinsic job satisfaction on five dimensions. A companion instrument the Job Rating Form for managers has also been developed. The aggregate measure, Motivation Potential is derived from the psychological states meaningfulness, responsibility and knowledge of results. These, in turn, derive from

measurement of growth satisfaction, job significance, skill variety, task identity, autonomy, and feedback (Hackman & Oldham, 1976).

Job classifications result from job analysis. The magnitude of the tasks performed by employees requires management to use some method to simplify the morass of descriptions detailing numerous work activities. For instance, the   Australian Census Classification of Occupations showed the variation in worker traits across the 21,741 occupations (Broom, Jones, Jones and McDonnell, 1977; Miller, 1980; Cain & Green, 1983). Simplification of this mass of data is accomplished by adopting classification systems structured to identify equivalent tasks across jobs under the headings of broad categories. Job classifications often group jobs into clusters based on generic skills, such as identified by Smith (1979a, 1979b, 1979c), used in job elements and job tasks. Through classification, categories rather than entities may be seen as subject to laws for purposes of description, prediction and understanding (Fleishman & Mumford, 1991).

Robust classification is essential for managing personnel processes of selection, placement and training. Trainers often use job classification to identify job or trade families rather than occupations as a focus for development of generic vocational skills (Smith, 1979). The information is important for ascertaining curriculum and the job requirements and skills needed for lateral and vertical career movement of employees.

Job evaluation is a measurement of an equitable pay structure according to the job's worth to the organisation and involves determining job

8

hierarchy and relative wages for this hierarchy according to labour market wage rates (Jeanneret, 1980). It is a process subject to manipulation and deceit to reduce salary levels (Kaupins, 1989). Pay equity legislation is requiring that objectivity and accuracy be increased by job analysis (Greene, 1990). Job analysis provides a description of common work behaviours or job factors which possess universal dimensions of work. Once the work behaviours are measured, their pay scales are ascertained using such traditional criteria as skills, effort, responsibility and working conditions (Conklin 1989). From job analysis, work behaviours or job factors are listed, prioritized and allocated evaluation points to set wage equity and to match salaries with external benchmark job rates.

Vocational or occupational choice is assisted by job analysis. By identifying skills and human characteristics through job analysis, students may be exposed to broad occupational job families, as an aid in making vocational choices (Smith, 1979). Numerous instruments based on job analysis have been developed to aid in occupational decision making.

Personnel selection and placement, the process of matching people to jobs, also requires job analysis to ascertain job requirements and personal characteristics and qualifications (Rouleau & Krain, 1975; Guinn, 1988; Miller, 1986). Job selection is the process of locating the person best able to perform a job, while placement determines the best choice of jobs for the individual. Poor employee selection or placement is a cause of lowered productivity.

Training involves providing people with skills to assist them in aiding

9

organisational goals. A job analysis determines the skills which are needed for the job in comparison with the skills possessed by the employee (Goldstein, 1986; Campbell, 1985; Freda & Loolioan, 1977). For instance, Zuga and Lindstrom (1989) have analysed generic skills needed for work through job analyses, and grouped the skills into these categories: *self-education, functional literacy, oral communication, adaptability, personal management, group effectiveness,* and *influence.* Such generic skills lists reflect the recent key competencies of the Australian Finn and Mayer Reports (1992). They provide a basis for curriculum design for training.

DeNisi (1977), Smith (1979) and the PAQ (1991b) recommend clustering jobs and identifying requirements common to a number of jobs. Then a training program may be structured to enable the person to transfer knowledge in these common areas from job to job. Thus, it is feasible to train for a career which gives access to a number of jobs at once.

Performance appraisal refers to the process of identifying the important job dimensions, and evaluating how well employees are functioning in their jobs in relationship to such appraisal criteria as the overall expectations, values, clear goals and measurable job objectives of an organisation (Brumback, 1988; Sahl, 1990; Blai, 1983). Job analysis provides data to construct performance criteria and to match the congruence of employee qualifications with job skill requirements for hiring, advancement and dismissal (Buford, Burkhalter, & Jacobs, 1988; Price & Graber, 1986).

Resource planning emerges from job analysis (Schmitt & Robertson,

1990). It allows setting long term strategies in place to meet personnel needs for the future, by assessing current personnel resources, and estimations for supply and demand. Actions taken to implement plans include recruitment, selection, training and career development. Job analysis documents existing jobs, and the knowledge, skills and attitudes of employees. This information is used as a basis to ascertain deficiencies and future needs.

Career planning is facilitated through job analysis (Goldstein, 1986). Often, some jobs are perceived as more prestigious than others. Job analysis reveals the characteristics of jobs which are highly regarded. This information may be used in designing 'career ladders' (PAQ, 1991b). Employees, by recognising their own skills, and by presenting these clearly in job applications, are more able to describe their possible contributions to the public sector. Thus they are more likely to be able to move laterally into varied, fulfilling and better paid jobs or upwards in the hierarchy.

Legal challenges using equal opportunity legislation is now requiring job analysis for the defense of decisions (Maurer & Fay, 1986). Feild and Holley (1982), Kanin-Lovers (1986) and Shaw (1990), reviewing American discrimination court cases, state that judges expect employees to be evaluated by explicit job-related rather than trait related criteria based on job analytic content which has been discussed with the employee. The American Equal Opportunity Employment Commission, for instance, prohibits discrimination against people with disabilities who can perform the *essential functions* of jobs to prevailing standards (PAQ, 1991). Job analysis is an important process in revealing the essential functions of a

job and for demonstrating that selection, promotion, transfer, merit, salary and promotion criteria are job related.

As demonstrated, job analysis is an essential process underlying human resource management. However, job analyses fail to provide all the information needed for personnel management, since single job analytic methods provide information for distinctive needs such as training or selection but not both. Standardised worker-oriented instruments such as the Position Analysis Questionnaire (PAQ) (McCormick, Jeanneret, & Mecham, 1972) or Functional Job Analysis (FJA) (Fine & Wiley, 1971) are better suited for job evaluation, and career planning while selection benefits from ability requirement scales (Fleishman & Mumford, 1991) or job or task-specific information such as the Critical Incident Technique (Flanagan, 1954). Training benefits from task analysis (Prien, 1977). No one method, however, has been shown to be best in all circumstances (Wright & Wexley, 1985; Levine, Ash, & Bennett, 1980; Fleishman & Mumford, 1991). Job analytic methods are recommended to be selected to fit specific applications (Levine, Ash & Bennett, 1980).

Literature on Methodology:

Job analysis is a complex operation because of the large number of facets in jobs which may be used to describe them and the vast range of jobs themselves. There has been a number of categories proposed for grouping job analytic methods with each approach stressing a different aspect of work (Prien, 1977; McCormick, 1979; Fleischman & Mumford, 1991; Bemis, Belenky, & Soder, 1983, Ghorpage, 1988)   Wright & Wexley

(1985) have shown that the range of job analytic techniques fall within two topologies.

The first ranges from gathering information about the job characteristics to gathering information about worker characteristics. The second ranges from gathering standardized numeric information to gathering position-specific information about the job or the worker. In job-oriented job analysis, job specific instruments are developed for distinctive jobs. Jobs are described in terms of the objective of each task such as 'fuel up tank' using a specific context which uses language applicable only to that task. Job-specific instruments proliferate as the number of jobs increase because the instruments are job-specific.

In contrast, the development of "worker-oriented" analysis has led to the creation of general systems which addresses activities which workers perform to obtain a task objective. This approach uses language cha-racterised by general or generic contexts such as "using a measuring instrument" or conditions which affect the worker such as "repetition." Thus a waitress 'listens to information from a client' in a worker-orient-ed approach and 'takes a food order from a customer' in a job-oriented approach. The worker-oriented activities span a broad range of jobs since skills such as 'listening to a client' are common to many human-oriented jobs. Similarities and differences among jobs are described in terms of processes that are common to all jobs and are not idiosyncratic to a single job. Task or the "job-oriented" approach gives more information about the specific work process in terms that workers understand and identify with. "Worker oriented" processes yield information about the worker in

general terms that are often unfamiliar with the worker, since the worker may not perceive the job in those terms.

Each method differs in use of language, the unit of analysis and the use made of the data provided by the analysis. The job oriented methods describes work in task specific terms unique to a job. This approach is specific in its job descriptions. Ability and worker oriented methods, in contrast, focus on the behaviours or characteristics of workers. These methods are termed generic since they may be applied to a range of jobs. Numeric approaches collect generic information from a large number of employees by using questionnaires. Position specific instruments use methods such as the critical incident technique to gather information unique to jobs. Each of the main three job analysis methods; job-oriented, ability oriented and worker-oriented job analyses, are summarised in the following sections.

Job-Oriented Methods

Job-oriented analyses are often subdivided into job inventories, task analyses and job descriptions. These categories fit a continuum from the provision of highly specific job-oriented information in inventories, to provision of broader less specific data in job descriptions.

The job inventory approach recommends that work be broken down into the specific operations being undertaken. Consequently, the information is tied to the technology of the job. Usually, checklists of tasks are generated in inventories with statements which are ticked if they are

performed by the worker (Schlenker, 1983). Youngman, Oxtoby, Monk, & Heywood, (1978) recommend that selected checklist items should represent and show relevance and reliability by identifying differences between jobs, identifying important areas in the job, and being unambiguous. Often the frequency or amount of time spent on each task is also reported. For instance, Campbell (1989) describes the process in his Job Analysis Schedule (JAS) which possesses a 'work performed' section which outlines what an employee does, how it is done and why, for each separate industrial task. In another example, Huettner (1988) has described job task system management, a task analytic technique, in American Federal Aviation Administration. The process involves an elaborate analysis of each specific task in a job, with related average time requirements, and measures of successful accomplishments. Bemis, Belenky, & Soder (1983) describe the US Department of Labour job analytic system that documented job specific information about job tasks for the *Dictionary of Occupational Titles* according to job content and worker traits under specific categories of *worker functions, work fields, machines, tools and equipment and work aids, materials, products, subject matter,* and *worker traits.* In another example, Wesson (1980) lists task analytic inventories for many occupations which list work activities, responsibilities, equipment, and products and services produced.

In methods studies, McCormick et al (1972) categories three types of industrial job analyses; operations charts, man and machine charts and micromotion studies. Each process is similar in its break up of an industrial activity into a detailed analysis of each step taken to complete a task such as demonstrated by Gershoni (1979) who conducted frame by frame

ergonomic analysis from a film to see how the distance of moves in an industrial task changed with experience. Work measurement studies are closely associated with method analyses but measure standard times taken for the completion of tasks.

Task description represents an alternative job-oriented approach to job analysis. Jobs are described in terms of identifiable units of activities. McCormick (1979) identifies tasks as being units of work directed towards a goal, having a beginning and end, involving interaction with people, information or things, and resulting in a product. The approach is based on the behavioural model 'SOR,' in which a stimulus acting on organism, brings about a response. Thus a worker discriminates stimuli, makes a decision, responds, and determines the adequacy of the response.

Statements of what is done in job oriented terms are usually grouped under broad category headings and are rated for involvement in tasks or opinions about tasks. Scales often used for involvement in tasks include the importance of the task to the job, the applicability of the task to the job, frequency of performance, and time spent (Ghorpage, 1988; McCormick, 1979). Some research into the appropriateness of different scales has reported the similarity and redundancy of the importance and time-spent scales suggesting the need for one but not both these scales (Wexley & Silverman, 1978; Friedman, 1990). Scales evaluating tasks often include degree of complexity, criticality, difficulty in learning the task, difficulty in performing the task, supervision required and satisfaction gained from task performance.

Task inventories are usually completed by experienced employees for their own jobs, but are sometimes completed by supervisors or analysts. There has been some research into the subject of bias in completion of job analyses with conflicting findings. Landry & Vasey (1991) have discovered bias in job analytic ratings caused by experience and gender of the supervisors. Silverman, Wexley and Johnson (1984) indicated that age and experience did not bias completion of six job analytic questionnaires by clerical workers. Mullins and Kimbrough (1988) have found that different groups of subject matter experts, chosen by educational level and seniority did reach different job analytic outcomes. In terms of analysing task inventories, Van Cleve (1975) has described the value of a widely used computer programme, the Comprehensive Occupational Data Analysis Programme (CODAP).

McCormick (1979) warns that the job analysis procedure is time consuming, and involves considerable work to gain an intermediate level of specificity in statements. Once inventories are developed for specific jobs, they are administered to employees using random sampling, and the gathered data is analysed statistically. The method is detailed and consequently is praised by Prien (1977) for providing information for job description, personnel selection and training. Nevertheless, the job-oriented description of the details of specific jobs, makes this job analytic approach unsuitable for undertaking comparisons across jobs.

Job descriptions represent a common job analysis approach (Ungerson, 1983). Traditionally, information for job analysis was usually qualitative (Grant, 1988). It consisted of narrative descriptions, gathered from job

17

incumbents and their supervisors through self-reporting by diaries or open ended questionnaires, standardised questionnaires or by observation and interviews conducted by trained personnel or subject matter experts (SME) (Ungerson, 1983).

Aho (1989) and Grant (1988) have summarised some of the deficits of these traditional job descriptions. Vague narrative job descriptions are said to be unhelpful in monitoring job performance or determining the relative worth of jobs to the organisation. Traditional job descriptions may be influenced by unmotivated employees and the ability of the incumbent to describe or distort the position in writing. They are time consuming to create and qualitative data is difficult to process. Job descriptions are said to lead to inflexible policies and rigidity in organisational structures (Aho, 1989). Rigid hierarchical structures based on detailed job descriptions have been accused of a lack the flexibility to respond to a rapidly changing environment. Murlis and Fitt (1991) feel that such traditional job evaluation approaches, although suitable for some organisations, are less suitable for project based businesses which may require flexible use of employee knowledge and skills and which change rapidly. Murlis and Fitt (1991, p. 43) assert that "organisations are increasingly finding it inappropriate to define jobs rigidly and select individuals to fit them...."

Some of the problems encountered with traditional job analysis listed by Murlis and Fitt (1991, p. 39) include support for "rigid hierarchical organisation and concepts of status" which may limit motivation, mobility and creativity. The process of traditional job evaluation sometimes tends to

perceive people as commodities who tend to be forced to fit into allocated positions. Consequently unique capabilities and skills of the employee may sometimes be overlooked, which may possibly lead to the departure of the most able employees. Curtain (1984) argues that traditional narrow functional job classifications of some organisations as compared with a more flexible approach are often associated with poorer quality of output, a tendency towards work force apathy, higher rates of absenteeism, increased labour turnover, and unacceptable accident levels. The use of skills in the workforce is perceived to be somewhat limited as is flexibility in applying new technology.

Ability-Oriented Methods

Job analysis, using the ability oriented approach, examines the abilities or inherent characteristics which workers carry to their employment rather than to particular job tasks. Fleishman (1967) and Fleishman and Mumford (1991) have been preeminent in their research into general abilities required for work. An ability is defined as an attribute explaining differences in task performance across many conditions. Examples of abilities include cognitive competencies such as deductive reasoning or performance attributes such as physical, psychomotor, sensory, or social skills. Fleishman (1967) argues that tasks completed by workers differ in their requirements for certain abilities. Tasks requiring similar abilities may be grouped together based on similarity in the needed abilities. A large number of different tasks may be grouped by a few parsimonious underlying ability categories.

By examining performance on many different tasks, Fleishman (1967) used factor analysis to define ability categories. He found eleven general psychomotor factors such as manual dexterity and nine physical proficiencies such as static strength that accounted for most of the variance.

Fleishman and Mumford (1991) located thirty seven cognitive abilities and additional abilities associated with sensory capacities, time sharing and divided attention, social skills, and interpersonal resources. Ability requirement ratings obtained from managers were grouped into three general performance dimensions; *information processing, cognitive abilities* and *interpersonal social skills*. Strategic planning involved information ordering, fluency of ideas and originality. Personnel supervision involved interpersonal skills including such abilities as social sensitivity, persuasion, persistence, behaviour flexibility, dependability, emotional stability and confidence. In total, fifty one abilities were located which form the Manual for Ability Requirement Scales.

Hogan, Ogden, and Fleishman (1978) have ascertained the reliability for civil service jobs of nineteen scales covering the cognitive, physical and psychomotor areas. Tasks were analysed for fifteen jobs, abilities were ascertained for each task and abilities were rated in importance. A reliable assessment around .9 was found for incumbent, supervisors and job analysts in their ratings of abilities associated with performance. Camara (1986) has found that ratings provided by incumbents, supervisors and experts were equivalent on sixty five of seventy ability-oriented instruments, suggesting that rating source for ability oriented instruments does not make a difference.

Hogan (1991) also substantiates the ability approach. Hogan (1991) reports that the structure of physical abilities was found to possess the components of strength, endurance, and movement quality. She reported that this structure appears to be independent of job type or level of incumbents' performance.

Fleishman and Mumford (1991) argue that inter-rater reliability, literature reviews, and expert judgments support the appropriateness of the ability domains and methods to assign tasks to ability categories. Construct validation is also asserted as a result of inferences being confirmed.

The advantages of the ability-oriented approach is that it suggests the personal prerequisites required for employment. This information is essential for selection of new employees. The approach is enhanced because it predicts similarities in requirements across a range in jobs. Nevertheless, the approach is inadequate for those jobs requiring specific training or requiring work behaviours.

Worker Oriented Methods

The focus of worker-oriented methods is to analyse jobs in terms of general worker behaviours or skills rather than the specific tasks performed or abilities necessary to accomplish work. For example, use of elements such as 'listening to information' refers to a multitude of jobs in contrast to statement such as 'taking food orders' for a waitress job. Worker-oriented and ability requirements research are similar since both

methods seek to discover the general dimensions which underlies all work and which may be common across many jobs. The worker-oriented approach is being increasingly accepted in human resource management since the 1970's.

Docking (1989) asserts that for the 1990s, managers need an approach to job analysis to maximise quality by increasing responsiveness and flexibility. "...Managers need to be able to quickly set up effective *ad hoc* structures, project specific work groups and task oriented teams that can be dismantled easily when their usefulness is finished and reformed in the best way to tackle the next situation when it arrives" (p. 2). Docking characterizes the more flexible systems as operating on a worker oriented job analytic approach. This approach applies job-analytic descriptors using skill verbs followed by the general context or circumstance in which the skill is performed.

The approach is receiving considerable praise in current management journals. Ludeman (1991, p. 67) asserts that behaviourally based job analyses which employ skills assessments often "foster genuine commitment and motivate people to grow.... Consistently skills assessments have accelerated people's learning, job performance, and professional development...." Lawler and Ledford (1985) report that a skills based job analytic approach tends to give employees a breadth of understanding and perspective of the organisation which may improve their problem solving ability, communicating ability, and commitment to organisational effectiveness. Recognition of skills through job analysis is said to reinforce participative management and may facilitate increased responsibili-

ty and self-management by employees. Job analysis employing skills assessments tends to preserve work security by focussing on the employees' skills which are recorded and recognized. Assignment of responsibilities is on the basis of skills, which are enhanced by training. Equal opportunity may be ensured by appeals to relevant skills and competencies. Salaries may be paid on the basis of skills (Lawler and Ledford, 1985). Financially, cost savings may often be made through a flatter organisational structure of flexible multi-skilled people, performing the tasks of a larger number of single skilled people.

There has been some research into the nature of skills in job analysis and the reasons for using skills as a basis for worker-oriented job analysis in human resource management (Hill, 1977). Common language usage suggests that skills are acts that create respect for a high level of expertise, are obtained after considerable practice, continue to improve with practice and are related to being able to perform an activity rather than having explicit knowledge about an activity. Skills are by nature automatic, unconscious or tacit and habitual in performance (Hill, 1977). They are among the more permanent of learnings. In contrast to knowledge which is specific, skills are generic, generalisable and of wide application (Cole, 1972). Skills in one area can easily be transferred to completing a job in another area. Skills can only be described in terms of the processes which they involve, that is, within a definite context. Numerous different skills are involved in the performance of an activity. Systems theorists such as Gagne (1974) perceive skills to be hierarchically organised, proceeding from skills to subskills which are themselves divisible. Increasing the complexity of a skill places the skill higher in the hierarchy and increases flexibility and degree of choice.

Berliner (cited in McCormick, 1979) has demonstrated the hierarchical nature of skills through a behaviourally based classification approach. He states forty seven specific behaviours expressed as action skill verbs which are then grouped into larger skill categories by a group of judges. For instance, *mediational processes* included information processing and problem solving and decision making. An analysis of skills hierarchies using structures such as Berliner's is essential for job analysis.

A skills hierarchical process is also used as part of a skills audit or review. This is a process used in the job analysis component of human resource management to assess required competencies of employees. Hayton (cited in Armstrong, 1991) has defined a skills audit as a systematic process to identify the workforce skills or competencies, their degree of use, and the comparison of such skills with the skill or competencies needed by industry. Curtain (1990) sees a skills review as a process of collecting and analyzing accurate, comprehensive and quantifiable information on the capabilities of an organization's workforce and how these skills can effectively be used in the future. Both definitions utilise a behaviourally oriented base by placing the focus on identifying the skills. However skills audits identify skills possessed by employees as contrasted with job analysis which identifies the skills needed for jobs. Both processes are required to match skills to jobs and to ascertain training needs.

Armstrong (1991) suggests that the origins of skills audits lies in the job analysis research conducted in the United States during the 1970's and 1980's. Aho (1989) has shown that focus on job design has led to the

development of numerous techniques for carrying out this function, each with their own champions. As Cunningham, Boese, Neeb and Pass (1983) note, these approaches have moved from collecting qualitative, descriptive job activity information to a systematic quantitative, taxonomic approach by the 1970s. Such taxonomies have focussed on exploring the theoretical rationale, principles or rules underlying the classification of work in order to identify the combination of work elements which occur in work dimensions.

The underlying theory asserts that there is a common structure or order underlying the domain of human work which may be represented in a few units or dimensions across jobs. These latent dimensions consist of a few discrete "building blocks" which may provide a way to develop questionnaires which may be used to represent most jobs completely and which enables a comparison of tasks performed in a range of jobs. Workers were measured as well as jobs, so that worker characteristics and job characteristics could be matched (Mecham, 1983). Numerical values were used to enable statistical analyses of data. The Uniform Guidelines On Job Selection Procedures has recognised this approach to job analysis by stating that job analytic information used for selection materials should clearly define underlying constructs or work dimensions (Ghorpage, 1988). "There should be a summary of the position of the construct in the psychological literature, ... a description of the way in which the definition and the measurement of the construct was developed, and the psychological theory underlying it. Any quantitative data which identify or define the job constructs such as factor analyses, should be provided" (p. 330).

The best known research studies produced taxonomic questionnaires or inventories of general applicability based on generic descriptions of behaviours of employees in a wide number of lower level positions in organisations (Dowell & Wexley, 1978; Krzystofiak, Newman & Anderson, 1979). Perhaps most widely disseminated job analytic instruments meeting these criteria were the methods demonstrated in Sydney Fine's functional job analysis (FJA), (Fine & Wiley, 1971) and McCormick's Position Analysis Questionnaire (PAQ) (McCormick, Jeanneret & Mecham, 1972; McCormick, 1977).

Functional Job Analysis

Fine and Wiley (1971) developed functional job analysis as an outcome of the US Department of Labour job analysis system which produced The Dictionary of Occupational Titles, a comprehensive description of twelve thousand jobs. This system although useful for career counselling and job categorisation was criticised for lacking sufficient job related information for employee selection and job design (Bemis, Belenky, & Soder, 1983).

FJA was a conceptual system for defining the dimensions of worker activity, an observational method and a method of measuring levels of worker activity (Fine & Wiley, 1971, p. 77)   Fine and Wiley's (1971) approach involves these components; identifying goals, identifying and describing tasks, analysing tasks, developing performance standards and developing training content.

26

The heart of the system is the statement of tasks, defined as "...an action ... grouped through time designed to contribute a specified end result to the accomplishment of an objective and for which functional levels and orientation can be reliably assigned" (Fine & Wiley, 1971, p. 9) A task is stated in clear operational statements using a "standardised controlled language" for purposes of selection, appraisal and training based on who, performs what action, to accomplish what result, with what tools, upon what instructions (Fine & Wiley, 1971, p. 13-14). An example of stating an interviewing task was: "The social worker *(who)* asks client questions, listens to responses, and writes answers *(performs what action)* on standard intake form, *(with what tools)* exercising leeway as to the sequence of questions, *(upon what instructions)* in order to record basic identifying information *(accomplish what result)*" (Fine & Wiley, 1971, p. 21). The statements include the Scale of Workers' Instructions for determining the degree of prescription versus discretionary judgment in task performance and performance standards stated descriptively or numerically.

With respect to tasks, Fine and Wiley (1971) assert that workers' tasks may be classified as related primarily to either *things, data* or *people* based on what workers do to get jobs completed. For each category things, data or people, workers function in different ways and use different terminology. There are only a few definitive functions involved in performing task functions, based on a restricted range of worker characteristics. For instance, physically, workers drive vehicles or feed, tend, or operate equipment. Functions are ranked hierarchically with the more complex functions including numerous simpler ones. Thus compiling is

more complex and includes copying but is less complex than analyzing. In addition, there is a hierarchy in prescription from low to high discretion as one moves from the least to more complex levels.

Fine and Wiley (1971) propose three Worker Function Scales with skills ranked hierarchically from specific functions to broad functions for Data, People and Things. In FJA, there are two measurement scales associated with the Worker Functional Scales. The relative complexity or simplicity of a task compared with other tasks when performed effectively is described as the *level*. The relative involvement of people with things, people or data is termed *orientation*. The orientation scale represents performance requirements and assigns for each task percentages representing the relative orientation of the task to each of the three functions *Data, People* or *Things* so the task scale totals one hundred percent. An example is rating an interviewing task as: data, copying, 50%; people, exchanging information, 40%; and things, handling, 10%.

In FJA, to facilitate what workers need to know to perform tasks, human performance is perceived as possessing three categories of skills required for training; adaptive, functional and specific content. Adaptive skills are competencies allowing employees to deal with conformity and change. Functional skills are competencies associated with an orientation to things, data or people. Content skills are competencies acquired from advanced training or experience needed to perform specific jobs. Skills are linked with worker qualifications, which are measured educationally using the Scales of General Educational Development.

Observers who write tasks are challenged to recognise functional in-

volvement by level and orientation, the prescribed versus discretionary nature of instructions, and adaptive, functional and content specific skills and methods to achieve standards. Seven ordinal scales are provided to meet functional, instructional and educational standards.

In summary, this approach focuses on what the worker does and the measurement of the level and orientation of what workers do. Although focussed on tasks, similar to job-oriented instruments, the worker-oriented nature of the system emerges from the belief in broad work dimensions underlying the structure of work. The authors assert that "a handful of significant patterns of behaviour (functions) ... describe how workers use themselves" (Fine and Wiley, 1971, p. 14). Secondly, there is the behavioural "Worker Function Scale" used to compare tasks using generic skills which apply to many jobs.

As a method of analysis, FJA assists in systems analysis to help in achieving goals. It also provides a basis for personnel selection through information on functions and use of specific ability tests associated with measuring these functions. Bemis, Belenky, & Soder (1983) praise FJA for providing job design, selection, and training in most occupations. They suggest that insufficient data is provided for job classification and job evaluation and the system has been criticised as slow. As Lynskey and Harvey (1989, cited in Lynskey, 1989) observe, the greatest weakness of the instrument is its failure to collect information on job contexts weakening the comprehensiveness of its description of work. In an analysis of seven job analytical methods, by ninety three job analysts on eleven organisational and eleven practical issues, Levine, Ash and Sis-

trunk (1983) rated FJA as highly effective on all eleven organisational purposes such as job description, classification, evaluation and design. This rating exceeded all other methods including the PAQ. The FJA was rated as highly effective on six of eleven practical considerations in contrast to the PAQ which received highly effective ratings on all eleven. These considerations included such items as amount of training required, and quality of outcome. The FJA approach was criticised for lack of standardization, expense, reduced reliability, substantial time consumption and unavailability of an off the shelf package.

Research studies into the reliability and construct validity of the FJA are few. This may be because of the lack of a formal company with job analytic instruments to promote the method such as has occurred with the PAQ. One example is represented by Schmitt and Fine (1983) who have found high interrater reliability of judgments concerning aptitude requirements of tasks using FJA scales in terms of both correlations and percent agreement.

Olson, Fine, Myers and Jennings (1981) have described an applied example of FJA for establishing performance standards for heavy equipment operators for setting training courses. Analyses began with the overall purpose, goals and objectives of heavy machine work and proceeded to examine each task in terms of what gets done and how it was accomplished. Tasks, defined as behaviours and their results, were listed by observation and interviews with subject matter experts and were rated with regard to worker function; (things, data, people) and general educational development; (reasoning, mathematics and language). Performance standards in terms of specific outputs and beha-

viours were then formulated for areas associated with data, people and things and test items were selected and validated. Factor analysis produced generalised work dimensions.

Position Analysis Questionnaire
Its Development and Structure

A second influential example of a worker-oriented approach is the Position Analysis Questionnaire (PAQ), developed by McCormick, Jeanneret and Mecham from earlier questionnaires used by the American airforce and steel industry in the 1960s (1972; McCormick, 1979, 1989; McPhail, 1991). Refinement to earlier works included development of "worker-oriented" questions, use of factor analytical techniques to group job activities, and development of "synthetic validity" or "job-component validity." Synthetic validity referred to making estimations about positions based on analysing characteristics of that position and the relationships between the position and variables to be predicted. The aptitude test score needed for the position is predicted based on the components of the position and similar positions researched previously.

Development of the PAQ occurred over four contracts with the United States Navy between 1962 and 1977. In the first contract the Checklist of Worker Activities was refined, factor analysed, and used for job evaluation (Cunningham, et al. 1983). A second contract in 1969 added an estimation of General Aptitude scores needed for various work dimensions (Mecham & McCormick, 1968, 1969). A third contract in 1974 estimated rates of pay for each work dimension and grouped positions

into 'families' by cluster analysis (Denisi & McCormick, 1974). The idea

of an inter-related personnel system using the PAQ was developed. This

system included estimating worker requirements for selection purposes,

estimating rates of pay for positions, (Robinson, Wahlstrom & Mecham,

1974) selecting standards for performance appraisal, and using similari-

ties between jobs as identified by the PAQ to plan career paths. A final

contract in 1977 calculated new factors from PAQ ratings, using a broad-

er and more representative sample of jobs. These factors, termed 'Form

B, or System II' are used to the present (McCormick, DeNisi & Shaw,

1977, 1978; Shaw, DeNisi & McCormick, 1977). A version of the PAQ

was designed for professional and managerial positions (Professional and

Managerial Position Questionnaire) (PMPQ) (Mitchell & McCormick, 1979;

1990).

Ghorpage (1988) summarises the advantages of the twenty eight page

PAQ scale as its comprehensiveness in covering work related behaviours

and in identifying the behaviour requirements of jobs. Gatewood and

Feild (1987) praise the method. "Of all the job analysis methods ...

perhaps none has the research base and breadth of application [as] does

the Position Analysis Questionnaire. Roughly 20 years of research have

established the PAQ as one of the leading 'off the shelf' prefabricated

measures of jobs currently available" (p. 209). A recent PAQ survey of

customers has found general satisfaction with this management system.

Eighty percent of the clients which were surveyed found that the PAQ

met their expectations in terms of costs, ease of use, ability to analyse

many jobs and research based validity. (PAQ, 1991a).

The PAQ is based on a standardised inventory which described every type of behaviour imposed on workers by the nature of work such as mental processes, work outputs, and tolerances for work conditions (Mecham, Undated). By analysing thousands of jobs, an examination was undertaken of the relationship of job elements with each other. The theory states that there is a coherent work structure underlying work tasks and this order can be described in a few dimensions (McCormick, Jeanneret & Mecham, 1972). These underlying dimensions rather than explicit work tasks provide a way to compare tasks performed in widely contrasting jobs. The theoretical framework uniting these job elements in the PAQ was the "stimulus-organism-response" paradigm, or *information input, mediation processes,* and *output*" (p. 349). Individual job elements are related to each stage of the model. In addition, McCormick et al (1972, 1989) also relates job elements to *interpersonal relations associated with work,* to *the job context,* and to their *miscellaneous work aspects or other job characteristics.*

There are one hundred and eighty seven job elements divided into six divisions in the original PAQ, expanded to one hundred and ninety five items in the current version (McCormick, 1989). These include *information input* seeking where and how workers obtain information needed to do a job. The second is *mental processes* involving the reasoning and decision making involved in job performance. The third is *work output,* involving the physical activities performed and tools used in work. The fourth is *relationships with other people,* involving interpersonal relationships such as instructing needed to perform a job. The fifth is *job content* which examines the physical and social contexts in which work is performed such as indoor or outdoor physical working conditions. The

sixth is *other job characteristics*, including other activities, conditions or characteristics applicable to the job such as dress, schedules, responsibilities, work pace or job structure.

Each of these sections are subdivided into additional components. Work output for instance is subdivided into uses of devices and equipment, manual activities, activities of the entire body and others. The PAQ questionnaire also identifies sixty eight general human characteristics related to work performance of an aptitude or temperament nature. The relevance of job elements and human characteristics are rated using appropriate categories including: extent of use, importance of the job, amount of time spent, possibility of a hazard occurrence, applicability to a job and special rating scales (McPhail et al, 1991). Employees are interviewed by trained job analysts who are familiar with the position, its job descriptions, the job context or environment and the organisation.

The PAQ Manual recommends that they use examples relevant to the position being analysed to increase the relevance of the questionnaire (McPhail et al, 1991). Interviewers rate the relevance of the human attributes to the job elements on a six point scale from zero, does not apply to five, extreme. Higher scores on certain elements are related to required human attributes, such as matching high levels of verbal comprehension with jobs using written materials. Inflation of scores by employees is avoided by a comparison of ratings with 'examples of job ratings', reviewing consistency and reliability analyses for discrepancies, making comparisons between jobs that have a hierarchical relationship in the organisation and with other jobs with similar characteristics (McPhail

et al, 1991). By completing analyses for functionally similar positions, discrepant profiles may be noted. An average of ratings for ten percent of incumbents in a position is used across the analysis for each position with more than one analyst to give an accurate and reliable description of the position. Composite analysis for groups may also be used.

Uses of the PAQ

Since 1972, the PAQ has been investigated by other researchers. It was used by Holland (1972) to investigate his theory of occupational choice. It was used in Germany (Frieling, Kannheiser & Lindberg, 1974) and also demonstrated its flexibility by being applied to analysing the duties of a housewife (Arvey & Begalia, 1975). By 1978, the PAQ had been used by over 300 companies to analyse over 50,000 positions (Fludger, 1984). The PAQ is still in wide spread use for such functions as job description, curriculum development, placement, job evaluation and compensation, and job design and classification (Bemis, Belenky, & Soder, 1983; Fludger, 1984; PAQ, 1991a). Advantages of the PAQ job analytical process are its availability, applicability to any work, established research base, acceptability, standardisation, susceptibility to statistical analysis, and commercial support (Fludger, 1984). Print outs from data analysis by PAQ Services include estimates of appropriate pay scales, estimated aptitude test scores for commercial standardised aptitude tests, estimates of appropriate personal aptitudes, and job clusters for mapping career ladders. For job description, curriculum development, and placement, individual ratings are averaged to reveal important job elements which may be used to design training or to determine selection criteria.

Other uses for data collected by the PAQ include job evaluation, career guidance, personnel selection, performance appraisal, prediction of job satisfaction, and estimation of training requirements. Recent research has been grouped under these category headings in the following sections.

Job evaluation is an important use of the PAQ for calculating salaries. An equation has been established between the calculated salaries paid for PAQ job dimensions and the actual pay of holders of positions. The profiles are compared with those from other jobs to determine job value (Jeanneret, 1980). For instance, job dimensions for mental effort include items such as decision making, reasoning, planning, combining, analysing, use of mathematics, and estimation. Job evaluation points may be assigned based on a measure of aptitudes required for the job. McCormick et al (1972) found that individual PAQ elements, divisional and the overall dimensions of the PAQ for 340 positions correlated greater than .80 with actual remuneration rates.

Career guidance is a use of the PAQ. The PAQ normally provides job families for positions for purposes of career planning. Any selection, training or performance appraisal process is based on the concept of job families, in which positions are sufficiently similar that they may be covered by the training, selection or appraisal system. Taylor (1978) and Taylor and Colbert (1978), for instance, by analysing seventy six clerical positions, using a cluster analysis of factor scores, found that positions with identical titles in different offices often fell into different clusters.

This indicated that the title failed to identify duties and could not be used for selection or training functions.

Personnel selection is undertaken using the PAQ to estimate job attribute requirements. It is presumed that job activities can be inferred from such attributes as personality, aptitude and physical strength of a successful worker in the position. The PAQ quantifies each item in the questionnaire and weighs the extent to which each item is needed for the position. Reports are provided which give both aptitudes, as measured by a range of tests, and personal characteristics required for a position.

McCormick et al (1972) used fourteen psychologists to rate the importance of sixty eight personal attributes to each of one hundred and seventy eight PAQ items and obtained a .90 correlation in inter-rater reliability. Therefore it was concluded that attribute requirements may be obtained from PAQ items. The PAQ provides two lists of aptitudes, the first being spatial orientation, visual acuity, coordination, and so on. The second assesses temperament such as empathy, dealing with objects, working alone, tolerance for, preference for and ability to. Such aptitudes are a useful addition to academic abilities in selecting personnel.

The PAQ also uses aptitude testing based on the synthetic validity or job component theory. This theory states that successful performance of a job requires certain academic skills, as measured by the General Aptitude Test and other commercial intelligence tests. There is a relationship between ability test scores and those behaviours required to perform a job as defined by the test scores. For instance, a test of physical strength was compared with actual strength needed in the performance

of a job. McCormick, Jeanneret and Mecham (1972) examined the mean
test scores of job incumbents with ratings of performance for 179 posi-
tions. Using multiple regression it was found that one predicted the
other across ten dimensions with a mean correlation of .71. It was con-
cluded that PAQ job dimensions are reliably related to a set of aptitudes
which may be measured by a number of tests.

Employees reactions to their work has been measured by the PAQ.
Hackman and Oldham (1975) have shown that the context of work influ-
ences workers attitudes and motivation. The PAQ has been reviewed to
discover the elements of positions which may influence worker attitudes.

Shaw and Riskind (1983) noted a consistent relationship between the
behavioral characteristics of different jobs as identified by the PAQ and
the levels of stress experienced by employees in those jobs. Eighteen
measures of stress such as physical symptoms and suicides were matched
to PAQ job analysis information and multiple regressions were computed
with correlations between .28 and .80. It was suggested that workers
susceptible to stress should not be placed in stressful positions.

Training diagnosis is a common use of job-oriented questionnaires.
Although the PAQ determines general training needs it is inadequate for
providing specific content for the development of training curricula. The
questionnaire was not designed for training purposes.

A comparison of the PAQ and other job analytic approaches has been
undertaken by some researchers. Prien (1977) has suggested that the

PAQ requires interpretation to complete and consequently may be affected by rater bias. He adds that no specific knowledge requirements about a job are ascertained by the PAQ. In contrast, job-oriented methods such as hierarchical task analysis fails to yield much information about the characteristics of the employee. Consequently, Prien recommends that both approaches be employed.

Levine, Ash, and Bennett (1980) performed job analysis on four classes of jobs, using four job analysis methods, the job element method (Primoff, 1975), critical incident technique (Flanagan, 1954), task analyses, and the PAQ. Results indicated that the PAQ was rated comparably on the criteria of quality of job information, the cost, and the completeness of the product resulting from the analyses. However, the critical incident technique and PAQ were the least preferred.

Performance appraisal has been undertaken with the PAQ. The PAQ has been criticised for failing to provide sufficiently explicit information of desirable or undesirable behaviour for job appraisal (Ronan, Jourdan & Messer, 1975). Other approaches such as task analysis or the Critical Incident Technique have been used to establish behaviours.

Reliability has been the subject of considerable research related to the PAQ. McCormick, Jeanneret & Mecham (1972) quote an average reliability of .79. Taylor & Colbert (1978) found a mean inter-rater reliability of .68 and a test retest reliability of .78 for individual elements. Frieling (1974) obtained an average inter-rater reliability of .79 for the dimensions and .75 for the individual items.

A problem with the PAQ is the need for trained job analysts to adminis-
ter and complete the instrument through use of interviews to ensure
reliability. Smith and Hakel (1979) and Surrette, Aamodt and Johnson
(1990) found little difference in the reliability of PAQ job analyses per-
formed by untrained personnel such as students who were only given
information on job titles and job expert raters. These results suggested
the possibility that the PAQ may measure common knowledge, or stereo-
types about jobs, such as held by both expert and uninformed observers.

These findings have been disputed and mostly refuted. Cornelius,
DeNisi and Blencoe (1984) replicated the study by Smith and Hakel
(1977). They found that the large number of 'does not apply' ratings
obtained by both expert and naive raters artificially increased the
agreement demonstrated between the two groups. They concluded that
PAQ ratings from job experts possessed greater validity and were not
equivalent with those completed by college students.

Weaknesses in the PAQ have been identified. Harvey, Friedman, Hakel
and Cornelius (1988) assert that the PAQ's weaknesses are the need for
a college level of reading skill as measured on four readability indexes
(Ash and Edgell, 1975) and the need for skilled personnel to administer
the scale. Consequently, the instrument is too expensive to administer
to large samples of workers.

Factor Analysis of Job Analytic Instruments

Factor Analysis has been undertaken for the PAQ and subsequent in-

struments based on the PAQ. Responses for the five hundred and thirty six jobs originally surveyed by the PAQ were factor analysed using a principal components solution for each of its six theoretical divisions (McCormick, Jeanneret, & Mecham, 1972). The five overall dimensions included *decision / communication /social responsibilities, skilled activities, physical activities / related environmental conditions, equipment / vehicle operation,* and *information processing activities.* Each division also produced a total of twenty seven specific components.

Its later form is reported by McCormick (1977) and Hyland and Muchinsky (1990) to have factor analysed into thirteen overall dimensions such as *operating machines, performing clerical duties, performing technical duties, performing service activities, performing routine activities, engaging in physical activities, environmental awareness,* and *supervising* (PAQ, 1991b). There were thirty two specific divisional dimensions categorised under the six information processing dimensions such as using various senses (information input), making decisions (mental processes), using machines (work output), communicating judgments (relationships with other people), being in a stressful environment (job context), and working non-typical versus day schedule (other job characteristics). The thirteen overall dimensions were found to be as predictive as the thirty two dimensions in their research.

Lynskey (1989) has developed a job analysis questionnaire using items related to the PAQ and other managerial items selected from the literature. Responses from public and private sector organisations were factor analysed using exploratory factor analysis, and five overall and twenty

eight divisional dimensions were located. Lynsky's (1989) research generally supports a simple, parsimonious structure of work which resembles Fine and Wiley's (1971) three factor theory of *people, information* and *things* as opposed to the PAQ five or six factor model. Lynsky's (1989) research has contributed a broader based instrument, consistent with older instruments, for job analysis applications but admits limitations in her sample size and variety. In addition her sample size was split between the public and private sector, two distinct domains of work. Lynsky (1989, p. 75) recommends, "future research should be conducted with much larger and broader samples ... to continue study of the hypothesised structure of work...."

Cordery et al (1989) in an investigation of the impact of skills formation and job redesign has provided an indication of the main job dimensions in the Western Australian Public Service for level one. The researchers obtained 3,047 questionnaires, being a 60% response rate from a sample which was 75% female. A standardised questionnaire was designed using a list of tasks from the <u>Australian Standard Classification of Occupations Dictionary</u> (ASCO). Responses for the amount of time spent on the list of tasks were factorised analysed to yield 19 factors. These factors were matched with ASCO categories, suggesting that the traditional skills boundaries suggested by ASCO still existed in the lower levels of the public service. Factors based on groups of task statements included accounting, filing and sorting, stock handling, library, reception and secretarial, typing, legal, wages and salary, personnel, law enforcement, laboratory, delivery and collection, printing, data processing, statistical and actuarial, debt collection, communications, purchasing and microfilming tasks.

Additional analysis by Sevastos (1991) for 646 cases at levels two and three, located eleven factors which also reflected ASCO categories such as stock, research, accounts, reception, personnel, legal, data entry and statistical tasks. The task oriented nature of the factors obtained by Sevastos (1991) is a reflection of the task oriented statements used in the survey.

Development of a Western Australian Job-Analysis Questionnaire

Interest in developing questionnaires using a worker-oriented skills matrix for job analysis is now apparent in Australia. In 1988, the Structural Efficiency Principle stated in the National Wage Decision of the Industrial Relations Commission has led to award restructuring processes. Implications of the restructuring process include: awards that relate job classifications to skills, and wages to skills through competencies attached to awards. There are broader job classifications to enable more varied and interesting jobs. Other implications include flexible forms of work organisation, development of career paths with adequate training opportunities, on-the-job training and accreditation, and local negotiation of details (Armstrong, 1991). Demonstrated competency has become the basis for progression from one salary level to the next.

Implementation of the reform agenda is apparent at both the national and state levels. At the national level, the creation of the National Training Board (NTB) has created three foci (SRM, 1991). The first was adoption of a national integrated system of competency based training by

43

January, 1993. The Employment and Skills Formation Council (1992) reports that training will provide generic competencies which underlie occupational competencies as a basis for the Australian Vocational Certificate. The second was development of industry based competency standards with the NTB developing and endorsing programmes There will be development of competency standards for all professional areas. The third was the development of a national framework for mutual recognition of training across state boundaries for all occupations based on competencies. NTB has produced a description of what competency standards should look like and some ideas on how to develop them (NTB, 1991).

At the national level, as well, the Finn Report (1991) has asserted that certain key competencies or work dimensions underlie the world of work. The role of education is to prepare young people in these essential skills for employment. The Report recommended the need for national standards for key competencies in language and communications, mathematics, science, cultural understanding, problem solving, and personal and interpersonal skills required for preparation of young people for employment.

The Mayer Committee (1992), established by the Australian Education Council and ministers responsible for Vocational Education, Employment and Training, has stated generic seven key competency strands which are presumed to be required for effective participation in work. These are collecting, analysing and organising ideas and information, expressing ideas and information, planning and organising activities, working with others and in teams, using mathematical ideas and techniques, solving problems, and using technology.

As part of the reform agenda, Western Australia established in March, 1991 under a state act, the State Employment and Skills Development Authority (SESDA) (SESDA, 1992). There are three functions. The first is to overview training in WA and to handle national funds for training. The Skills Standards and Accreditation Board, a second element of SESDA is the state quality control body which accredits training programmes and registers training providers. The third element is a network of twenty four Industry Employment Training Councils (IETCs). IETCs have the responsibility for training development.

In July, 1989 the main public service administration and the Civil Service Association of Western Australia signed a Memorandum of Agreement to improve structural efficiency in the West Australian Public Service Commission (Whitehead, 1991). One of the elements of the agreement was that efficiency was to be improved by developing minimum competency profiles for all salary levels from one to eight. The public sector was seen as different from the industrial sector with its manufacturing industries, since the public sector provided services rather than products. Such services were more difficult to analyse and measure than industrial output. Use of a competency based approach based on skills was seen as an objective way for human resource management to increase the productivity of the public sector and aid in making Australia more competitive internationally (SRM, 1991).

A Skills Resource Management unit (SRM) was established in 1989 to provide a framework for job-analysis using a competency based human

resource management system in Western Australia. Strategies for accomplishing the SRM mission (Culmsee, 1991) included:

i. Describing each of the 8 salary levels in terms of a minimum profile of competencies.

ii. Identifying and integrating the competencies of all public sector staff into the model.

iii. Identifying competency requirements within each salary level from one to eight.

iv. Developing appropriate policies and procedures.

v. Developing a plan for the implementation of competency based human resource management systems across the public sector.

vi. Designing a process for monitoring and evaluating the progress of development and implementation.

The project was to reach implementation stage by January, 1993. Use of a skills-based worker-oriented approach to job analysis by SRM was based on the premise shared McCormick et al (1972) that a limited number of common skills, contexts and outputs underlie all the work performed by employees in the public sector and that these work dimensions revolve around relating to people, information or things in the workplace (Fine & Wiley, 1971).

The skills management system was to develop skills definitions for each classification level, grouped by themes with minimum skills profiles for each level. By using skills definitions for the salary level, identification of appropriate staff could be undertaken for implementation of new services or products. Salary would be on the basis of the level with incre-

ments reflecting the demonstration of skills beyond the required minimum. Obtaining a broader range of skills, a process called multi-skilling, would broaden career options and promotional opportunities.

Between 1989 and 1993, the Skills Resource Management Unit has progressed in its project to analyse the skills used in jobs across the civil service. Definitions were stated for terminology. Skills, for instance, were defined as all the qualities employees needed to be able to perform their duties, including knowledge, reasoning, manual skills and attitudes. A model was selected and was based on Sidney Fine and Wiley's (1971) Functional Job Analysis.

SRM is implementing a three stage developmental process in order to meet its deadline of January, 1993 for the introduction of Competency Based Management (CBM) across the Public Sector. The first stage was to ascertain the skills and skill families that described public sector work being carried out for each salary level. Secondly, competency statements were to be developed for each salary level. Lastly, policies needed to be stated to explain use of the competency profiles.

Phase 1: Developing Skills Lists

The first stage, in 1990, involved the SRM staff in operating fifty nine workshops for ascertaining the skills that a three percent random sample of administrative and clerical employees of the Civil Service Association (CSA) covered section of the public service used at each salary level from one to eight. Workshop participants kept a record of the main tasks

which they undertook during a one week period prior to the workshop. At the workshop participants chose nine tasks which were important and identified skills required to carry out these tasks. Skills were then grouped into skill families by the participants in small workshop groups in order to have a structured way to identify competencies at a later date. These skills and skill groups were systematically categorised under the FJA headings of information, human or physical things. For instance under the information skill family of synthesising, was placed the more specific skills of assimilating which included even more specific skills of memorising and recalling. As a result of the workshops, skill activity verbs and verb families were collected for each salary level from one to eight using the language of the employees (Jacobs, 1991). These skills, in Appendix A, were grouped into skill categories based on the assessment of participants. This skills model was not a new one. There were similarities to the "generic skills approach" carried out for the Canadian Department of Manpower and Administration to discover generic skills relevant for training people in different occupations (Smith, 1979). Generic skills were defined as behaviours fundamental to the performance of many tasks carried out in a broad spectrum of jobs. McCormick (1979) suggests that generic skill categories suggest units of job requirements. By means of a questionnaire these units could determine job requirements or be used for the development of training instructional modules.

Lynsky (1989) has noted that generic skill items are often difficult to rate. She recommends provision of an "anchor" or "mind-set" for respondents through provision of three parts; a skill, its context and an example. An example would be "use written materials such as books,

memos, reports." The SRM skills/context matrix reflects this approach. The SRM team, in a second stage of developing skill statements in 1991, organised sixteen workshops and seven hundred public service employees responded to a survey to determine the context in which skills were used at each salary level related to *information, humans* or *physical* resources. Context was defined as 'the circumstances or conditions in which a skill was performed.' For instance, a *physical* context would be based on the answer to the question, 'what machinery do you drive?' The context would be 'car'. The skill/context is 'driving a car.' A sample *information* context is answered by responding to the question, 'What are you writing?' The context might be 'report' with skills/context being 'writing a report.' Seven hundred surveys were returned and processed. Participants marked the skills that they believed were essential for their work from a list in the questionnaire. Then they wrote in the context in which the skills were used in their job. Contexts in the Information Area were separated into three broad areas: Concepts / Ideas / Knowledge, Data and Written Materials and Organisational and Government Structures. These were then divided into the categories. (Appendix B)

Phase 2: Developing Elements of Competency

Elements of competency were developed by combining a competency verb or skill, a context and some performance criteria. For instance, a typical information skill and context in the information stream was 'investigating data' (SRM, 1990). Performance criteria included performance factors such as cost, quantity, quality or accuracy. Also includ-

ed were performance standards against which work performance was measured such as legislation, instructions, or policies. As a result of the survey, a list of skills, contexts and performance criteria were obtained for each salary level.

In the second stage in the development of the SRM model, work was conducted to ascertain these two areas of information. What competencies were needed for each salary level from one to eight? Did the contexts associated with each skill statement differ for each salary level from one to eight? In the information area, is there a difference in the type of information analysed between levels? This information was incorporated into a skills/context matrix. This matrix was used as the basis for constructing eight questionnaires (Appendix E). There was one questionnaire for each salary level in the public service with each possessing some items not apparent in all the questionnaires.

Completion of the questionnaires to develop competency statements for positions has involved matching skill/context statements with job tasks. Hughes and Prien (1989), for instance, have demonstrated that eight subject matter experts were able to provide consistent judgments in matching twenty six job skills to appropriate tasks. Distinctive categories were established for questionnaire items in accordance with Cooper (1983). Finley, Osburn, Dubin, & Jeanneret (1977) and Cooper (1983) have indicated that raters prefer to rate internally consistent, homogeneous, descriptively rich categories in questionnaires which are clear, specific and non-overlapping. Disguising the continuity of scales were shown by Finley et al (1977) not to improve ratings. Consistent scales

were thought to help raters recall specific and behaviourally based epi-
sodes from memory This increased specific ratings as opposed to being
influenced by 'halo,' which caused diffused globally based ratings. Atten-
tion was paid to Cooper's (1983) warning that distinct questionnaire
categories which are finely differentiated, imprecise or overlapping
exceeded the capacity of raters to distinguish between categories. He
warns that such design errors led to frustration because of overload on
the respondent and dissatisfaction at giving excessive, redundant feed-
back.

Phase 3: Competency Standards

The third stage, has involved SRM in developing generic competency
standards for each of its skill/context statements. These competency
standards will be grouped into competency profiles that attach to major
task statements and outputs for a work position. For programme
management, connections are made between programme and sub-pro-
gramme goals and position task statements. Rules will be stated for
determining human resource management issues such as the minimum
number of essential and the number of elective competencies required
for a competency profile at a set salary level. Increments within a salary
level may be set by determining the minimum number of competencies
which must be mastered from the next salary level.

The SRM unit has developed a theoretical model for utilising the skills,
context data and performance criteria for competency-based human
resource management. Elements of competency have been stated for
each salary level of the three streams in the public service: information,

human and physical following Fine and Wiley's (1971) model. These elements of competency consist of these distinctive items of information: work tasks, work outputs, performance criteria, and a table of necessary skills, and contexts. Skills are behaviours stated in terms of action verbs ending in 'ing' and are based on a table of skills developed by SRM. The context refers to 'who' or 'what' is involved in the application of a skill and is again chosen from the SRM table. Performance criteria are the standards against which the work performance is measured. They are stated in measurable behavioural terms for specific work tasks and work outputs. Broad generic competency standards will be made available by SRM for use by public sector agencies to use in competency based management. Specific additional competencies may be added by public sector agencies during job analyses.

Testing Stated Hypotheses

The SRM instrument requires a clearly articulated theory as to the structure of work and a clear definition of the underlying dimensions of work (Drasgow & Miller, 1982). This research has used a SRM generic skills questionnaire to measure the underlying dimensions of occupational roles of employees in the Western Australian public sector. In turn the clarification of dimensions has been used to ascertain the construct validity of the questionnaire by determining the fit of West Australian work dimensions against dimensions suggested by theoretical models. Serious reservations would be aroused if the SRM work dimensions proved incongruent with the established structure of work models. In addition, by ascertaining the SRM work dimensions uncovered in the public sector

in Western Australia, it will also be possible to provide additional evidence in support of the dimensions of work in theoretical models of work.

Specifically, the structure of work will be explored by investigating and testing the applicability of data collected from public service agencies against the following two competing hypotheses of work structure. Firstly, the SRM dimensions of work are hypothesised to resemble the dimensionality of work in Fine and Wiley's (1971) theory of work which states that work contains three factors; *data, people* and *things.*

The second hypothesis is that the dimensionality of work as identified by the SRM questionnaire possesses these dimensions; *information input, information storage, mental processes* such as sensing and decision making, *action functions, work output, relationships with other persons, job contexts* and *other job characteristics.* These dimensions are based on information processing theory and reflect the divisions used by the PAQ (McCormick, Jeanneret, & Mecham, 1972; McCormick, 1979) to conceptualise work.

The first hypothesis is believed by the writer to be a more probable description of the structure of work for a number of reasons. Firstly, it is as parsimonious as possible, giving a minimum number of dimensions which could be functionally useful. Secondly, the dimensions may be reliably identified by anyone who seeks to classify items as related to working with people, data and things. Thirdly, most respondents did find that their jobs could be classified to varying degrees as working with people, data or things. Consequently, it was expected, for instance, that

53

employees who worked mainly with people, would group items related to people together by rating them highly, and these would appear as a significant work dimension. Similarly, people who worked mainly with data or machines would perform similar appropriate groupings suggesting other underlying dimensions.

The writer believed the second hypothesis was less likely to be supported for these reasons. Firstly, the dimensions of information input, mental processes, work output, relationships, job context and other job characteristics were less parsimonious and failed to meet Occam's razor of providing the simplest solution. The category of other job characteristics was not believed to be useful and failed to provide a meaningful job dimension. Secondly, in discussion with employees, respondents found difficulty with the operation of classifying items related to their job when using these categories. Respondents did not relate to their job in terms of analyzing the relative components of input, processing and output. Very few respondents, in fact, considered information input as part of their job at all. It was believed that the information processing paradigm, although a useful framework for structuring a questionnaire, may not reflect the underlying structure of work in the public service.

CHAPTER 3

Method

Subjects

The study was undertaken within the confines of the resources and normally scheduled tasks of the SRM staff in their role of testing and piloting the SRM model. In this regard, approximately eighty public sector agency employees from the clerical and administration areas were involved in five workshops in order to provide the data required for testing the initial SRM Elements of Competency Questionnaire. An additional stratified sample of nearly two hundred employees of both genders was randomly selected from across the eight public sector levels, (25 per level) including both administration and clerical, and professional and technical agencies. This sample was surveyed with a refined questionnaire to provide data for factor analysis.

Instrument

The Elements of Competency Questionnaire possessed eight sections, appropriate for salary levels one to eight in the Public Service Commission (Appendix E). Respondents completed the section appropriate for their salary level. A typical element of competency statement in this questionnaire included the competency skill and context. For instance, 'investigating (researching, locating, collating) competency based approaches through a literature review,' would represent a skill and context. Employees identified purposes for their job, listed important tasks,

then matched tasks generally with skill/context statements. These skill/context statements were rated on a five point scale in terms of their importance from 'non-applicable,' or zero, to 'very important,' or five.

Procedures.

Research proceeded through these steps.

Phase 1. Development and revision of an instrument.

Phase 2. Validation of the Instrument

Phase 3. Reliability of the instrument.

Phase 4. Confirmatory analysis.

Phase 1. Development and Revision of a Instrument

An initial pilot questionnaire was used which comprehensively reproduced the skills and contexts produced by SRM staff from their workshops and surveys in 1990 and 1991 for the informational, human and physical areas. This Elements of Competency Questionnaire was piloted by a three-hour workshop to assess the viability of the process. An additional four, three-hour workshops were used to refine the questionnaire by ensuring the presence of all necessary skills and contexts in the information, human and physical areas and to discover any omissions or gaps in the generic skills/context matrices which failed to address specific agency job tasks.

As a result of the initial workshops, a second refined questionnaire was

produced (Appendix E). This questionnaire addressed gaps in skills discovered in the initial workshops. One hundred and ninety four structured interviews based on a stratified sampling of civil servants across levels one to eight provided data for analysis. Interviews took an average time of two hours and were conducted with groups ranging in size from five to ten people. A facilitator introduced the questionnaire, led respondents through the items and was available to answer queries. Two hundred and twenty five items were designed but only some of these items, identified as being appropriate through the initial workshops, were used for each of the eight levels of the public service.

In order to obtain a larger sample necessary for factor analysis, levels were combined. Scores of zero or 'not applicable' were entered for all items which had not been asked at each level. Many items within each level also obtained a zero or 'do not apply' ratings. In total, 45,000 data items were recorded. The combined data from the completion of these 194 surveys were factor analysed to determine the dimensions underlying the skill/context statements.

Phase 2. Validation of the Instrument

Theory and Choice of Factor Analysis

Use of the questionnaire involved uncovering latent constructs underlying the domain of public sector work. Roberts and Glick's (1981) warning was heeded that for valid measures with general applicability, factor analysis must be conducted with pooled samples of task characteristics

across many jobs rather than within a single job category.

The choice of a factor model was maximum likelihood, because this method is required for performance of confirmatory factor analysis using the LISREL programme. In addition, a rigorous test of fit was obtained by use of Maximum Likelihood factor extraction, which computes a Chi-square statistic. This statistic was used to indicate the sufficiency of the factors extracted and whether factor extraction should be continued. Ford, MacCallum and Tait's (1986, p. 294) have suggested that factor analysis provided "more accurate recovery of true factors than components analysis when the data closely corresponded to the common factor model."

Both exploratory and confirmatory factor analysis was employed. Cognizance was paid to Edwards, Baglioni and Cooper's (1990) warning that exploratory factor analysis suffered several weaknesses in determining dimensionality. It 'underfactors' data by putting items that are correlated but conceptually unrelated within the same factor. Nevertheless, exploratory factor analysis was used because it was useful when lacking detailed theory in the initial stages of research to explicate theory and to aid in the building of testable hypotheses (Ford, MacCallum & Tait, 1986). Techniques for using factor analysis included the following seven steps, each involving critical decisions:

i. The first step was to read the raw data correctly from the SRM Elements of Competency Questionnaire (in Appendix E) in terms of ratings of importance in relationship to jobs in the public sector. The eight public service levels were combined by establishing a common list

58

of items. Non-applicable scores were entered for items at levels where specific questions were not asked. In order to reduce this vast amount of data to permit factor analysis, items were combined based on similar contexts that reflected the three factor model. For instance, skills, with four different contexts, 'negotiating with public sector employees,' 'negotiating with public sector groups and departments,' negotiating with non-public sector individuals,' and 'negotiating with non-public sector groups' were combined, to produce one item, 'negotiating with people' with an averaged score. Consequently, as a result of this reduction, there remained eighteen skills statements with contexts related to people, twenty two skills statements with contexts related to information and seven skills statements with contexts related to the physical dimension. The eighteen people skill items were further reduced to fifteen by combining highly correlated variables to create new variables called "Mediating and Negotiating With People," "Facilitating and Influencing People," and "Managing and Supervising People."

Similarly, skill statements dealing with data were reduced. An example is given for the skill 'processing.' Originally fourteen items described various contextual aspects of processing data. These included *'processing concepts / ideas / knowledge'* items which included specific contexts related to processing research, recommendations, facts, problems, queries and needs. *'Processing Data'* items were combined by including both financial and numerical data. *'Processing organisational / governmental structures'* were combined by including procedures / systems, projects, legislation, policy and programmes. *'Processing Plans,'* and *'Processing Written Materials'* items were combined, including processing corre-

spondence, reports, resource materials, articles and briefing notes. As a result of combining variables, a single new information variable was produced containing the averaged scores of the above fourteen items, termed 'Processing Data.' A similar reduction was undertaken for all twenty one information skills.

ii. Maximum Likelihood factor analysis was used to determine the degree to which the questionnaires' Likert type items may be grouped according to an unknown number of underlying dimensions.

iii. In factor analysis, factors were extracted and presented as a table with the factors in columns and variables in rows. Initially there were as many factors as there were variables.

iv. The factors table was truncated.

v. Oblique (in SPSS, Oblimin) factor rotation was used to improve the interpretation, reliability and reproducibility of the factors following recommendations by Ford, MacCallum & Tait (1986) and to allow some correlation between factors. This rotation added complexity which provided additional information in the form of intercorrelations between factors, a process closer reflecting reality. Ford, MacCallum & Tait (1986) have argued that orthogonal rotation is a subset of oblique rotation and so factors should be rotated obliquely first, then orthogonally to determine their tenability. Consequently, varimax rotation was subsequently used to check the stability of the factors.

vi. Interpretation of the underlying constructs was somewhat subjective

related to the number of items measuring each underlying dimension. Guidelines suggested by Hair et al. (1987) were followed, that for a sample of fifty, either positive or negative, loadings exceeding .3 are salient, .4 are more important and .5 very salient. Loadings on items below .3 were not considered and were blanked out to simplify interpretation. These estimates vary according to sample size (Hafer, Wright & Godley, 1983). Factors were extracted until the residual factor emerged, as suggested by Rummel (1970). A residual factor is one for which fewer than three loadings could meet the joint condition of being equal to or greater than .3 and the highest loading for an item.

vii. Interpretation compared the variables selected for each work dimension with the work dimensions hypothesised by Fine and Wiley (1971) and McCormick (1972).

Phase 3: Reliability and Readability

A Cronbach's (1951) alpha reliability analysis of each factorised subscale using SPSS (1986) was performed and provided an indication of reliability on a split half analysis. Use of this approach required the assumptions that the items represented a common underlying construct and test items loaded equally on the common underlying construct (Nunnally, 1978). A variety of analytic procedures was also applied to the questionnaire to ascertain the readability level of the questions.

Results from exploratory factor analysis were evaluated and refined through confirmatory factor analysis as recommended by Gerbing & Anderson (1988; cited by Edwards, Baglioni, and Cooper, 1990).   A linear structural relations program (LISREL VII) was used to obtain a "Goodness of Fit Index" (GFI) that is independent of sample size, and an "Adjusted Goodness of Fit Index" (AGFI) that is independent of degrees of freedom (Appendix D)(Joreskog and Sorbom, 1984).

Use of numerous fit indices is beneficial in circumventing bias associated with a single technique. Once a clear idea of the instrument's factor structure was obtained, confirmatory factor analysis was used to compare the data against two models hypothesising the structures of the work dimensions. Analysis was conducted for hypothesised models with one, two, and three factors respectively. Indicators were chosen from items representing *'working with people,' 'working with data,'* and *'working with things.'* Selection of these indicators was undertaken by factor analysing items in each factorial division, using a forced fit of a single factor. Then four representative items which loaded highly on a single factor were selected for people, data and things. The overall goodness of fit of the data for each model was ascertained by calculating a chi square value, goodness of fit, adjusted goodness of fit and root-mean-square residual for each model. Inadequacy of fit was then investigated for the data with the closest fit to the hypothesised model. This was done by determining where the faulty parameters existed.

The fit of the data was ascertained for testing these contrasting hypotheses: The structure of work possesses three dimensions (Fine, 1961). These were *Working with People, Working With Data* and *Using Equipment*. Secondly, the structure of work possesses six dimensions. These were: *Information Input, Mental Processes, Work Output, Relationships with Other Persons, Job Context* and *Other Job Characteristics*. These resemble divisions used by McCormick, Jeanneret, & Mecham (1972).

CHAPTER 4

Results

Application of the Instrument

The questionnaire's return from using workshops with trained group facilitators was nearly 100%. Overall item means were low, generally in the .5 to 2 range. This finding is typical of many job analysis instruments with substantial numbers of 'does not apply' ratings in the PAQ (Jeanneret, 1970; McCormick, Mecham, & Jeanneret, 1977; Harvey, Friedman, Hakel, & Cornelius, 1988). No items possessed above a .8 correlation with other items (Appendix C).

Reliability

After conducting exploratory factor analysis, a Cronbach Alpha reliability analysis was conducted for variables grouped according to the three major factors. For eighteen variables in 'Working With People,' a reliability alpha coefficient of .95 and a standardised item alpha of .94 were obtained. For items related to 'working with data,' an alpha coefficient of .90 and a standardised item alpha of .92 were obtained. For items related to 'working with equipment,' an alpha coefficient of .88 and standardised item alpha of .89 were obtained.

For the sample selected from a Level 1 questionnaire, the following indices were obtained: Flesch Kincaid, 11.1, Flesch Reading Ease, 30.9, Gunning's Fog Index 15.9, LIX Index 52.7 and comparison with the most common words, 34.1%. The ratings attached to the indices as compared with an analysis of a typical government report, using bureaucratic language, fell into the average category. Ratings for difficulty attached to instruments were as follows: Flesch-Kincaid - easy, Flesch Reading Ease - hard, Gunning's Fog Index - average, LIX Index - average, and frequency of common word usage - very hard. Some items were criticised for being complicated with a high percentage of long words. Other items were criticised as pompous.

Factor Analysis of Item Ratings

The inter-item correlations used for factor analysis are given in Appendix C. An overall exploratory factor analysis was conducted to reveal eight factors of which three factors were robust and explained 56% of the variance. Eigenvalues, percentage of variance and loadings of the variables are reported in Tables 1 and 2. Correlations between the main three factors are shown in Table 3.

Table 1

Exploratory Factor Analysis of the Elements of Competency

Questionnaire: Eigenvalues and Percentage of Variance

Factor	Eigenvalue	Pct of Var
1. Mediating/Negotiating With People	12.0	30
2. Representing People	7.5	19
3. Presenting To People	3.1	8
4. Teaching/Training People	2.6	6
5. Counselling People	1.4	4
6. Facilitating People	1.2	3
7. Influencing People	1.2	3
8. Managing People	1.2	3
9. Advising People	0.9	2
10. Interviewing People	0.8	2
11. Consulting With People	0.8	2
12. Informing People	0.7	2
13. Liaising With People	0.6	1
14. Assisting People	0.6	1
15. Cooperating With People	0.5	1
16. Developing Information	0.5	1
17. Devising Information	0.5	1
18. Coordinating Information	0.4	1
19. Organising Information	0.4	1
20. Processing Information	0.3	1
21. Analysing Information	0.3	1
22. Deciding on Information	0.3	1
23. Evaluating Information	0.3	1
24. Investigating Information	0.2	1
25. Solving Information Problem	0.2	1
26. Classifying Information	0.2	1
27. Comparing Information	0.2	1
28. Calculating Information	0.2	.4
29. Assimilating Information	0.2	.4
30. Compiling Information	0.1	.3
31. Reporting Information	0.1	.3
32. Writing Information	0.1	.3
33. Arranging Supplies	0.1	.3
34. Arranging Papers	0.1	.3
35. Arranging Equipment	0.1	.3
36. Distributing Supplies	0.1	.2
37. Distributing Equipment	0.1	.2
38. Tending Equipment	0.1	.1
39. Using Equipment	0.1	.1
40. Using Vehicles	0.1	.1

Table 2

Exploratory Factor Analysis of the Elements of Competency Questionnaire:

Factor Loadings

Item	Loading
Factor 1: Working With People	
Mediating /Negotiating With People	0.6
Representing People	0.5
Presenting To People	0.7
Teaching/Training People	0.5
Counselling People	0.4
Facilitating People	0.7
Influencing People	0.9
Managing People	0.7
Advising People	0.3
Interviewing People	0.4
Consulting With People	0.7
Liaising With People	0.7
Assisting People	0.7
Cooperating With People	0.6
Writing Information	0.3
Using Vehicles	0.4
Factor 2: Working With Information	
Coordinating Information	0.8
Organising Information	0.9
Processing Information	0.7
Analysing Information	0.6
Deciding on Information	0.7
Evaluating Information	0.6
Investigating Information	0.5
Classifying Information	0.7
Calculating Information	0.4
Compiling Information	0.6
Reporting Information	0.5
Factor 3: Working With Things	
Arranging Supplies	0.96
Arranging Papers	0.8
Distributing Supplies	0.9
Distributing Equipment	0.8
Tending Equipment	0.6

Table 3

Exploratory Factor Analysis of the Elements of Competency Questionnaire:

Correlations Between Factors

FACTOR	1	2	3
FACTOR 1	1.00		
FACTOR 2	.12	1.00	
FACTOR 3	-.32	.04	1.00

A brief description of each of these dimensions is presented below.

Factor 1: Working With People

Factor 1 variables relating to *relationships and working with people* loaded highly. These variables included items related to both public sector and non-public sector individuals and groups. Of the fifteen skills related to working with people, fourteen loaded highly. These included skills such as mediating/negotiating, representing, presenting, teaching/training, managing/supervising and cooperating. Only the 'people' skill of 'informing' failed to load on this factor.

Factor 2: Working With Data

Factor two distinctly related to *working with data*. Data included such sub-contexts as concepts, ideas, knowledge, organisational / government structures, plans and written materials. Over half the twenty two skills related to working with data were identified as loading highly in the second factor. These included such skills as coordinating, organising, processing, analysing, deciding, evaluating, investigating, classifying, assimilating, compiling, and reporting.

Factor 3: Working With Things

Factor 3 was clearly a factor involving *working with physical objects and things*. All the variables but one identified as working with things, were

identified within the third factor. These included such skills as arranging supplies, arranging papers, distributing supplies, distributing papers and tending equipment.

Exploratory factor analysis using the default settings generated an additional five factors. These factors failed to meet the criteria for robust factors and for this reason have not been reported. The lack of robustness in the eight factor solution suggested that the most appropriate dimensions underlying the structure of work were to be found in either a four, a three, or a two dimensional structure of work. Each of these options was initially investigated by forcing the factoring process to run four, three and two factor solutions and examining the interpretability of the resulting solutions.

Four Factor Solution

Loading of items for four, three and two factor solutions are found in Table 4.

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Four Factor Solution

Loading of items for four, three and two factor solutions are found in Table 4.

Table 4

Elements of Competency Questionnaire: Loadings of Variables in

Forced Solutions Using Exploratory Factor Analysis

Item	Loading		
	Four	Three	Two Factors

1: Working With People

	Four	Three	Two Factors
Mediating /Negotiating With People	0.6	0.8	0.7
Representing People	0.6	0.8	0.7
Presenting To People	0.8	0.8	0.8
Teaching/Training People	0.6	0.6	0.6
Counselling People	0.4	0.8	0.6
Facilitating People	0.7	0.7	0.8
Influencing People	0.9	0.8	0.8
Managing People	0.7	0.7	0.7
Advising People	0.5	___	0.4
Interviewing People	0.5	0.7	0.8
Consulting With People	0.7	0.7	0.7
Liaising With People	0.8	0.7	.0.7
Assisting People	0.7	0.5	0.5
Cooperating With People	0.6	0.8	0.8
Developing Information	0.4	0.7	0.8
Devising Information	0.4	0.7	0.6
Analysing Information	___	___	0.7
Solving Problems	___	0.3	0.3
Comparing Information	___	___	0.5
Assimilating Information	___	___	0.5
Writing Information	0.5	0.4	0.7
Arranging Supplies	___	___	-.4
Arranging Papers	___	___	-.5
Distributing Papers	___	___	-.5
Using Vehicles	0.5	0.4	0.4

Factor 2: Working With Information

Informing People	___	0.4	0.4
Coordinating Information	0.8	0.8	0.7
Organising Information	0.7	0.6	0.7
Processing Information	0.8	0.8	0.8
Analysing Information	0.8	0.7	0.6
Deciding on Information	0.8	0.8	0.7
Evaluating Information	0.8	0.9	0.8
Investigating Information	0.8	0.8	0.8
Classifying Information	0.8	0.7	0.6
Calculating Information	0.5	0.5	0.7
Compiling Information	0.8	0.8	0.6
Reporting Information	0.7	0.7	0.6
Distributing Supplies	---	---	0.3
Tending Equipment	---	---	0.4

Factor 3: Working With Things

Arranging Supplies	0.9	0.9	---
Arranging Papers	0.8	0.8	---
Distributing Supplies	0.9	0.9	---
Distributing Equipment	0.9	0.9	---
Tending Equipment	0.8	0.8	---
Using Equipment	0.6	0.6	---

Factor 4: Informing People

v1511r Informing People	0.8	---	---

A brief description of a four factor solution follows.

Elements of Competency Questionnaire: Four Factor Solution: Factor 1: Working With People

An oblique rotation was used for all analyses. As with exploratory factor analysis, results were stable, when using an additional orthogonal varimax rotation. The results remained interpretable in supporting the underlying dimension, *'working with people.'* The item 'developing and devising data,' however, was added to this factor as was 'comparing information,' 'writing information,' and 'using vehicles.' These factors confused the interpretation of the factor, suggesting that a four factor solution was inappropriate.

Four Factor Solution: Factor 2: Working With Data

Again, an oblique rotation was used. Items in factor two were easily interpretable in their grouping of those skills involving *working with data.* To test stability, an additional orthogonal varimax rotation was performed. Variables in factor 2 remained stable when using varimax rotation.

Four Factor Solution: Factor 3: Working With Things

Items in factor three clearly continued to represent skills involved with *working with things.* Varimax rotation, in addition to oblique rotation, confirmed the stability of these variables within factor 3.

Four Factor Solution: Factor 4 Solving Problems

Only one item loaded highly at factor 4, being 'informing people.' This item loaded highly, but failed to obtain support from other items.

Elements of Competency Questionnaire: Three Factor Solution

A brief description of a three factor solution follows.

Three Factor Solution: Factor 1: Working With People

As with the oblique rotations in the four factor solution, items were represented and loadings were closely duplicated with an orthogonal rotation. The item, 'developing and devising information,' however, was again added to this factor as was 'writing information' and 'using vehicles.' 'Solving problems' was also added. These additions confuse the interpretation of a three factor solution.

Three Factor Solution: Factor 2: Working With Information

Factor two in this analysis included the additional skill item, 'informing people.' Otherwise, as with exploratory factor analysis items remained unchanged, with a clear focus related to working with information. Items in factor 2 remained stable when subjected to varimax rotation.

<u>Factor 3: Working With Things</u>

Items remained stable when using varimax as well as oblimin rotation. Only items, 'using/arranging equipment' and 'using vehicles' failed to load as theorised in the model. There was an unexpected weak loading of 'calculating financial data,' which also loaded more highly on factor 2.

Elements of Competency Questionnaire: Two Factor Solution

A brief description of a two factor solution follows.

<u>Factor 1: Working With People</u>

All items related to working with people again loaded well on factor 1. Again, the exception was 'informing people.' A few highly loading data items appeared including 'developing and devising information,' 'analysing information,' and 'comparing information.' These factors interfered with interpretability. Highly negative loadings emerged for factors identified as 'working with things.' In contrast to these negative loadings, a similar item, 'using vehicles' appeared as a positive, but lower loading item.

<u>Two Factor Solution: Factor 2: Working With Data</u>

Items related to skills in 'working with data' were stable with both orthogonal and oblique rotations. 'Informing people' appeared as a lowly loading item.

75

Correlation of Factors

A low negative correlation between the factors was found to be -0.3 between factors one and three.

Divisional Analyses

Exploratory factor analysis was also conducted for items related to each of the three separated divisions; 'working with people,' 'working with data,' and working with things.' The eigenvalues for these three divisional analyses are reported in Table 5. The factor loadings for 'working with people,' and 'working with data' are reported in Tables 6 and 7.

Table 5

<u>Exploratory Factor Analysis of the People Divisional</u>

<u>Elements of Competency Questionnaire: Eigenvalues</u>

<u>for 'Working With People, Data and Things'</u>

Factor	Eigenvalue

Working With People

1. Mediating/Negotiating With People	9.4
2. Negotiating With People	1.8
3. Representing People	1.0
4. Presenting To People	0.7
5. Teaching/Training People	0.6
6. Counselling People	0.5
7. Facilitating People	0.4
8. Influencing People	0.4
9. Managing People	0.3
10. Advising People	0.2
11. Interviewing People	0.2
12. Consulting With People	0.2
13. Liaising With People	0.2
14. Assisting People	0.2
15. Cooperating With People	0.1

Working With Data

1. Coordinating Information	6.5
2. Organising Information	1.3
3. Processing Information	0.8
4. Analysing Information	0.5
5. Deciding Information	0.4
6. Evaluating Information	0.4
7. Investigating Information	0.3
8. Classifying Information	0.3
9. Calculating Information	0.2
10. Compiling Information	0.2
11. Reporting on Information	0.2

Working With Things

1. Arranging Supplies	3.6
2. Arranging Papers	0.9
3. Distributing Supplies	0.7
4. Distributing Papers	0.5
5. Tending Equipment	0.2
6. Tending Vehicles	0.1

Table 6

Exploratory Factor Analysis of the People Divisional Elements of Competency

Questionnaire: Loadings for 'Working With People'

Item	Loadings

Factor 1: Working With People

Mediating/Negotiating w/ People	0.4
Negotiating With People	0.7
Representing People	0.3
Counselling People	0.4
Facilitating People	0.6
Influencing People	0.8
Managing People	0.3
Advising People	0.6
Interviewing People	0.7
Consulting With People	0.7
Liaising With People	0.9
Assisting People	0.8
Cooperating With People	0.6

Factor 2: Managing People

Supervising People	0.8

Factor 3: Educating People

Presenting To People	0.4
Teaching People	0.7
Training People	0.9

Table 7

Exploratory Factor Analysis of the Informational Divisional Elements of

Competency Questionnaire: Loadings for 'Working With Data'

Item	Loadings
Factor 1	
Processing Data	0.5
Calculating Data	1.0
Factor 2	
Coordinating Information	0.9
Organising Information	0.7
Processing Information	0.5
Analysing Information	0.9
Deciding Information	0.8
Evaluating Information	0.8
Investigating Information	0.7
Classifying Information	0.6
Compiling Information	0.8
Reporting on Information	0.8

79

Divisional Factor Analysis: People.

An exploratory factor analysis was conducted with items identified as 'working with people.' Three divisions were located within 'working with people.' Division 1: Working With People was large and stable, containing all but four items related to working with people. Division 2: Supervising People was problematic since the division possessed only one highly loading item, 'supervising people.' This factor does suggest a managerial sub-dimension within 'working with people.' Division 3: Educating People possessed three items loading highly on this division. These items were easily interpretable for their educating functions: 'teaching, training and counselling people.'

Divisional Factor Analysis: Data.

An exploratory factor analysis was conducted with items identified as 'working with data.' Two divisions were located within 'working with data.' Factor 1: 'Working With Figures' possessed only one factor loading highly, being 'calculating data.' This supported the unidimensional nature of this category. A weaker loading was found for 'processing data.' 'Calculating data' included both 'calculating numerical data and calculating financial data.' Factor 2: 'Working With Written Information' was large and stable. It included all other variables related to working with data, excluding the 'calculating data'. This factor included skills of coordinating, organising, processing, analysing, deciding, evaluating, investigating and deciding written information.

An exploratory factor analysis was conducted with items identified as 'working with things.' Support was found for the unidimensional nature of this factor since only one division was located within 'working with things.' All items loaded highly on this factor.

Validation of a Model

The second phase of the research involved ascertaining the best fit of the data to the models using a linear structural analysis (LISREL-VII, Joreskog & Sorbom, 1989). Structural equation modelling cannot prove that a specific model tested is the correct model. Other unspecified competing models of latent variables could equally account for the observed data (Joreskog & Sorbom, 1984). However, fit indices do indicate the extent to which the tested model represents the observed data. Thus the process helps to eliminate inadequate models. Analysis was conducted with hypothesised models with one, two, and three factors respectively. As shown in Table 8, comparison of the difference of resultant chi-squares and degrees of freedom, suggested that the models were significantly different with the three factor model being the better fit for the data. However, a significant X^2 for each model suggested a poor fit between the restricted hypothesised model and unrestricted sample data for all the models. Yet, the chi-square statistics and the associated probability values are not reliable indices of either relative or absolute fit. As demonstrated by Bentler (1980) chi-squares are usually significant with larger sample sizes. The consistency of other indices recommend them for evaluating the fit of structural models more adequately. Consequently, the fit of each model was investigated using indices which

are uninfluenced by sample size (Joreskog & Sorbom, 1989). Results, shown in Table 8, indicated that the data still continued to fit all the models poorly.

Table 8

<u>Fit Indices For 'People,' 'Data,' and 'Things' Using</u>

<u>LISREL Confirmatory Factor Analyses of Selected Items</u>

<u>from the Elements of Competency Questionnaire</u>

Model Factors	Chi-Square	df	p	GFI	AGFI	RMSR
One	661.6	54	.00	.61	.43	.2
Two (a)	238.6	53	.00	.82	.73	.1
Two (b)	330.3	53	.00	.77	.66	.17
Three	199.4	51	.00	.85	.78	.1

(a) Working With People and Things, Working With Data
(b) Working With People, Working With Data and Things
GFI = Goodness of Fit, AGFI = Adjusted Goodness of Fit.
RMSR = Root Mean Square Residual

None of these models match the data adequately. However, of the models presented, the three factor solution came closest to fitting the model. Following Byrne's (1989) recommendation that the sources of a misfit should be ascertained, the three factor solution was examined more closely.

Squared multiple correlations (R^2), as indicators of the adequacy of the assessment model, demonstrated that most LISREL variables were in a satisfactory .5 to .8 region. Items 'using equipment,' and 'using vehicles' proved problematic with unacceptably low correlations of .1 and .01.

The coefficient of determination which suggested how well the observed variables, together, measured the combined latent constructs, was a satisfactory .99 for the three factor parameters. This was a generalised indicator of the reliability of the overall measurement model.

Adjusted goodness of fit was .79. This statistic measured the relative amount of variance and covariance explained by the model adjusted for the number of degrees of freedom. This value was below Byrne's (1989) suggested value of .89 which represented a fairly good fit between the hypothesised model and the observed data. The Root-Mean-Square Residual, measuring the averaged difference between items in the sample and the hypothesised covariance matrices, failed to reflect the value < .05 which suggests a good fit (Byrne, 1989).

The t-values, representing the item estimate divided by its standard error, were all > 2. This statistic indicated values significantly different

from zero. Only 'using vehicles,' with a t-value of -1 was insignificant and unimportant to the hypothesised model.

Normalised residuals, being the difference in fit between the sample and hypothesised covariance matrices, estimate the number of standard deviations of the observed residuals from the zero residuals of a perfectly fitting model. Nine of the twelve values were > 2 standard deviations. These statistics suggested a model misfit since the standardised residuals in the Q-plot failed to plot along the mandatory 45 degree line (Byrne, 1989).

CHAPTER 5

Discussion

The purpose of this investigation was to explore the underlying structure of work in the Western Australian Public Service as measured by the SRM job analysis instrument in order to test construct validity of the instrument and to develop a meaningful and useful set of work dimensions. In addition, the study wished to provide additional evidence in support of the dimensions in theoretical models of work. Specifically, investigations compared the following two competing hypotheses for the underlying structure or work. Firstly, the SRM dimensions of work were hypothesised to resemble the dimensionality of work in Fine and Wiley's (1971) theory of work. This theory states that work contains three underlying factors labelled; *data, people* and *things*. The second hypothesis was that the dimensionality of work as identified by the SRM questionnaire possessed these dimensions; *information input, mental processes* such as sensing and decision making, *work output, relationships with other persons, job contexts* and *other job characteristics* (McCormick, Jeanneret, & Mecham, 1972; McCormick, 1979).

Reliability and Readability

For any approach to job analysis to be useful, the job survey instrument must be reliable. Idaszak, Bottom and Drasgow (1988) have explained that the instrument must provide equivalent measurement across different worker sub-populations. Reliability requires that workers, performing similar tasks grouped together under the same underlying factor in

86

the questionnaire, must give the same observed ratings. The reliability of the three factors, 'people,' 'data,' and 'things' was very high. However, high reliability is typical of these type of instruments and must be treated with caution. McCormick, Jeanneret & Mecham (1972), for instance, quote an average reliability of .79 for the PAQ. As Cornelius, DeNisi and Blencoe (1984) note, the large number of 'does not apply' ratings artificially increased the reliability rating.

Readability of the questionnaire was at a tenth grade level with difficulty comparable with reading government reports. Like the PAQ, the reading level may be considered difficult for lower level employees. It is essential that the questionnaire be administered by a trained job analyst, who has a list of skill definitions and who guides the respondent through the questionnaire process. The accuracy of responses by respondents will require verification by supervisors and by the job analyst visiting the work place and being familiar with the job which is being analysed.

Latent Dimensions

Exploratory factors underlying responses to the Elements of Competency Questionnaire were obtained. These were judged by such criteria as meaningfulness, parsimony, and stability, and consistency with dimensions previously described in the literature. The overall factors produced by exploratory analysis failed to give a clear and concise understanding of the number of dimensions underlying the structure of work. The analyses was most useful in providing a broader view of work with some but not complete support for Fine and Wiley's (1971) structure of *working*

with people, working with data, and *working with things.* The issue of dimensions was confused by a number of variables which loaded on other factors. These variables failed to fit the three factor structure, but did not seem stable or clear enough to stand on their own. Attempting to force two, three and four factor solutions, failed to clarify the models or result in interpretable solutions. Indeed, items were combined which made the resulting solutions more difficult to interpret than an interpretation based on a three factor model. A two factor solution, for instance, combined working with people and things, as a factor. If people didn't work with other people, this factor suggested they worked with things. Working with things appeared to be the opposite pole of working with people. Divisional factors, based on a three factor solution, appeared to provide meaningful structures for working with people, and working with data, and a unidimensional factor for working with things.

The factors, which were located for a three factor solution, possessed the virtue of being parsimonious. They provided a meaningful method for organising units of work. Any simpler structure with less factors lost its interpretability. The correlations between overall factors indicated the relative independence of these factors, in spite of oblique rotation being used to allow correlated factors. What low correlation existed, indicated the intuitively appealing result that working with things was opposite to working with people. These correlations were similar to the independent correlations found by Lynskey (1989) and supported the concept of a simple orthogonal structure.

Critical to the success of factor analysis was the issue of stability of re-

sults. This has been demonstrated by Nunnally (1978) to be influenced by the ratio of items to observations, which he had set at 1:10 to ensure that factors did not occur by chance. Although 225 items comprised this research, use of data combination techniques reduced the ratio to 1:5 for the general factorial analysis. Stability as assessed by cross-validation, using alternative methods of factor analysis, suggested some stability for the main three factors related to people, data and things.

The choice of the number of factors to keep was arbitrary and was sub-jectively guided by eigen size, Cattell's (1966) Scree plot and the best combination to fit the model (SAS, 1985). Cattell's (1966) scree test which demonstrated the point in which the plot of eigen values changes direction from vertical to horizontal has supported three factor struc-ture. Harris (1967) suggests that a 'robust' factor should possess two or more items with loadings of 0.3 or higher. These criteria all supported the interpretation favouring a three factor model of *'people,' 'data,'* and *'things,'* underlying the structure of work.

Comparison With Sydney Fine's Model

A useful means for deciding on the value of the factors is through com-parison of these factors with previous research. With the subjectivity inherent in factor analysis in determining the number of factors to retain and in selecting names for these factors, comparison with previous re-search findings was particularly important. Consequently, the following section compared the outcomes of factorial analysis of the Elements of Competency Questionnaire with Fine and Wiley's (1971) model and the

Fine and Wiley (1971) believe in broad work dimensions underlying the structure of work. The authors assert, "while there may be an infinite number of ways of describing tasks, there are only a handful of significant patterns of behaviour (functions) which describe how workers use themselves" (Fine and Wiley, 1971, p. 14). Thus they have suggested three Worker Function Scales with skills ranked hierarchically from specific functions to broad functions for *Data, People* and *Things*. The *information* area included: 1. comparing, 2. copying, 3a computing, 3b compiling, 4. analyzing, 5a coordinating, 5b innovating and 6. synthesising. In developing items for the Elements of Competency Questionnaire, support was found for a distinctive information factor including use of skills such as comparing, compiling, analysing, and coordinating. Definitions for the SRM skill verbs subsume all of Fine's (1971) information categories with 'innovating' being included in the SRM skill of 'developing' and 'synthesising' being included as 'assimilating.' There is good support for the existence of a *data* dimension underlying the structure of work.

Fine's (1971) *human* area included: 1a taking instructions, 1b serving, 2. exchanging information, 3a coaching, 3b persuading, 3c diverting, 4a consulting, 4b instructing, 4c treating, 5. supervising, 6. negotiating and 7. mentoring. Exploratory factor analysis of the SRM Elements of Competency questionnaire again supported the *people* factor as a single work dimension with human skills including 'negotiating,' and 'consulting.' Many of the Fine and Wiley's (1971) skills were identified by synonyms in the SRM document. All these synonyms were identified as a

90

single 'working with people' dimension. 'Coaching' and 'persuading,' for instance, were labelled as 'advising' or 'influencing' by SRM. The skill, 'serving' may be the SRM 'assisting' verb. The skill, 'instructing' was labelled by SRM as 'teaching,' or 'training.' The skill, 'exchanging information' was implied in SRM's 'counselling,' or 'interviewing,' or 'liaising.' Only the SRM skill of 'supervising' seemed to represent a unique management factor separate from 'working with people.' Thus, this research provided support for a factor underlying the structure of work termed, *working with people.*

Fine's (1971) *physical* area included: 1a handling, 1b feeding-offbearing 1c tending, 2a manipulating, 2b operating-controlling, 2c driver-controlling, 3a precision working and setting up. The SRM questionnaire was severely limited in its use of skills identified as dealing with things such as physical goods or supplies and equipment. Nevertheless, the Fine and Wiley's (1971) skills of 'tending' and 'manipulating' were included in the SRM instrument. Skills such as 'operating-controlling' and 'driver controlling' were subsumed by the SRM category of 'using equipment.' All these skills, identified as a single factor, supported Fine's (1971) physical dimension.

In summary, there was preliminary but not conclusive evidence to support a simple, parsimonious structure of work which was similar to but not identical to Fine and Wiley's (1971) three-factor model. This category of work theory has proven itself in practice as demonstrated by the Functional Job Analysis instrument and has found theoretical significance for this study.

Like the SRM instrument, the PAQ is based on the premise that a coherent work structure underlies work tasks and this order can be described in a few dimensions (McCormick, Jeanneret & Mecham, 1972). The theoretical framework uniting these job elements from the PAQ was the 'information processing' paradigm, or, in more operational terms, *information input, mediation processes, output, interpersonal relations associated with work, the job context,* and *miscellaneous work aspects.*

Little support was found for the information processing paradigm of the PAQ through factorial analysis in this study. The moderate reliability (see page 39) of the PAQ which is below the .85 figure generally accepted for social research may have contributed to this lack of support. Had the model been supported, *information input* items such as assessing, examining, investigating, estimating, measuring and assimilating should have grouped as a factor. *Information processing* variables such as coordinating, organising, processing, analysing, deciding, evaluating, solving, classifying, comparing, and calculating should have grouped together. *Output* items such as compiling, reporting, writing, arranging, distributing, tending and using would have grouped together. Items referring to *relationships with people* such as negotiating, teaching, and counselling would group together. The questionnaire lacked items relating to environmental variables (job context) and miscellaneous. Consequently, these last two facets of the PAQ model could not be tested at all with the SRM questionnaire.

Results failed to reflect the expected theoretical categories suggested by the PAQ, although support was found for *relationships with people* as a distinctive factor. The six divisions of the PAQ based on the information processing model are of theoretical importance in categorising work elements and are useful in structuring the PAQ questionnaire in a logical way. This study suggests that these elements are not of practical consequence for the definition of the underlying structure of work in the West Australian public sector as tested by the SRM instrument.

Nevertheless a limitation in this study must be considered. Perhaps, a reason for this finding rests in the nature of the Elements of Competency questionnaire. The questionnaire was necessarily limited in its survey of work skills because it was created from a sample of work skills and contexts listed by a sample of administrative and clerical civil servants. Civil servants do not normally describe work inputs such as 'reading information,' when asked for their work outputs. Consequently, unlike the PAQ, there were few clear work input items in the SRM instrument. Most input items such as 'investigating' or 'assessing' were really closer to mediational processes. The PAQ, in contrast, measured work input with items such as 'visual input from devices/materials,' 'information from people,' and 'visual input from distal sources.' Similarly, because of the nature of the sample, few work outputs were found in the Elements of Competency Questionnaire, which failed to match such PAQ items as 'general body activity,' 'skilled/technical activities,' 'machine/process control' and 'use of finger controlled devices vs. physical work.' As McCormick (1979, p. 179) has warned, "results of factor analysis procedures are very much dependent upon the specific nature of the initial

variables used in the data collection phase." Consequently, many aspects of the PAQ model were inadequately measured and the comparison of underlying dimensions of work in the public service with the PAQ model must be treated cautiously. It is recommended that the PAQ instrument, itself, be used in a further study to ascertain the validity of its work dimensions in the public service.

Confirmatory Factor Analysis

The structure of work, as measured by Elements of Competency instrument, was compared with a one, two and three factorial models of the structure of work. The results of exploratory and confirmatory factor analyses performed on this questionnaire have indicated that neither the three factor or the six factor models adequately fitted the data. The unsatisfactory specification of the three factor model appeared to have been caused primarily by two problematic variables, 'using equipment' and 'using vehicles.' These items should be replaced with new items which measure 'working with things' more adequately. By doing so, the fit of the data to the three factor model of 'working with people, data and things' may have been enhanced. It was not possible, however, to replace these variables, because of the lack of an adequate range of items dealing with 'things' or 'equipment' in the Elements of Competency Questionnaire. In addition, Byrne (1989) refers to the dangers in *post hoc* fitting of variables to confirmatory covariance structural models in terms of capitalising on chance factors and increasing the probability of committing a *type 1* or *type 2* error. Thus, it is not known conclusively whether the structure of work may be more adequately represented by a more

94

complex model. It may be that further research using additional and better fitting items will expand the factors underlying the structure of work. Such research may reveal separate managerial and/or technical dimensions. Little support, however, was found for investigations that were conducted into unidimensional and two dimensional models underlying the structure of work. The factor of *working with things* did not fit the model better if combined with people and data as a unidimensional factor. Nor did the data fit the two factor models of people and data/things or people/things and data.

Prospects For Future Research: Managerial Dimensions

The Elements of Competency factorial analysis failed to reveal managerial dimensions underlying the structure of work. This was because reduction of the skills context statements caused unique managerial items to become rephrased as skills related to people, data or things. The original questionnaires, if applied to larger samples of civil servants, should be analysed without reduction to discover those additional factors which may be unique to the managerial field. Most job analytic instruments designed for the lower levels of the public service are not suited for analysing the jobs of the professional and managerial classes. Sevastos (1991) reported that work tasks used to analyse work dimensions for levels one to four in the Western Australian Public Service failed to differentiate between managerial levels. McCormick, Jeanneret and Mecham (1972) and Mitchell and McCormick (1979) report that PAQ may be poor in analysing managerial jobs. For wages above $30,000 in 1972 American dollars, the PAQ residuals were inflated, suggesting that

PAQ failed to analyse managerial work. Mitchell (Mitchell & McCormick, 1979), in completing a doctorate thesis, has quoted other unpublished research demonstrating that the PAQ fails to discriminate amongst managerial jobs. The scales reach a ceiling effect when measuring graduate degrees. Areas such as communicating and responsibility are inadequately discriminated by the PAQ items. Lynsky (1989) reports that this difficulty is typical of a number of studies attempting to encompass both the worker and managerial domains in a single instrument.

The distinctive nature of managerial work fails to be recognised by researchers possibly because, as Feldman (1989) notes, management jobs with similar responsibilities and functions differ considerably from business to business. Managers exercise choices based on personality factors, job-related demands, environmental considerations and situational factors. Such variations in decision making based on factors such as personality, politics and organisational climate hampers classification in the managerial domain.

In spite of the considerable research which has been expended on ascertaining the dimensions of managerial work, there remains the problem of finding work dimensions which extend across all jobs. Use of a managerial job analysis questionnaire across public service agencies may lead to incomplete work dimensions by ignoring lower salary groups. Similarly, the generalised dimensions of the PAQ apply to only lower level jobs. Use of a general instrument designed to survey all salary levels is expected to maximise the efficiency of the job analytical process.

Ascertaining common work dimensions across the public sector include advantages in human resource management functions. Definition of work dimensions provides a basis for setting pay scales and permits a common scale between all salary levels. There is frequent evidence of gender-based wage differences, a situation in which women are paid less for comparable work than are men (Pfeffer & Ross, 1990). Common work dimensions may be used to prevent discrimination in pay by gender and also permit an identification of similarities and differences among jobs. Such information aids personnel selection by hiring for job families rather than jobs, with job families extending across the entire public sector. Identification of job families increases opportunities for career planning. It also increases the mobility of employees across the public sector since individuals may more readily identify jobs that require common skills outside traditional bureaucratic job boundaries. Again, for training and performance appraisal, processes may be applied to job families rather than jobs.

General work dimensions tend to narrow the distance between salary levels, permitting employees to develop and demonstrate skills which have traditionally been restricted to management. By developing planning and decision making functions, participative management processes are strengthened. Participative management is the process in which employees are involved in and influence management functions. Consequently, a concern for future researchers is to ascertain whether the Elements of Competency Questionnaire measures both general and managerial work dimensions.

CHAPTER 6

Conclusions and Recommendations

For effective human resource management in Western Australia, the successful development of a competency based and standardised job analysis instrument is necessary. The development of a reliable and construct valid instrument requires a clearly articulated theory as to the structure of work and a clear definition of the underlying dimensions of work (Drasgow & Miller, 1982). This research has reviewed a generic skills questionnaire developed by the Public Service Commission by measuring the underlying dimensions expressed in the occupational roles of employees in the Western Australian public sector. To ensure the construct validity of the questionnaire, this study has ascertained the fit of dimensions underlying the structure of work against dimensions suggested by theoretical models. By ascertaining the SRM work dimensions uncovered in the public sector in Western Australia, it has been possible to provide some evidence for the construct validity of the SRM Questionnaire and to offer partial theoretical support for Fine and Wiley's (1971) three dimensional construct of work.

For the success of Competency Based Management, a job analysis instrument must meet certain conditions (Frieling, Kannheiser & Lindberg, 1974). Like any sound psychometric instrument, the SRM job analysis instruments should have a valid theoretical base with a clear definition of the nature of the analysis. The SRM instrument should provide a standardised approach to a wide range of jobs. The SRM in-

strument should permit quantification of the data, lend itself to reliable use and be economically feasible. The dimensions of work produced by an analysis of the data collected by the SRM instrument should be statistically stable, meaningful, encompass the totality of the structure of the work field, and be practically useful (McCormick, Jeanneret, & Mecham, 1972). Finally, there should be construct validity, defined by Cronbach and Meehl (1955, cited in Ebel, 1977, p. 61) as a "postulated attribute of people that underlies and determines their overt behaviour" or the degree to which explanatory factors underlying a test account for performance on a test.

This research has supported the reliability and construct validity of the approach undertaken by SRM, in collecting job analysis information quickly and cheaply. The Competency Based Management team which has emerged from SRM has made significant progress in achieving these criteria. Nevertheless, results from this study indicate some areas for further research such as content validity issues which may be apparent in the SRM methodology. Content validity refers to the degree to which "the content of a test samples the class of situations about which a conclusion is drawn" (Cronbach, 1970, cited by Tenopyr, 1977, p. 47). This sampling forms "the only basic foundation for any kind of validity" (Ebel, 1977, p. 59). Content validity of the SRM questionnaire needs to be continually improved by: (Spool, 1975).

i. An ongoing process of job analyses to ascertain job content and to consider the addition of new content items to the questionnaire. In particular, the dimension related to *working with things* requires revision and expansion as demonstrated in this study. Further research may

be needed to discover whether additional dimensions particularly in the managerial and professional and technical fields underlie the structure of work.

ii. Job experts must continue to conduct a thorough evaluation of the questionnaire when it is introduced to different agencies to determine if its inter-rater reliability, readability, content and its relationship to the job remain at a suitable level for those specific agencies.

iii. A comparison between questionnaire content and job content must be conducted in the agencies to ensure that the questionnaire items sample job content adequately. The challenge facing SRM is that these generic competency elements must possess content validity, by comprehensively, representatively and reliably describing all public sector skills, and contexts. There must be a degree of specificity of items which will be useful. But the items must not be overwhelming in number. In particular, competencies must encompass both worker and managerial domains. It must also include clerical/administrative and professional/technical jobs and must embrace all workers from levels from one to eight. Competencies may be required to be broadened to include the physical dimension underlying work. Job analysis of the professional and technical areas of the public sector will require an expanded list of physical items.

iv. Competencies may also be required to be graded as essential, elective or irrelevant, with a number of minimum essential competencies stated for each occupational role.

v. Statistical processes for analysing, predicting and applying statements of competency need to be developed so that a database of numerical data may be constructively used in place of job description forms.

vi. Choices must be made concerning applications of competencies. It is important to keep in the forefront lessons learned from the process of change, particularly the sense of threat which arises when using competencies for performance appraisal. Use of competencies for entry level training may be a viable starting point for competency based management.

As demonstrated by this research into the dimensions which underlie the structure of work, the Elements of Competency Questionnaire is in the process of becoming a reliable and valid worker-oriented, job analytic inventory. This research has established latent constructs underlying the questionnaire which reflect those of the theoretical literature, such as the model of working with people, data and things as suggested by Fine and Wiley (1971). Such constructs are useful in structuring future job analytic instruments based on a parsimonious structure. Specifically, the questionnaire may be used for job evaluation, an important use involving calculating employee salaries. An equation will need to be established between the calculated salaries paid for public sector job dimensions and the actual pay of holders of positions. The profiles may then be compared with those from other jobs to determine job value.

Career guidance is another possible use of the Elements of Competency Questionnaire. The instrument will provide job families for positions for purposes of career planning. Any selection, training or performance

appraisal process will be based on the concept of job families, in which positions are sufficiently similar that they may be covered by the training, selection or appraisal system. Personnel selection will be undertaken using the instrument to estimate job attribute requirements. Training diagnoses will also be a use of this instrument. Although the instrument determines general training needs, it may be inadequate for providing specific content for the development of training curricula.

This research has demonstrated that the instrument will be a valuable tool for use in job analyses and will assist in the future production of competencies by employees in public service agencies in Western Australia. Overall benefits from a functional instrument will include improved human resource management on a systems level from more effective job analytic processes.

CHAPTER 7

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114

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Appendices

Appendix A

<u>Competency Verbs</u>

Skill Family	Skill Verb

Information Competencies

Creating	Developing
Administrating	Coordinating
	Organising
Considering	Analysing
	Deciding
	Evaluating
	Investigating
	Solving
Figuring	Calculating
Consolidating	Assimilating
	Compiling
Recording	Reporting
	Writing

Human Competencies

Resolving	Mediating
	Negotiating
	Representing
Educating	Presenting
	Training
Leading	Counselling
	Facilitating
	Influencing
	Managing
	Supervising
Communicating	Advising
	Interviewing
	Consulting
	Informing
	Liaising
Servicing	Assisting
	Cooperating

Physical Competencies

Placing	Arranging
	Distributing
Utilising	Using

Appendix B

Generic Contexts Used With Skills in the SRM Questionnaire

Broad Contexts	Specific Contexts
Concepts/Ideas/Knowledge	Research Recommendations Facts Problems Queries Needs
Data & Written Material	Financial Numerical
Organisational/Government Structures	Procedures/Systems Legislation Plans
Human Competencies	Public Sector Employees Public Sector Groups Non-Public Sector Individuals Non-Public Sector Groups
Physical Competencies	Physical Goods & Papers Machinery Equipment Vehicles

Interpretation: The correlation item numbers do not directly match the question-
naires because the correlations are undertaken after firstly, combining all eight
levels and secondly, aggregating all the context items for each skill. However, the
skill for each correlation may be identified. The first two numbers such as 01 in
v0111z refers to the skill which is identified by the second two digits of each
questionnaire item such as 15 in 41512. Reference to the questionnaires quickly
identifies the skills.

Correlation Matrix

	V0111Z	V0311R	V0411R	V0511Z	V0711R	V0811R	V0911R
V0111Z	1.00000						
V0311R	.71891	1.00000					
V0411R	.61704	.68618	1.00000				
V0511Z	.43580	.55829	.64709	1.00000			
V0711R	.73426	.58816	.52138	.30302	1.00000		
V0811R	.62607	.54959	.69680	.52580	.48554	1.00000	
V0911R	.65624	.63331	.75681	.51704	.44219	.77840	1.00000
V1011R	.68743	.71554	.68497	.56171	.64974	.57716	.63282
V1111R	-.26637	-.35147	-.14680	-.11526	-.42061	-.07087	-.06821
V1211R	.05244	.09321	.33869	.29727	-.05760	.29270	.41458
V1311R	.59699	.53790	.66230	.37079	.57084	.67723	.67237
V1411R	.61226	.52035	.60781	.43295	.57041	.65199	.72794
V1511R	-.28801	-.23895	-.06930	.07653	-.54002	.07692	.03344
V1611R	.51746	.38351	.60130	.39878	.43761	.57959	.69315
V1711R	.35048	.23508	.39265	.33454	.22134	.54499	.58109
V1811R	.62572	.63856	.70257	.58483	.55373	.72384	.73449
V1931C	.52265	.55568	.62486	.46804	.53787	.61110	.56289
V2031C	.54100	.66170	.56260	.33427	.64730	.48302	.47739
V2131C	.15928	.11288	.20088	.14118	.09852	.25298	.26521
V2231C	.18332	.02468	.09307	.03236	.18277	.11649	.09476
V2341R	-.17895	-.30254	-.18009	-.14058	-.22588	-.04631	-.10413
V2431B	.36239	.26492	.37784	.25451	.33132	.37420	.40124
V2531B	.02342	-.06058	.03515	.07210	-.13733	.13423	.09925
V2631B	.00134	-.09845	.02176	.03241	-.19459	.20167	.15058
V2731A	-.05699	-.06486	-.03453	.02467	-.12484	-.01430	-.01189

	V0111Z	V0311R	V0411R	V0511Z	V0711R	V0811R	V0911R
V2834R	.31567	.26450	.21378	.05540	.36156	.20451	.23912
V2941B	.14533	.01600	.06923	-.00423	.08994	.19670	.06919
V3033B	.32679	.54516	.37547	.44365	.35394	.28030	.32194
V3141R	-.36329	-.43952	-.34362	-.31291	-.34097	-.33983	-.30142
V3431A	.22200	.22016	.29399	.09701	.19742	.31386	.35032
V3531C	.11200	.03903	.21592	.18961	.10311	.35691	.23657
V3631C	.02221	-.03536	.09845	.12744	-.07443	.18744	.15531
V3771R	.30210	.36535	.59321	.40781	.18414	.52723	.54999
V4081	-.27791	-.25665	-.28733	-.22890	-.19910	-.40410	-.32379
V4082	-.35193	-.32596	-.39460	-.27366	-.25287	-.51322	-.40066
V4091	.23383	.18940	.15908	.12099	.15702	.14957	.11436
V4181	-.23460	-.25472	-.25662	-.21016	-.19760	-.34570	-.26594
V4182	-.31277	-.26739	-.37230	-.22482	-.20743	-.42099	-.34254
V4591	-.25888	-.36508	-.27601	-.20639	-.28322	-.32825	-.28025
V4691	-.05303	-.07378	-.17404	.05441	-.09727	-.23296	-.17811
V4692	.28374	.28633	.25343	.27307	.15796	.23694	.36398

	V1011R	V1111R	V1211R	V1311R	V1411R	V1511R	V1611R
V1011R	1.00000						
V1111R	-.44491	1.00000					
V1211R	.11566	.17705	1.00000				
V1311R	.62901	-.26598	.24819	1.00000			
V1411R	.60731	-.22690	.37345	.61214	1.00000		
V1511R	-.35147	.48303	.41531	-.17628	-.10147	1.00000	
V1611R	.46154	.09731	.41367	.55570	.61834	.09713	1.00000
V1711R	.23838	.14579	.40967	.38964	.40720	.31519	.57652
V1811R	.69020	-.42514	.35721	.71176	.70482	-.10895	.53590
V1931C	.59742	-.29697	.17147	.70127	.48418	-.23464	.46393
V2031C	.68182	-.44646	.03862	.64168	.46071	-.49351	.35508
V2131C	.02873	.24760	.29133	.24158	.09994	.17375	.26522
V2231C	-.03584	.10884	.00654	.06982	.01224	.01541	.15141
V2341R	-.28492	.27726	.06009	-.14647	-.18115	.26261	-.06235
V2431B	.27401	-.01387	.24798	.42249	.30972	.04098	.40094
V2531B	-.21351	.24890	.37652	.10878	.04214	.40815	.09613
V2631B	-.23307	.39921	.20478	.02318	-.00505	.47241	.19766
V2731A	-.19599	.21464	.24935	.05936	-.03253	.32085	.10565
V2834R	.20297	.01847	-.02208	.25428	.20907	-.13812	.25521
V3141R	-.48315	.34333	-.12799	-.39084	-.39594	.28386	-.15357
V3431A	.23657	-.06094	.09374	.30418	.26866	.14943	.36479
V3531C	.06959	.06993	.15943	.36434	.17764	.14460	.24802
V3631C	-.09333	.33845	.28764	.12279	.11429	.31202	.16896
V3771R	.34826	-.06669	.48092	.52532	.37254	.11608	.44556
V4081	-.29415	.17126	-.24036	-.47480	-.35013	.00102	-.15334
V4082	-.37358	.21130	-.23553	-.51140	-.44469	.03608	-.23867
V4091	.26896	-.15661	.17261	.19540	.09056	-.20106	.09721
V4181	-.29193	.20675	-.20332	-.38474	-.29656	.04263	-.15382
V4182	-.30645	.10586	-.27875	-.44700	-.36478	.01662	-.28860
V4591	-.37172	.26174	-.14669	-.38647	-.33508	.14408	-.10123
V4691	-.03595	-.05403	.03695	-.25255	-.15082	.16402	-.02059
V4692	.24129	-.09448	.23415	.19308	.30056	.15401	.35810

	V1711R	V1811R	V1931C	V2031C	V2131C	V2231C	V2341R
V1711R	1.00000						
V2231C	.11716	-.08903	.19481	.02799	.67862	1.00000	
V2341R	.04531	-.28298	-.09264	-.27291	.62497	.62883	1.00000
V2431B	.31118	.29785	.59200	.36342	.73910	.57991	.46027
V2531B	.20403	.01873	.24769	-.16885	.67255	.50739	.50367
V2631B	.26851	-.05941	.20102	-.18626	.72448	.49040	.63130
V2731A	.16702	-.10974	.14985	-.05731	.61706	.47507	.55830
V2834R	.19743	.12609	.21498	.33408	.25550	.12207	.14349
V2941B	.17210	-.05718	.27545	.07737	.60684	.63049	.57018
V3033B	.26571	.43786	.42203	.36889	.18829	.15073	-.18480
V3141R	-.00521	-.48370	-.38090	-.44023	.32586	.44032	.68999
V3431A	.32690	.27739	.46354	.24045	.49066	.34823	.31735
V3531C	.24083	.21433	.48954	.13547	.63293	.56020	.56887
V3631C	.18434	-.01550	.31853	-.07203	.62921	.43706	.43426
V3771R	.34674	.54757	.61278	.33627	.36091	.16466	-.00710

	V1711R	V1811R	V1931C	V2031C	V2131C	V2231C	V2341R
V4081	-.11194	-.38531	-.38831	-.25707	.03581	.25176	.18702
V4082	-.08020	-.48936	-.49070	-.32649	-.01197	.09760	.18670
V4091	.05981	.18060	.26562	.43296	.13257	-.00084	.03758
V4181	-.07149	-.38240	-.32351	-.25513	.16470	.33163	.29156
V4182	-.05795	-.40142	-.39935	-.26782	-.04395	.10384	.13597
V4591	.00503	-.44132	-.33172	-.36568	.17231	.24806	.34030
V4691	.04736	-.07311	-.22152	-.22496	-.04353	-.07666	.03449
V4692	.33232	.36732	.21577	.11123	.17834	.07766	.03880

	V2431B	V2531B	V2631B	V2731A	V2834R	V2941B	V3033B
V2431B	1.00000						
V2531B	.63439	1.00000					
V2631B	.62738	.71807	1.00000				
V2731A	.60262	.63925	.64906	1.00000			
V2834R	.37101	.04006	.22722	.30221	1.00000		
V2941B	.54280	.50052	.54287	.54830	.17556	1.00000	
V3033B	.22467	.22344	.00211	.26866	.09475	.08562	1.00000
V3141R	.12697	.21165	.40668	.41932	.01404	.42203	-.24801
V3431A	.68312	.37772	.52212	.50433	.33188	.49864	.19136
V3531C	.70171	.60143	.60913	.55924	.14718	.68579	.19270
V3631C	.52776	.64856	.69840	.65817	.21886	.40125	.21174
V3771R	.46415	.33314	.27606	.16587	-.06477	.17308	.25564
V4081	-.10322	-.09614	.03942	.13394	-.07342	-.00428	-.16813
V4082	-.16054	-.17351	.00543	.10362	-.00535	-.09804	-.21857
V4091	.30806	-.04338	-.03696	.03139	.13535	.00855	-.05646
V4181	.01211	-.00508	.16260	.23480	-.01581	.08175	-.19275
V4182	-.15314	-.17508	-.03828	.09218	-.07040	-.08874	-.11976
V4591	-.03144	.07177	.21823	.24867	.01595	.19060	-.24023
V4691	-.00759	.02880	-.02537	.18043	-.04310	-.03103	-.02578
V4692	.25975	.17935	.18629	.13743	-.07815	.24357	.20532

136

	V3141R	V3431A	V3531C	V3631C	V3771R	V4081	V4082
V3141R	1.00000						
V3431A	.20295	1.00000					
V3531C	.24526	.62670	1.00000				
V3631C	.17814	.42868	.55347	1.00000			
V3771R	-.20934	.36511	.38369	.33864	1.00000		
V4081	.47536	.03056	-.11882	-.04330	-.36010	1.00000	
V4082	.47397	.00257	-.21457	-.05409	-.40724	.72955	1.00000
V4091	-.12695	.18110	.07964	-.02740	.18379	-.07413	-.09415
V4181	.48374	.04691	-.02808	.10688	-.22391	.85464	.61708
V4182	.38491	.02659	-.20660	-.00023	-.37126	.71151	.85074
V4591	.54190	.00185	.02313	.12297	-.22058	.60544	.46520
V4691	.07391	.06807	-.05550	-.00265	.00310	.21208	.27665
V4692	-.03966	.23574	.26730	.10535	.31371	.01852	-.05820

	V4091	V4181	V4182	V4591	V4691	V4692
V4091	1.00000					
V4181	-.07357	1.00000				
V4182	-.07723	.68861	1.00000			
V4591	-.10545	.63402	.43217	1.00000		

Programmes and Matrices Used in Confirmatory Factor Analysis

TI Three Factor Model of Structure of Work
DA NG 1 NI 12 NO 194 NA=KM
LA
*
'v1' 'v2' 'v3' 'v4' 'v5' 'v6' 'v7' 'v8' 'v9' 'v10' 'v11' 'v12'
KM FU
*

1.0000	.6872	.5897	.5927	.1875	.1117	.1247	.1002	-.2834	-.1866	-.0079	.332
.6872	1.0000	.7737	.7656	.1531	.0773	.0991	.1017	-.3724	-.3194	-.1198	.368
.5897	.7737	1.0000	.7179	.1746	.0866	.1881	.2140	-.4443	-.3471	-.1886	.2145
.5927	.7656	.7179	1.0000	.0413	-.0905	-.0472	.0509	-.4233	-.4140	-.0243	.3845
.1875	.1531	.1746	.0413	1.0000	.7350	.6315	.7669	.0205	.1109	.0926	.1249
.1117	.0773	.0866	-.0905	.7350	1.0000	.6104	.6187	.2119	.2479	.0965	.0877
.1247	.0991	.1881	-.0472	.6315	.6104	1.0000	.5089	-.0147	.1980	-.0447	.1452
.1002	.1017	.2140	.0509	.7669	.6187	.5089	.0000	-.1462	.0407	.0140	.0880
-.2834	-.3724	-.4443	-.4233	.0205	.2119	-.0147	.1462	1.0000	.5687	.2336	-.0452
-.1866	-.3194	-.3471	-.4140	.1109	.2479	.1980	.0407	.5687	1.0000	.2119	.0213
-.0079	-.1198	-.1886	-.0243	.0926	.0965	-.0447	.0140	.2336	.2119	1.0000	.2224
.3320	.3687	.2145	.3845	.1249	.0877	.1452	.0880	-.0452	.0213	.2224	1.0000

SE
*
1 2 3 4 5 6 7 8 9 10 11 12
MO NX=12 NK=3 PH=ST
FR TD=DI,FR
FR LX(1,1) LX(2,1) LX(3,1) LX(4,1)
LX(5,2) LX(6,2) LX(7,2) LX(8,2)
FR LX(9,3) LX(10,3) LX(11,3) LX(12,3)
OU SE RS TV MI

LEGEND

V1=v1611r Liaising with people
V2=v0911r Influencing People
V3=v0811r Facilitating People
V4=v1811r Presenting People
V5=v2441r Analysing Data
V6=v2241R Organising Data
V7=v2941r Classifying Data
V8=v3541r Compiling Information
V9=v4081r Arranging Physical Goods and Papers
V10=v4591r Tending Machinery such as Equipment
V11=v4691 Using Machinery such as Equipment
V12=v4692 Using Machinery such as Vehicles

Appendix E

Survey Items Used Across Levels One to Eight

Because of the length (160 pages), the original questionnaires are not included. The full questionnaires may be viewed by contacting the writer at 17 Irvine St., Peppermint Grove, Western Australia, 6011 Ph 09-384-9043.

Instructions: The first digit of the code for each item indicates the level. The second two digits identifies a skill. The remaining two digits identifies a context.
 1. Level 1

SECTION 1

10211 Negotiating with public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

10411 Presenting to public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

10412 Presenting to public sector groups such as work and project teams

10611 Training public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

10621 Training non public sector individuals such as students, clients, salespersons, visitors and contractors

10911 Influencing public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

10921 Influencing non-public sector individuals such as students, clients, sales person, visitors, contractors etc

11211 Advising public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

11221 Advising non-public sector individuals such as students, clients, sales person, visitors, contractors etc

11222 Advising non-public sector groups from Community Organisations; Personnel Agencies, printers, Insurance Agencies etc

11511 Informing public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

11512 Informing public sector groups such as work and project teams

11521 Informing non-public sector individuals such as students, clients, sales person, visitors, contractors etc

11311 Interviewing public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

11312 Interviewing public sector groups such as work and project teams

11321 Interviewing non-public sector individuals such as students, clients, sales person, visitors, contractors etc

11611 Liaising with public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

11612 Liaising with public sector groups such as work and project teams

11621 Liaising with non-public sector individuals such as students, clients, sales person, visitors, contractors etc

11622 Liaising with non-public sector groups from Community Organisations; Personnel Agencies, printers, Insurance Agencies etc

11711 Assisting public sector employees at all levels such as Managers, Colleagues, supervised staff, regional employees etc

11712 Assisting public sector groups such as work and project teams

11721 Assisting non-public sector individuals such as students, clients, sales person, visitors, contractors etc

11722 Assisting non-public sector groups from Community Organisations; Personnel Agencies, printers, Insurance Agencies etc

12141 Coordinating financial data e.g., invoices, batches, orders and petty cash

12151 Coordinating standard procedures for daily work such as word processing, data entry, filing and travel arrangements

12241 Organising financial data e.g., invoices, batches orders and petty cash

12242 Organising numerical data such as file or job numbers and calculations such as conversions, allowances, quantities and values of orders

12251 Organising standard procedures eg files, word processing, travel arrangements, and data entry in manuals, awards, administrative instructions etc

12341 Processing financial data e.g., invoices, batches, orders and petty cash

12434 Analysing problems in own work area relating to procedures or simple errors which are often referred by clients

12435 Analysing general queries or information requests or inquiries from clients over the telephone or counter relating to immediate work section

12441 Analysing financial data e.g., invoices, batches, orders and petty cash

12451 Analysing standard procedures eg files, word processing, travel arrangements, and data entry in manuals, awards, administrative instructions etc

12535 Deciding on general queries or information requests or inquiries from clients over the telephone or counter relating to immediate work section

12541 Deciding on financial data e.g., invoices, batches, orders and petty cash

12641 Evaluating financial data e.g., invoices, batches, orders and petty cash

12651 Evaluating standard procedures eg files, word processing, travel arrangements, and data entry in manuals, awards, administrative instructions etc

12734 Investigating problems in own work area relating to procedures or simple errors which are often referred by clients

12735 Investigating general queries or information requests or inquiries from clients over the telephone or counter relating to immediate work section

12733 Investigating simple facts such as names, telephone numbers, basic client and agency information

12741 Investigating financial data e.g.,invoices, batches, orders and petty cash

12751 Investigating standard procedures eg files, word processing, travel arrangements, and data entry in manuals, awards, administrative instructions etc

12834 Solving problems in own work area relating to procedures or simple errors which are often referred by clients

12933 Classifying simple facts such as names, telephone numbers, basic client and agency information

12941 Classifying financial data e.g., invoices, batches, orders and petty cash

13034 Comparing problems in own work area relating to procedures or simple errors which are often referred by clients

13035 Comparing general queries or information requests or inquiries from clients over the telephone or counter relating to immediate work section

13033 Comparing simple facts such as names, telephone numbers, basic client and agency information

13041 Comparing financial data e.g., invoices, batches, orders and petty cash

13042 Comparing numerical data such as file or job numbers and calculations such as conversions, allowances, quantities and values of orders

13141 Calculating financial data e.g., invoices, batches, orders and petty cash

13142 Calculating numerical data such as file or job numbers and calculations such as conversions, allowances, quantities and values of orders

13433 Assimilating simple facts such as names, telephone numbers, basic client and agency information

13442 Assimilating numerical data such as file or job numbers and calculations such as conversions, allowances, quantities and values of orders

13451 Assimilating standard procedures eg files, word processing, travel arrangements, and data entry in manuals, awards, administrative instructions etc

13533 Compiling simple facts such as names, telephone numbers, basic client and agency information

13634 Reporting on problems in own work area relating to procedures or simple errors which are often referred by clients

13635 Reporting on general queries or information requests or inquiries from clients over the telephone or counter relating to immediate work section

13633 Reporting simple facts such as names, telephone numbers, basic client and agency information

13771 Writing correspondence letters, internal memos to staff and file notes. Also correspondence relating to client queries and requests for information

13772 Writing general or standard operational reports on the status of clients or systems

14081 Arranging supplies such as stationary, tapes and inventory items etc

14082 Arranging papers such as files, photocopies, microfiche, pay advises and reports etc

14182 Distributing papers such as files, photocopies, microfiche, pay advises and reports etc

14181 Distributing supplies such as stationary, and tapes etc

14591 Tending equipment such as keyboards, photocopies, fax machines, calculators, and telephone systems etc

14691 Using equipment such as keyboards, photocopies, fax machines, calculators, and telephone systems etc

14692 Using vehicles e.g. motor cars or forklift

SECTION 1

20211 Negotiating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

20221 Negotiating non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

20411 Presenting to public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

20412 Presenting to Public Sector groups such as work and project teams

20611 Training public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

20621 Training non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

20911 Influencing public service employees at all levels such as managers, colleagues, supervised staff, regional employees etc

20921 Influencing non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

21111 Supervising public service employees at all levels such as managers, colleagues, supervised staff, regional employees etc

21121 Supervising non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

21211 Advising public service employees at all levels such as managers, colleagues, supervised staff, regional employees etc

21212 Advising public sector groups such as work and project teams

21213 Advising public sector parliamentary groups such as ministerial staff

21221 Advising non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

21222 Advising non-public sector groups such as Community Organisations, personnel agencies, printers and Insurance Agencies; and the Media

21511 **Informing** public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

21512 Informing public sector groups such as work and project teams

21521 Informing non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

21311 **Interviewing** public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

21312 Interviewing public sector groups such as work and project teams

21321 Interviewing non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

21322 Interviewing non-public sector groups such as Community Organisations, personnel agencies, printers and Insurance Agencies; and the Media

21611 **Liaising** with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

21612 Liaising with public sector groups such as work and project teams

21613 Liaising with parliamentary groups such as ministerial staff

21621 Liaising non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

21622 Liaising with non-public sector groups such as Community Organisations, personnel agencies, printers and Insurance Agencies; and the Media

21711 Assisting Public Sector Employees at all levels such as managers, colleagues, supervised staff, regional employees etc

21712 Assisting with public sector groups from Community Organisations and Industry such as personnel agencies, printers and Insurance Agencies. Also deal with the Media

21721 Assisting non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

21722 Assisting non-public sector groups such as Community Organisations, personnel agencies, printers and Insurance Agencies; and the Media

21951 Developing standard procedures e.g., filing, word processing, travel arrangements and data entry in manuals, awards, administrative instructions etc.; and information recording systems. Also changes in procedures and systems

22131 Coordinating information gathering means/methods and sources of information

22141 Coordinating financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

22142 Coordinating numerical data such as leave credits, general trends and simple statistics

22151 Coordinating standard procedures e.g., filing, word processing, travel arrangements and data entry in manuals, awards, administrative instructions etc.; and information recording systems. Also changes in procedures and systems

22153 Coordinating legislation used in daily work processing e.g., determining eligibility assistance according to guidelines from Acts

22233 Organising simple facts such as names, telephone numbers basic client and agency information as well as relevant facts from meetings,

147

briefings and models.

22241 Organising financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

22242 Organising numerical data such as leave credits, general trends and simple statistics

22251 Organising standard procedures e.g., filing, word processing, travel arrangements and data entry in manuals, awards, administrative instructions etc.; and information recording systems. Also changes in procedures and systems

22341 Processing financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

22342 Processing numerical data such as leave credits, general trends and simple statistics

22434 Analysing problems in own work area relating to procedures or simple errors which are often referred by clients

22435 Analysing queries and information requests from clients about information specific to them e.g., invoice accounts, salaries. Also general inquiries and help desk queries

22441 Analysing financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

22442 Analysing numerical data such as leave credits, general trends and simple statistics

22451 Analysing standard procedures e.g., filing, word processing, travel arrangements and data entry in manuals, awards, administrative instructions etc.; and information recording systems. Also changes in procedures and systems

22531 Deciding information gathering means/methods and sources of information

22535 Deciding upon queries and information requests from clients about information specific to them e.g., invoice accounts, salaries. Also general inquiries and help desk queries

148

22541 Deciding financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

22634 Evaluating problems in own work area relating to procedures or simple errors which are often referred by clients

22641 Evaluating financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

22642 Evaluating numerical data such as leave credits, general trends and simple statistics

22651 Evaluating standard procedures e.g., filing, word processing, travel arrangements and data entry in manuals, awards, administrative instructions etc.; and information recording systems. Also changes in procedures and systems

22734 Investigating problems in own work area relating to procedures or simple errors which are often referred by clients

22733 Investigating simple facts such as names, telephone numbers basic client and agency information as well as relevant facts from meetings, briefings and models.

22741 Investigating financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

22751 Investigating standard procedures e.g., filing, word processing, travel arrangements and data entry in manuals, awards, administrative instructions etc.; and information recording systems. Also changes in procedures and systems

22834 Solving problems in own work area relating to procedures or simple errors which are often referred by clients

22933 Classifying simple facts such as names, telephone numbers basic client and agency information as well as relevant facts from meetings, briefings and models.

22941 Classifying financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

23141 Calculating financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

23142 Calculating numerical data such as leave credits, general trends and simple statistics

23433 Assimilating simple facts such as names, telephone numbers basic client and agency information as well as relevant facts from meetings, briefings and models.

23442 Assimilating numerical data such as leave credits, general trends and simple statistics

23451 Assimilating standard procedures e.g., filing, word processing, travel arrangements and data entry in manuals, awards, administrative instructions etc.; and information recording systems. Also changes in procedures and systems

23533 Compiling simple facts such as names, telephone numbers basic client and agency information as well as relevant facts from meetings, briefings and models.

23541 Compiling financial data e.g., invoices, batches, orders, petty cash, deficiencies, overpayments, & reconciliations etc

23633 Reporting simple facts such as names, telephone numbers basic client and agency information as well as relevant facts from meetings, briefings and models.

23634 Reporting problems in own work area relating to procedures or simple errors which are often referred by clients

23635 Reporting upon queries and information requests from clients about information specific to them e.g., invoice accounts, salaries. Also general inquiries and help desk queries

23631 Reporting information gathering means/methods and sources of information

23651 Reporting standard procedures e.g., filing, word processing, travel arrangements and data entry in manuals, awards, administrative instructions etc.; and information recording systems. Also changes in procedures and systems

23771 Writing correspondence such as letters, internal memos to staff and file notes. Also correspondence relating to client queries and requests for information

23772 Writing general or standard operational reports on the status of clients or system

24082 Arranging papers such as files, photocopies, microfiche, pay advises and report etc

24081 Arranging supplies such as stationery, tapes and inventory items etc

24182 Distributing papers such as files, photocopies, microfiche, pay advises and report etc

24181 Distributing supplies such as stationery and tapes etc,

24591 Tending equipment such as keyboards, photocopiers, fax machines, calculators and telephone systems

24691 Using equipment such as keyboards, photocopiers, fax machines, calculators and telephone systems

24692 Operating vehicles e.g. motors cars or forklift

Level 3

SECTION 1

30211 Negotiating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

30212 Negotiating with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

30213 Negotiating with public sector parliamentary groups such as ministerial staff

30221 Negotiating with non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

30222 Negotiating with non-public sector groups such as importer, exporters, Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

30411 Presenting to public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

30412 Presenting to public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

30422 Presenting to non-public sector groups such as importer, exporters, Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

30611 Training public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

30621 Training non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

30811 Facilitating public sector employees at all levels such as managers,

colleagues, supervised staff, regional employees etc

30812 Facilitating public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

30813 Facilitating public sector parliamentary groups such as ministerial staff

30821 Facilitating non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

30822 Facilitating with non-public sector groups such as importer, exporters, Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

30911 Influencing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

30912 Influencing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

30921 Influencing non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

31111 Supervising public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

31113 Supervising public sector parliamentary groups such as ministerial staff

31121 Supervising non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

31211 Advising public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

31212 Advising public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

153

31213 Advising public sector parliamentary groups such as ministerial staff

31221 Advising non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

31222 Advising non-public sector groups such as importer, exporters, Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

31411 Consulting with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

31421 Consulting non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

31422 Consulting with non-public sector groups such as importer, exporters, Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

31511 Informing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

31512 Informing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

31513 Informing parliamentary groups such as ministerial staff

31521 Informing non-public sector individuals students, clients, salespersons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

31522 Informing non-public sector groups such as importer, exporters, Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

31311 Interviewing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees **etc**

154

31312 Interviewing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

31313 Interviewing parliamentary groups such as ministerial staff

31321 Interviewing non-public sector individuals students, clients, sales-persons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

31322 Interviewing non-public sector groups such as importer, exporters, Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

31611 Liaising with public sector employees at all levels such as manag-ers, colleagues, supervised staff, regional employees etc

31612 Liaising with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

31613 Liaising with parliamentary groups such as ministerial staff

31621 Liaising with non-public sector individuals students, clients, sales-persons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

31622 Liaising with non-public sector groups such as importer, exporters, Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

31711 Assisting public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

31712 Assisting with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc

31721 Assisting non-public sector individuals students, clients, salesper-sons, visitors, contractors, help desk callers, dealers & suppliers, teacher & parents etc

31722 Assisting non-public sector groups such as importer, exporters,

Community interests/lobby groups, Local Councils, the media, employer organisations and public and private sector unions

31932 Developing recommendations for operational procedures in one's own area

31951 Developing procedures and systems used by the Agency e.g., administration, finance, HR and computer systems

31961 Developing plans such as objectives, strategies, performance indicators and evaluation methods for own section's activities

32131 Coordinating information gathering means/methods and sources of information

32136 Coordinating system and client requirements, and training needs of staff

32141 Coordinating financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

32142 Coordinating numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

32151 Coordinating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems

32152 Coordinating projects relevant to the Agency and internal work section eg EEO, OHSW

32153 Coordinating legislative procedures such as breaches and exemptions. Also amendments to awards

32231 Organising information gathering means/methods and sources of information

32242 Organising numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

32241 Organising financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

32251 Organising procedures and systems used by the Agency e.g., administration, finance, HR and computer systems

32252 Organising projects relevant to the Agency and internal work section e.g., EEO, OHSW

32342 Processing numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

32341 Processing financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

32431 Analysing information gathering means/methods and sources of information

32434 Analysing problems and complaints in own work area relating to procedures or simple errors often referred by clients and staff; and problems and issues relating to projects e.g., EEO, OHSW

32436 Analysing system and client requirements , and training needs of staff

32435 Analysing queries about legislation, systems, specific requests for action and operations, often from clients and in writing. also general requests for information

32442 Analysing numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

32441 Analysing financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

32453 Analysing legislative procedures such as breaches and exemptions. Also amendments to awards

32451 Analysing procedures and systems used by the Agency e.g., administration, finance, HR and computer systems

32531 Deciding information gathering means/methods and sources of information

32536 Deciding system and client requirements , and training needs of staff

32535 Deciding queries about legislation, systems, specific requests for action and operations, often from clients and in writing. also general requests for information

32541 Deciding upon financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

32542 Deciding upon numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

32561 Deciding upon plans such as objectives, strategies, performance indicators and evaluation methods for own section's activities

32634 Evaluating problems and complaints in own work area relating to procedures or simple errors often referred by clients and staff; and problems and issues relating to projects e.g., EEO, OHSW

32636 Evaluating system and client requirements , and training needs of staff

32631 Evaluating information gathering means/methods and sources of information

32642 Evaluating numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

32641 Evaluating financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

32651 Evaluating procedures and systems used by the Agency e.g.,

administration, finance, HR and computer systems

32652 Evaluating projects relevant to the Agency and internal work section e.g., EEO, OHSW

32733 Investigating simple facts such as names, telephone numbers basic client and agency information as well as relevant facts from meetings, briefings and models.

32734 Investigating problems and complaints in own work area relating to procedures or simple errors often referred by clients and staff; and problems and issues relating to projects e.g., EEO, OHSW

32741 Investigating financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

32751 Investigating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems

32752 Investigating projects relevant to the Agency and internal work section e.g., EEO, OHSW

32753 Investigating legislative procedures such as breaches and exemptions. Also amendments to awards

32834 Solving problems and complaints in own work area relating to procedures or simple errors often referred by clients and staff; and problems and issues relating to projects e.g., EEO, OHSW

32934 Classifying problems and complaints in own work area relating to procedures or simple errors often referred by clients and staff; and problems and issues relating to projects e.g., EEO, OHSW

32931 Classifying information gathering means/methods and sources of information

32941 Classifying financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

32942 Classifying numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and

159

budget variations

33141 Calculating financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

33142 Calculating numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

33434 Assimilating problems and complaints in own work area relating to procedures or simple errors often referred by clients and staff; and problems and issues relating to projects e.g., EEO, OHSW

33442 Assimilating numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

33451 Assimilating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems

33531 Compiling information gathering means/methods and sources of information

33541 Compiling financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

33542 Compiling numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

33631 Reporting information gathering means/methods and sources of information

33634 Reporting on problems and complaints referred by staff; problems and issues relating to projects e.g., EEO, OHSW

33635 Reporting on queries about legislation, systems, specific requests for action and operations, often from clients and in writing. also general requests for information

33636 Reporting system and client requirements , and training needs of

staff

33641 Reporting financial data such as revenue, expenditures, assets, liabilities, charts and ledgers. Also budgets as a whole including variations

33642 Reporting on numerical data such as survey and field data for summary calculations and statistics. Also calculations such as ratios and budget variations

33651 Reporting procedures and systems used by the Agency e.g., administration, finance, HR and computer systems

33652 Reporting on projects relevant to the Agency and internal work section e.g. EEO, OHSW

33771 Writing routine correspondence with clients and others organisations and draft correspondence for higher level staff to work on. Also bulletins for staff

33772 Writing reports on results of organisational systems e.g., selection reports; Draft reports for higher level staff to work on

33773 Writing resource material such as minutes, agendas, training course outlines and handouts

33774 Writing articles in internal publications

33775 Writing briefing notes for others

34181 Distributing supplies such as stationary, tapes and inventory items

34591 Tending equipment such as keyboards, photocopiers, fax machines, calculators and telephone systems etc

34691 Using equipment such as photocopiers, fax machines, calculators, telephone systems, filing systems etc

34692 Using vehicles e.g. motor cars or forklifts

Level 4

SECTION 1

40111 Mediating between public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

40121 Mediating between non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

40122 Mediating between non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

40211 Negotiating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

40212 Negotiating with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

40213 Negotiating with public sector parliamentary groups such as Ministers and ministerial staff

40221 Negotiating with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

40222 Negotiating with non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

40411 Presenting to public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

40412 Presenting to public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

40421 Presenting to non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

40422 Presenting to non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

40611 Training public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

40612 Training public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

40621 Training non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

40622 Training non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

40811 Facilitating public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

40812 Facilitating public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

40821 Facilitating non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

40822 Facilitating non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

40911 Influencing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

40912 Influencing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

40921 Influencing non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

40922 Influencing non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

41011 Managing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

41012 Managing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

41211 Advising public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

41212 Advising public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

41213 Advising public sector parliamentary groups such as Ministers and ministerial staff

41221 Advising non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

41222 Advising non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

41411 Consulting public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

41412 Consulting with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

41421 Consulting with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

41422 Consulting non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

41511 Informing public sector employees at all levels such as managers,

colleagues, supervised staff, regional employees etc

41512 Informing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

41513 Informing public sector parliamentary groups such as Ministers and ministerial staff

41521 Informing non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

41522 Informing non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

41311 Interviewing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

41312 Interviewing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

41313 Interviewing public sector parliamentary groups such as Ministers and ministerial staff

41321 Interviewing non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, and consultants and contractors

41322 Interviewing non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

41611 Liaising with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

41612 Liaising with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

41613 Liaising with public sector parliamentary groups such as Ministers

and ministerial staff

41621 Liaising with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

41622 Liaising with non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

41711 Assisting public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

41712 Assisting public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

41721 Assisting non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

41722 Assisting non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

41811 Cooperating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

41812 Cooperating with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

41821 Cooperating with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

41822 Cooperating with non-public sector groups such as importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions

41931 Developing research methodologies, principles, process, and techniques for gathering information

41932 Developing recommendations, proposals and initiatives on systems and procedures relating to the Agency or section e.g. financial, budget, funding etc

41941 Developing financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

41954 Developing internal policy to make decisions or provide guidelines e.g. EEO policy

41951 Developing procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

41952 Developing projects relevant to the Agency and internal work section e.g. EEO, OHSW

41961 Developing operational, branch, directorate and research plans and campaigns, such as performance outcomes of a branch or region

42132 Coordinating recommendations, proposals and initiatives on systems and procedures relating to the Agency or section e.g. financial, budget, funding etc

42131 Coordinating research methodologies, principles, process, and techniques for gathering information

42136 Coordinating client needs, training needs and resource requirements as well as the requirements of system users

42141 Coordinating financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

42142 Coordinating numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

42152 Coordinating projects relevant to the Agency and internal work section e.g. EEO, OHSW

42151 Coordinating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of

practice and legislation

42153 Coordinating legislation used to determine obligations, requirements and compliance, as well as legal precedents and rulings

42161 Coordinating operational, branch, directorate and research plans and campaigns, such as performance outcomes of a branch or region

42231 Organising research methodologies, principles, process, and techniques for gathering information

42241 Organising financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. also financial structures such as ledgers and financial statements.

42242 Organising numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

42251 Organising procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

42252 Organising projects relevant to the Agency and internal work section e.g. EEO, OHSW

42341 Processing financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

42342 Processing numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

42434 Analysing problems, issues and discrepancies relating to organisational systems and procedures as well as those referred by users, public, clients etc

42436 Analysing client needs, training needs and resource requirements as well as the requirements of system users

42431 Analysing research methodologies, principles, process, and tech-

42435 Analysing queries about project areas e.g. OHSW, and those from supervised staff and clients as well as requests for provision of support services

42441 Analysing financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

42442 Analysing numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

42451 Analysing procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

42454 Analysing internal policy to make decisions or provide guidelines e.g. EEO policy

42453 Analysing legislation used to determine obligations, requirements and compliance, as well as legal precedents and rulings

42461 Analysing operational, branch, directorate and research plans and campaigns, such as performance outcomes of a branch or region

42535 Deciding upon queries about project areas e.g. OHSW, and those from supervised staff and clients as well as requests for provision of support services

42532 Deciding upon recommendations, proposals and initiatives on systems and procedures relating to the Agency or section e.g. financial, budget, funding etc

42531 Deciding upon research methodologies, principles, process, and techniques for gathering information

42536 Deciding upon client needs, training needs and resource requirements as well as the requirements of system users

42541 Deciding upon financial data relating to budgets : such as bids,

forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

42542 Deciding upon numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

42551 Deciding upon procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

42561 Deciding upon operational, branch, directorate and research plans and campaigns, such as performance outcomes of a branch or region

42634 Evaluating problems, issues and discrepancies relating to organisational systems and procedures as well as those referred by users, public, clients etc

42632 Evaluating recommendations, proposals and initiatives on systems and procedures relating to the Agency or section e.g. financial, budget, funding etc

42631 Evaluating research methodologies, principles, process, and techniques for gathering information

42636 Evaluating client needs, training needs and resource requirements as well as the requirements of system users

42641 Evaluating financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structure such as ledgers and financial statements.

42642 Evaluating numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

42651 Evaluating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

42652 Evaluating projects relevant to the Agency and internal work section e.g. EEO, OHSW

42661 Evaluating operational, branch, directorate and research plans and campaigns, such as performance and outcomes of a branch or region

42734 Investigating problems, issues and discrepancies relating to organisational systems and procedures as well as those referred by users, public, clients etc

42731 Investigating research methodologies, principles, process, and techniques for gathering information

42736 Investigating client needs, training needs and resource requirements as well as the requirements of system users

42741 Investigating financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

42753 Investigating legislation used to determine obligations, requirements and compliance, as well as legal precedents and rulings

42751 Investigating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

42752 Investigating projects relevant to the Agency and internal work section e.g. EEO, OHSW

42834 Solving problems, issues and discrepancies relating to organisational systems and procedures as well as those referred by users, public, clients etc

42934 Classifying problems, issues and discrepancies relating to organisational systems and procedures as well as those referred by users, public, clients etc

42931 Classifying research methodologies, principles, process, and techniques for gathering information

42941 Classifying financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

42942 Classifying numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

43051 Comparing procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

43142 Calculating numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

43431 Assimilating research methodologies, principles, process, and techniques for gathering information

43434 Assimilating problems, issues and discrepancies relating to organisational systems and procedures as well as those referred by users, public, clients etc

43442 Assimilating numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

43451 Assimilating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

43454 Assimilating internal policy to make decisions or provide guidelines e.g. EEO policy

43531 Compiling research methodologies, principles, process, and techniques for gathering information

43536 Compiling client needs, training needs and resource requirements as well as the requirements of system users

43541 Compiling financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

43542 Compiling numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

43631 Reporting on research methodologies, principles, process, and techniques for gathering information

43635 Reporting on queries about project areas e.g. OHSW, and those from supervised staff and clients as well as requests for provision of support services

43636 Reporting on client needs, training needs and resource requirements as well as the requirements of system users

43634 Reporting on problems, issues and discrepancies relating to organisational systems and procedures as well as those referred by users, public, clients etc

43641 Reporting on financial data relating to budgets : such as bids, forecasts, needs and actual amounts for the branch and organisation. Also financial structures such as ledgers and financial statements.

43642 Reporting on numerical data such as calculations such as ratios, taxation, inventory, costs and benefits, summary statistics and numerical results of research

43652 Reporting on projects relevant to the Agency and internal work section e.g. EEO, OHSW

43651 Reporting on procedures and systems used by the Agency e.g., administration, finance, HR and computer systems; and operational procedures as set down in guidelines, standards, professional codes of practice and legislation

43771 Writing correspondence such as letters and ministerials containing answers to queries and solutions to problems

43772 Writing reports such as annual, audit and project progress reports

43773 Writing resource material such as minutes, agendas, training course outlines and handouts, such as draft pamphlets for promotional activities

43774 Writing articles for distribution outside the Agency

43775 Writing briefing notes for others

44591 Tending equipment such as keyboards, photocopiers, fax machines, calculators, and telephone systems etc

44691 Using equipment such as photocopiers, fax machines, calculators, telephone systems, filing systems etc

44692 Using vehicles e.g. motor cars or forklifts

Level 5

SECTION 1

50111 Mediating between public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

50112 Mediating between public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

50121 Mediating between non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

50122 Mediating between non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

50211 Negotiating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

50212 Negotiating with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

50213 Negotiating with public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

50221 Negotiating with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

50222 Negotiating with non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

50311 Representing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

50312 Representing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

50313 Representing public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

50321 Representing non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

50322 Representing non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

50411 **Presenting** to public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

50412 Presenting to public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

50421 Presenting to non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

50422 Presenting to non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

50511 **Teaching** public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

50512 Teaching public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

50521 Teaching non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

50522 Teaching non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

50611 Training public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

50612 Training public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

50621 Training non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

50622 Training non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

50811 Facilitating public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

50812 Facilitating public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

50821 Facilitating non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

50822 Facilitating non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

50911 Influencing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

50912 Influencing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

50921 Influencing non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

50922 Influencing non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

51011 Managing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

51012 Managing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

51211 Advising public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

51212 Advising public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

51213 Advising public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

51221 Advising non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

51222 Advising non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

51411 Consulting public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

51412 Consulting public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

51421 Consulting non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and

contractors

51422 Consulting non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

51511 Informing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

51512 Informing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

51513 Informing public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

51521 Informing non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

51522 Informing non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

51311 Interviewing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

51312 Interviewing public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

51313 Interviewing public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

51321 Interviewing non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

51322 Interviewing non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

51611 Liaising with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

51612 Liaising with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

51613 Liaising with public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

51621 Liaising with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

51622 Liaising with non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

51711 Assisting public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

51712 Assisting public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

51721 Assisting non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

51722 Assisting non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

51811 Cooperating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

51812 Cooperating with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

51813 Cooperating with public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

51821 Cooperating with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors

51822 Cooperating with non-public sector groups e.g., importer, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

51931 Developing structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

51932 Developing recommendations on courses of action and resource options, arising from research; and forecasts and proposals relating to projects and operations e.g. research, systems, directions, training

51951 Developing procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS

51954 Developing government and internal policy such as directives e.g., policy related to physical resources

51952 Developing projects relating to the Agency as a whole e.g. the development of policy and research projects

51961 Developing corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

52031 Devising structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

52032 Devising recommendations on courses of action and resource options, arising from research; and forecasts and proposals relating to projects and operations e.g. research, systems, directions, training

52061 Devising corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

52131 Coordinating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

52132 Coordinating recommendations on courses of action and resource options, arising from research; and forecasts and proposals relating to projects and operations e.g. research, systems, directions, training

52136 Coordinating needs such as training requirements, client and staff needs, and requirements arising from systems

52141 Coordinating financial data such as budget data such as submissions and sources of funding, and financial trends

52142 Coordinating numerical data relating to research such as survey and experimental data; and calculations relating to statistics

52154 Coordinating government and internal policy such as directives e.g., policy related to physical resources

52152 Coordinating projects relating to the Agency as a whole e.g. the development of policy and research projects

52153 Coordinating legislation used to determine obligations, requirements and compliance and changes/amendments and their impact on the organisation. Also legal precedents and ruling

52151 Coordinating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

52161 Coordinating corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

52231 Organising structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

52241 Organising financial data such as budget data such as submissions and sources of funding, and financial trends

52242 Organising numerical data relating to research such as survey and experimental data; and calculations relating to statistics

52251 Organising procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

52254 Organising government and internal policy such as directives e.g., policy related to physical resources

52252 Organising projects relating to the Agency as a whole e.g. the development of policy and research projects

52341 Processing financial data such as budget data such as submissions and sources of funding, and financial trends

52342 Processing numerical data relating to research such as survey and experimental data; and calculations relating to statistics

52432 Analysing recommendations on courses of action and resource options, arising from research; and forecasts and proposals relating to projects and operations e.g. research, systems, directions, training

52434 Analysing problems in systems, projects and procedures, such as technical problems referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section

52436 Analysing needs such as training requirements, client and staff needs, and requirements arising from systems

52431 Analysing structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

52435 Analysing queries from supervised staff and clients; requests for the provision of a service and requests from external groups e.g. unions

52441 Analysing financial data such as budget data such as submissions and sources of funding, and financial trends

52442 Analysing numerical data relating to research such as survey and experimental data; and calculations relating to statistics

52451 Analysing procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

52453 Analysing legislation used to determine obligations, requirements and compliance, and changes/amendments and their impact on the organisation. Also legal precedents and rulings

52454 Analysing government and internal policy such as directives e.g., policy related to physical resources

52461 Analysing corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

52531 Deciding on structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

52532 Deciding on recommendations on courses of action and resource options, arising from research; and forecasts and proposals relating to projects and operations e.g. research, systems, directions, training

52535 Deciding on queries from supervised staff and clients; requests for the provision of a service and requests from external groups e.g. unions

52536 Deciding on needs such as training requirements, client and staff needs, and requirements arising from systems

52541 Deciding on financial data such as budget data such as submissions and sources of funding, and financial trends

52542 Deciding on numerical data relating to research such as survey and experimental data; and calculations relating to statistics

52553 Deciding on legislation used to determine obligations, requirements and compliance, and changes/amendments and their impact on the organisation. Also legal precedents and rulings;

52551 Deciding on procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

52561 Deciding on corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

52634 ~~Evaluating~~ problems in systems, projects and procedures, such as technical problems referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section

52632 Evaluating recommendations on courses of action and resource options, arising from research; and forecasts and proposals relating to projects and operations e.g. research, systems, directions, training

52636 Evaluating needs such as training requirements, client and staff needs, and requirements arising from systems

52631 Evaluating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

52641 Evaluating financial data such as budget data such as submissions and sources of funding, and financial trends

52652 Evaluating projects relating to the Agency as a whole e.g. the development of policy and research projects

52651 Evaluating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

52661 Evaluating corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

52732 ~~Investigating~~ recommendations on courses of action and resource options, arising from research; and forecasts and proposals relating to projects and operations e.g. research, systems, directions, training

52734 Investigating problems in systems, projects and procedures, such as technical problems referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section

52736 Investigating needs such as training requirements, client and staff needs, and requirements arising from systems

52731 Investigating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

52742 Investigating numerical data relating to research such as survey and experimental data; and calculations relating to statistics

52752 Investigating projects relating to the Agency as a whole e.g. the development of policy and research projects

52751 Investigating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

52753 Investigating legislation used to determine obligations, requirements and compliance, and changes/amendments and their impact on the organisation. Also legal precedents and rulings

52761 Investigating corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

52834 Solving problems in systems, projects and procedures, such as technical problems referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section

52931 Classifying structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

52934 Classifying problems in systems, projects and procedures, such as technical problems referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section

52942 Classifying numerical data relating to research such as survey and experimental data; and calculations relating to statistics

52954 Classifying government and internal policy such as directives e.g., policy related to physical resources

53036 Comparing needs such as training requirements, client and staff needs, and requirements arising from systems

53051 Comparing procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

53434 Assimilating problems in systems, projects and procedures, such as technical problems referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section

53431 Assimilating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

53441 Assimilating financial data such as budget data such as submissions and sources of funding, and financial trends

53442 Assimilating numerical data relating to research such as survey and experimental data; and calculations relating to statistics

53451 Assimilating procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

53461 Assimilating corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

53531 Compiling structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies

53536 Compiling needs such as training requirements, client and staff

needs, and requirements arising from systems

53541 Compiling financial data such as budget data such as submissions and sources of funding, and financial trends

53542 Compiling numerical data relating to research such as survey and experimental data; and calculations relating to statistics

53561 Compiling corporate, business unit, action and project plans e.g. EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

53636 Reporting on needs such as training requirements, client and staff needs, and requirements arising from systems

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53635 Reporting on queries from supervised staff and clients; requests for the provision of a service and requests from external groups e.g. unions

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53641 Reporting on financial data such as budget data such as submissions and sources of funding, and financial trends

53642 Reporting on numerical data relating to research such as survey and experimental data; and calculations relating to statistics

53651 Reporting on procedures and systems used by the Agency e.g., administration, finance, HR and computer systems, operational procedures as set down in guidelines, standards, professional codes of practice and legislation; systems used across Government e.g. PIMS;

53652 Reporting on projects relating to the Agency as a whole e.g. the development of policy and research projects

53661 Reporting on corporate, business unit, action and project plans e.g.

EEO, OHSW; strategies and timeframes/timelines for systems and programs; and performance outcomes on an Agency level

53771 Writing correspondence such as letters containing answers to queries and solutions to problems. Ministerials, Cabinet Minutes and Submissions and letters for senior management

53772 Writing reports such as audit reports, reports to external clients and discussion papers on research, policy and Branch/Agency position

53773 Writing resource material such as minutes, agendas, training course outlines and handouts, such as draft and final pamphlets and brochures for promotional activities; information sheets and materials to be handed out for discussion

53774 Writing articles for distribution outside the Agency, scientific/technical articles and articles for newspapers

53775 Writing briefing notes for own speeches and presentations as well as briefing notes for others

54691 Using equipment such as keyboards, photocopiers, fax machines, calculators and telephone systems, etc

54692 Using vehicles e.g. motor cars or forklifts

Level 6

SECTION 1

60111 Mediating between public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

60112 Mediating between public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

60121 Mediating between non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors. Also solicitors, engineers, architects and scientists

60122 Mediating between non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

60211 Negotiating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

60212 Negotiating with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

60213 Negotiating with public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

60221 Negotiating with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors. Also solicitors, engineers, architects and scientists

60222 Negotiating with non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

60311 Representing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

60312 Representing public sector groups such as work and project teams and departmental committees e.g. EEO, OHSW, Staff Consultative

Group etc; branch, divisional or regional committees and advisory groups

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60411 **Presenting** to public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

60412 Presenting to public sector groups such as work and project teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

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60422 Presenting to non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

60511 **Teaching** public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

60512 Teaching public sector groups such as work and project teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

60521 Teaching non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors. Also solicitors, engineers, architects and scientists

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60711 Counselling public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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61011 Managing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

61012 Managing public sector groups such as work and project teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups

61211 Advising public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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61931 Developing structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

61932 Developing recommendations, initiatives and proposals on departmental policy and procedures, and proposals relating to industry/clients

61942 Developing numerical data such as trends in scientific, economic data and across industry

61951 Developing procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

61952 Developing research projects and projects worked on by others

61954 Developing management, financial and corporate policy

61961 Developing corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

62031 Devising structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

62032 Devising recommendations, initiatives and proposals on departmental policy and procedures, and proposals relating to industry/clients

62061 Devising corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

62131 Co-ordinating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop poli-

cies; research projects such as methodologies

62132 Co-ordinating recommendations, initiatives and proposals on departmental policy and procedures, and proposals relating to industry/clients

62141 Co-ordinating financial data such as budget data, the financial performance of the agency and trends in financial data

62142 Co-ordinating numerical data such as trends in scientific, economic data and across industry

62151 Co-ordinating procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

62152 Co-ordinating research projects and projects worked on by others

62153 Co-ordinating legislation used to determine obligations, requirements and compliance and changes/amendments and their impact on the organisation. Also legal precedents and ruling

62154 Co-ordinating management, financial and corporate policy

62155 Co-ordinating and programs within the Agency

62161 Co-ordinating corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

62231 Organising structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

62232 Organising recommendations, initiatives and proposals on departmental policy and procedures, and proposals relating to industry/clients

62241 Organising financial data such as budget data, the financial performance of the agency and trends in financial data

62242 Organising numerical data such as trends in scientific, economic data and across industry

62251 Organising procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

62252 Organising research projects and projects worked on by others

62254 Organising management, financial and corporate policy

62255 Organising and programs within the Agency

62261 Organising corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

62341 Processing financial data such as budget data, the financial performance of the agency and trends in financial data

62434 Analysing problems in systems, projects and procedures, such as technical problems, referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section. Also problems involving areas outside the Agency e.g., Industrial problems

62431 Analysing structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

62432 Analysing recommendations, initiatives and proposals on departmental policy and procedures, and proposals relating to industry/clients

62435 Analysing queries from supervised staff, clients and the media; requests for the provision of a service and requests from external groups e.g. Unions

62442 Analysing numerical data such as trends in scientific, economic data and across industry

62441 Analysing financial data such as budget data, the financial performance of the agency and trends in financial data

62453 Analysing legislation used to determine obligations, requirements and compliance and changes/amendments and their impact on the organ-

198

isation. Also legal precedents and ruling

62454 Analysing management, financial and corporate policy

62451 Analysing procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

62461 Analysing corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

62531 Deciding upon structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

62532 Deciding upon recommendations, initiatives and proposals on departmental policy and procedures; and on proposals relating to industry/clients

62541 Deciding upon financial data such as budget data, the financial performance of the agency and trends in financial data

62551 Deciding upon procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

62553 Deciding on legislation used to determine obligations, requirements and compliance and changes/amendments and their impact on the organisation. Also legal precedents and ruling

62554 Deciding on Government policy

62561 Deciding on Corporate, operational and section plans. Also resource usage/allocation within plans; performance outcomes of programs

62631 Evaluating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

62632 Evaluating recommendations, initiatives and proposals on departmental policy and procedures; and on proposals relating to

199

62651 Evaluating procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

62654 Evaluating Government policy

62655 Evaluating programs within the Agency

62661 Evaluating Corporate, operational and section plans. Also resource usage/allocation within plans; performance outcomes of programs

62731 Investigating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

62732 Investigating recommendations, initiatives and proposals on departmental policy and procedures, and proposals relating to industry/clients

62734 Investigating problems in systems, projects and procedures, such as technical problems, referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section. Also problems involving areas outside the Agency e.g., Industrial problems

62751 Investigating procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

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62754 Investigating management, financial and corporate policy

62761 Investigating corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

62834 Solving problems in systems, projects and procedures, such as

200

technical problems, referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section. Also problems involving areas outside the Agency e.g., Industrial problems

62942 Classifying numerical data such as trends in scientific, economic data and across industry

62934 Classifying problems in systems, projects and procedures, such as technical problems, referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section. Also problems involving areas outside the Agency e.g., Industrial problems

62954 Classifying management, financial and corporate policy

63036 Comparing user and client requirements

63051 Comparing procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

63054 Comparing Government policy

63431 Assimilating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

63441 Assimilating financial data such as budget data, the financial performance of the agency and trends in financial data

63442 Assimilating numerical data such as trends in scientific, economic data and across industry

63451 Assimilating procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

63461 Assimilating corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

63531 Compiling structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

63536 Compiling user and client requirements

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63542 Compiling numerical data such as trends in scientific, economic data and across industry

63561 Compiling corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

63631 Reporting on structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies; research projects such as methodologies

63632 Reporting on recommendations, initiatives and proposals on departmental policy and procedures; and on proposals relating to industry/clients

63634 Reporting on problems in systems, projects and procedures, such as technical problems, referred from other sections and regions; and problems relating to policy issues, the management of staff and the operations of a section. Also problems involving areas outside the Agency e.g., Industrial problems

63636 Reporting on user and client requirements

63641 Reporting on financial data such as budget data, the financial performance of the agency and trends in financial data

63651 Reporting on procedures and systems used by the Agency and across Government; and operational and branch procedures as set down in guidelines, standards, professional codes of practice and legislation. Also program management and instructions given at corporate level

63661 Reporting on Corporate, operational and section plans. Also resource usage/allocation within plans; performance outcomes of programs

63771 Writing correspondence such as letters containing answers to queries and solutions to problems. Ministerials, Cabinet Minutes and Submissions and letters for senior management

63772 Writing reports such as annual audit, research and industry reports; draft policy papers and papers for senior management

63773 Writing resource material such as minutes, agendas, training course outlines and handouts, such as draft and final pamphlets and brochures for promotional activities; information sheets and materials to be handed out for discussion

63774 Writing articles for distribution outside the Agency, scientific/technical articles and articles for newspapers and journals

63775 Writing briefing notes for own speeches and presentations as well as briefing notes for others

64691 Using equipment such as keyboards, photocopiers, fax machines, calculators and telephone systems, etc

64692 Using vehicles e.g. motor cars or forklifts

SECTION 1

70111 Mediating between public sector employees at all levels including managers, colleagues, supervised staff, regional employees etc

70112 Mediating between public sector groups such as work and projects teams and Departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups. Also Public Sector wide committees or interdepartmental teams

70121 Mediating between non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors. Also solicitors, engineers, architects, scientists and executives, directors and managers from Private companies

70122 Mediating between non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

70211 Negotiating with public sector employees at all levels including managers, colleagues, supervised staff, regional employees etc

70212 Negotiating with public sector groups such as work and projects teams and departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups. Also Public Sector wide committees or interdepartmental teams

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70222 Negotiating with between non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

70311 Representing public sector employees at all levels including

managers, colleagues, supervised staff, regional employees etc

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71721 Assisting with non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors. Also solicitors, engineers, architects, scientists and executives, directors and managers from Private companies

71811 Cooperating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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71822 Cooperating with non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

71931 Developing structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies. Plus research projects including methodologies, inferences and applications of findings

71932 Developing recommendations, proposals and initiatives effecting the Agency e.g., financial assistance. Also initiatives on operational directions, policy, advise for external areas

71951 Developing operational systems impacting on external areas e.g., metropolitan recycling collection

71954 Developing Government policy

71961 Developing corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

72031 Devising structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies. Plus research projects including methodologies, inferences and applications of findings

72032 Devising recommendations, proposals and initiatives effecting the Agency e.g., financial assistance. Also initiatives on operational directions, policy, advise for external areas

72041 Devising financial data such as budget data, the financial performance of the agency and trends in financial data

72061 Devising corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

72131 Coordinating structured and scientific research and information gathering methods to test hypotheses, choose systems and develop policies. Plus research projects including methodologies, inferences and applications of findings

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72152 Coordinating Government and Departmental projects

72153 Coordinating legislation used to determine obligations, require-

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72252 Organising Government and Departmental projects

72261 Organising corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

72341 Processing financial data such as budget data, the financial performance of the agency and trends in financial data

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72432 Analysing recommendations, proposals and initiatives effecting the Agency e.g., financial assistance. Also initiatives on operational directions, policy, advise for external areas

72434 Analysing problems and issues relating to the organisation and its systems e.g., accounting and staffing

72435 Analysing queries from supervised staff, clients, the media, other Agencies and Ministers; requests for the provision of a service and requests from external groups e.g. Unions

72441 Analysing financial data such as budget data, the financial performance of the agency and trends in financial data

72442 Analysing numerical data such as trends in scientific, economic data and across industry

72451 Analysing operational systems impacting on external areas e.g., metropolitan recycling collection

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72454 Analysing Government policy

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72461 Analysing corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

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73536 Compiling user and client requirements

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73561 Compiling corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

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73634 Reporting problems and issues relating to the organisation and its systems e.g., accounting and staffing

73641 Reporting financial data such as budget data, the financial performance of the agency and trends in financial data

73661 Reporting corporate, operational and section plans; resource usage and allocation within plans; performance outcomes of programs

73771 Writing correspondence such as letters containing answers to queries and solutions to problems. Ministerials, Cabinet Minutes and Submissions and letters for senior management

73772 Writing reports such as annual reports, reports of a managerial nature and reports on the progress of projects and programs. Also papers for conferences

73773 Writing resource material such as minutes, agendas, training course outlines and handouts, such as draft and final pamphlets and brochures for promotional activities; information sheets and materials to be handed out for discussion

73774 Writing articles for distribution outside the Agency, scientific/technical articles and articles for newspapers and journals

73775 Writing briefing notes for own speeches and presentations as well as briefing notes for others

74091 Arranging equipment such as keyboards, photocopiers, fax machines, calculators and telephone systems etc

74691 Using equipment such as photocopiers, fax machines, calculators, telephone systems, filing systems etc

74692 Using vehicles e.g. motor cars or forklifts

SECTION 1

80111 Mediating between public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

80112 Mediating between public sector groups such as work and projects teams and Departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups. Also Public Sector wide committees or interdepartmental teams

80113 Mediating with public sector parliamentary groups such as Ministers, ministerial staff, Parliamentary Council and Cabinet

80121 Mediating between non-public sector individuals such as Welfare clients, developers, valuers, salespersons, dealers, suppliers, consultants and contractors. Plus solicitors, engineers, architects, scientists and executives, directors and managers from Private companies. Also overseas dignitaries or visitors

80122 Mediating between non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

80211 Negotiating between public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

80212 Negotiating between public sector groups such as work and projects teams and Departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups. Also Public Sector wide committees or interdepartmental teams

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80311 Representing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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80411 Presenting to public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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80422 Presenting to non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

80511 Teaching public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

80512 Teaching public sector groups such as work and projects teams and Departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups. Also Public Sector wide committees or interdepartmental teams

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80622 Training non-public sector groups e.g., importers, exporters, Community interests/lobby groups, Local councils, the media, employer organisations and public and private sector unions. Also professional associations and research bodies

80711 Counselling public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

80712 Counselling public sector groups such as work and projects teams and Departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups. Also Public Sector wide committees or interdepartmental teams

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80811 Facilitating public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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80911 Influencing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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81011 Managing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

81012 Managing public sector groups such as work and projects teams and Departmental committees e.g. EEO, OHSW, Staff Consultative Group etc; branch, divisional or regional committees and advisory groups. Also Public Sector wide committees or interdepartmental teams

81311 Interviewing public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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81411 Consulting with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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81711 Assisting public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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81811 Cooperating with public sector employees at all levels such as managers, colleagues, supervised staff, regional employees etc

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81932 Developing policy options, initiatives and recommendations relating to the Agency as a whole e.g., Departmental systems, choice of technology etc

81951 Developing operational systems impacting on external areas e.g., metropolitan recycling collection

81954 Developing Government policy

82041 Devising financial data such as budgets such as costs and funding for programs

82054 Devising Government policy

82055 Devising Government programs e.g., land release and develop-

ment; departmental programs e.g., capital acquisition

82061 Devising Corporate and operational plans such as directions and performance outcomes of an organisation

82141 Coordinating financial data such as budgets such as costs and funding for programs

82151 Coordinating operational systems impacting on external areas e.g., metropolitan recycling collection

82153 Coordinating legislation used to determine obligations, requirements and compliance and changes/amendments and their impact on the organisation. Also legal precedents and ruling

82231 Organising ideas for areas of research to be undertaken

82241 Organising financial data such as budgets such as costs and funding for programs

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82261 Organising Corporate and operational plans such as directions and performance outcomes of an organisation

82431 Analysing ideas for areas of research to be undertaken

82434 Analysing problems faced by the organisation e.g., resource allocation; issues affecting programs, directions and policy

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82452 Analysing Government and Agency projects

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82554 Deciding on Government policy

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82632 Evaluating policy options, initiatives and recommendations relating to the Agency as a whole e.g., Departmental systems, choice of technology etc

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82734 Investigating problems faced by the organisation e.g., resource allocation; issues affecting programs, directions and policy

82754 Investigating Government policy

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82761 Investigating Corporate and operational plans such as directions and performance outcomes of an organisation

82834 Solving problems faced by the organisation e.g., resource allocation; issues affecting programs, directions and policy

82932 Classifying policy options, initiatives and recommendations relating to the Agency as a whole e.g., Departmental systems, choice of technology etc

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82941 Classifying financial data such as budgets such as costs and funding for programs

82942 Classifying numerical data such as program performance data

82952 Classifying Government and Agency projects

83054 Comparing Government policy

83431 Assimilating ideas for areas of research to be undertaken

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83536 Compiling user and client requirements

83561 Compiling Corporate and operational plans such as directions and performance outcomes of an organisation

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