Redesigning the jobs
Of nurses
Working in six nursing specialities

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fulfilment
of the requirements for the degree of
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Declaration of Authenticity

This is to certify that the dissertation entitled “Redesigning the jobs of nurses working in six nursing specialities” which is being submitted to the Institute of Health Care, University of Malta, in conformity with the requirements for the Masters Degree in Health Services Management, is solely the work of the student Anthony Scerri, as supervised by Mr. Jesmond Sharples.

Anthony Scerri

Jesmond Sharples
Dedicated to my wife Audrey and my sons Christopher and Daniel
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Executive Summary

Job design (redesign) is a management tool to develop and revise the job content of employees in order to improve both their operational efficiency and in turn influence their self-motivation and job satisfaction. One of the most extensively studied theories of job design is the Job Characteristics Model. Developed by Hackman and Oldham (1976, 1980), this theory postulates that the presence of five job characteristics, namely skill variety, task identity, task significance, autonomy and feedback from the job, will influence the psychological states of the employee which in turn will result in a number of behavioural and affective outcomes. Numerous studies have applied this theory in the context of nurses in order to identify the most effective job redesign strategies within their setting.

Likewise the aim of this study was to apply the Job Characteristics Model to redesign the jobs of nurses working in six nursing specialities. The targeted population consisted of nurses working in medical, surgical, orthopaedic, paediatric, critical care units and the operating theatres at Saint' Luke's Hospital. A questionnaire based on the Job Diagnostic Survey as devised Hackman and Oldham (1980) was distributed to a convenience sample of nurses working in these wards/units. Moreover, interviews were held with the Departmental Nursing Managers responsible for each speciality in order to validate the results obtained from the survey and to identify practical guidelines for redesigning the nurses' job.

Out of a total of 218 questionnaires distributed, 115 (or 53% response rate) were sent by mail. The majority of the respondents were females (67.8%), staff nurses (71.7%) and fall within the 20-29 years of age (43.5%). Out of the individual characteristics,
increase in age was positively related with general satisfaction and internal work motivation whilst females seem to have significant higher mean internal work motivation score and mean growth satisfaction score than males.

With regards to the question related to the type of organisation of care that they practice, out of those who responded (N=94), the majority of the respondents (70%) described the type of organisation of care that they practise in their wards as patient-allocation. There was a significant difference in the responses obtained between nurses working in different specialities. This may indicate that the type of organisation of care varies between specialities; with the majority of orthopaedic, paediatric and critical care nurses in the sample perceive to practise patient allocation, whilst the majority of the respondents working in medical, surgical and the theatres, feel that their work is more a task-allocated. Moreover, respondents who felt that their organisation of care is patient allocated felt to have a job that was higher in motivating potential than respondents who said that their care is organised around tasks.

The applicability of the Job Characteristics Model was tested for the respondents of the study. A positive correlation was found between the job characteristics and the mean psychological states and between the experienced psychological states and almost all mean affective outcomes. With respect to the “moderators” constructs, the only predictor of all experienced psychological scores and all affective outcomes was social satisfaction.
Based on the results obtained from the questionnaire and the responses given by the Departmental Nursing Managers a number of recommendations were proposed. Redesigning the job of nurses, especially in medical and surgical wards, by shifting from task allocation to patient allocation was highlighted. However, in order for this change to take place a number of implications were identified including; increasing the nurse to patient ratio, increasing support staff and increasing commitment for change. Other job design strategies proposed consisted of job enlargement especially through job expansion, job rotation and team building. These changes have been proposed in the light of the major reforms that are happening in the public health care service especially due the migration to Mater Dei Hospital, the increasing professionalisation of nurses and the search for a more sustainable and effective service.
Chapter 1: Introduction

One of the basic questions in contemporary management and organisational psychology is to seek to identify how work and the worker fit together. Organizations attempt to find the optimal balance in order to gain better performance and quality at work (Hackman & Oldham, 1976). Whilst researchers and occupational health care professionals focus their main interest on workers' well-being and satisfaction, organizations including health care settings are mostly interested in these themes in terms of workers' performance or financial impacts such as sick-leaves or turn-over (Arnold et al. 1995).

Organizations search for the optimal fit between work and worker by at least three major approaches: locating suitable workers (personnel selection), fitting them to the optimal work structures and job characteristics (job design and organizational development), and develop their skills and knowledge. The following thesis will evaluate a number of job characteristics and how these are related to the worker's job satisfaction and internal work motivation. Eventually, possible organisational changes through job redesign will be proposed.

Job (or work) design/ redesign is defined as the methods that management uses to develop the content of a job including all relevant tasks as well as the processes by which jobs are constructed and revised (Luthans, 2005). The main rationale of work redesign is to improve operational efficiency and productivity through the effective utilisation of the workers' skills and abilities. This will in turn influence the worker self-motivation and job satisfaction (Wild, 1995). Moreover, within the health care setting 'effective work design and planning can contribute to improved services for
patients, more rewarding careers for staff, and organisational benefits through more efficient delivery of services’ (NHS Modernisation Agency, 2005).

The application of work redesign in health care setting has been used as a tool for organisational change. According to the review on Organisational Change in the NHS (2001) job design forms part of the wider set of organisational development strategies for managing change. There is in fact a similarity between organisational development and job design as seen in its definition which states that organisational development consists of ‘a set of behavioural science-based theories, values, strategies, and techniques aimed at the planned change of organisational work setting for the purpose of enhancing individual development and improving organisational performance, through the alteration of organisational members’ on-the-job behaviours’ (Porras and Robertson, 1992: 722). However, Hackman and Oldham (1976) argue that work redesign has some special advantages in comparison with other organisational development approaches. First, work design does not rely on getting beliefs or attitudes or skills changes first (e.g. such as in ‘zero’ defects programmes) and hoping that such changes will generate to work behaviour. Instead the thrust of the change is to alter behaviour itself. Secondly, the appropriate behaviour remains, since the old ways are just not appropriate for the new tasks after the job has changed. Finally, according to Hackman and Oldham (1976) the change in the job design inevitably results in getting the changes to spread in other parts of the organisation.
1.1 Redesigning the job of nurses

At least two major forces are driving the fundamental redesign of nurses' work and the restructuring of its organizational context namely the turbulent healthcare environment and the continuing professionalization of nursing (Blouin et al, 1996).

The healthcare industry is in the midst of a revolution resulting from the combined effects of a number of factors, including potential reform legislation, increased competition, rapid technological change, and new consumer expectations. These forces definitely have created a more hostile environment for healthcare organizations. As a result, many hospitals are restructuring their operations to be more flexible and responsive, and nursing leaders are acting on this opportunity to strengthen nursing professional autonomy and identity. Newly implemented clinical systems (e.g., care and case management) and decision-making structures (e.g., shared governance) are increasing nurses' opportunities for autonomy and control within healthcare organizations.

Control of work is a critical step in the process of professionalization, but the attainment of autonomy has been an elusive goal for nursing. Nursing professional maturation facilitates and supports efforts to change the content of nursing work and increase control over nursing practice.

However, before this can take place, data needs to be gathered to gain a clear picture of the current position and where changes can be made to the way services are delivered (NHS Modernisation Agency, 2005). As a result the following study will thus seek to identify the job characteristics of nurses working in six different nursing specialities and how these influence their affective outcomes such as job satisfaction.
and internal work motivation. Those specialties whose affective outcomes are low compared to the others will be identified and possible recommendations will be sought to identify how their jobs can be redesigned through consultation with their Departmental Managers.

1.2 Local Background

For the past few years, the Maltese public health system is currently passing through a serious of reforms mainly related to Malta’s accession to the European Union and to the construction and commissioning of a new 850 beded specialist teaching hospital (Ministry of Health, the Elderly and Community Care, 2006). Launched in 1993, the need for these radical management reforms have been felt as a result of highly centralized and bureaucratic system together with the conspicuous absence of effective managerial structures, cost-containment measures, incentives for productivity and efficiency, audit and accountability and quality control (Azzopardi Muscat, 1999). According to Deguara (2003): ‘there are various areas that require reform. Particularly one can mention management, administration, finance and audit, information technology and work practices.’

Changing the current work practices through the re-engineering of work processes and systems have also been considered as a possible solution to improve productivity and result in enhanced value for money (Ministry of Health, the Elderly and Community Care, 2006). At an organisational level an attempt has been made to re-structure the process within the Health Division through the decentralisation of authority. This has led to the creation of a number of Departments which perform an integrating function across the National Health Service. However the reform process
has not yet filtered down to the lower levels of control within hospitals such as at a departmental and ward level. As a result, most decisions involving day-to-day running of facilities still have to be taken centrally far away from the people and services being affected (Azzopardi Muscat, 1999). Attempts have been made in the decentralisation of authority for example by developing and training nursing staff to assume the role of clinical leaders in their respective clinical settings (DNS Annual Report, 2003). Moreover, redesigning the work at an operational level (such as the nurses' job) by allowing staff greater discretion in their work, with a corresponding increase in accountability, has been proposed a new human resource strategy (Ministry of Health, the Elderly and Community Care, 2006).

One way how to assess the need for work redesign is by looking at whether there is either a problem or an exploitable opportunity (Hackman and Oldham, 1976). The migration of nursing staff to the new hospital may be considered as an exploitable opportunity to change and possibly improve the working practices of these staff. Consequently, the results obtained from this study and the recommendations given will be hopefully utilised as part of a strategy for improving the working practice of these nurses.

One of the outcomes of such reforms is to improve employee motivation and job satisfaction. Maltese workers have a high degree of satisfaction with their working conditions (refer to Appendix 1) when compared to the other fourteen new member states although it is still lower than the old member states (European Foundation for the Improvement of Living and Working Conditions, 2003).
In general Maltese workers including nurses seem to have a high degree of job satisfaction. Gauci Borda and Norman (1997) carried out a cross-sectional, correlational design to test a model of absence and turnover of Maltese registered nurses working in a general hospital. The results showed that nurses were satisfied with their job and intended to stay in their present employment for the next 12 months. However, the study also showed that several variables including fear of change may influence the intent to stay of Maltese nurses. Likewise, in a qualitative study that sought to explore the nurses’ job satisfaction in a Maltese long-term institution (Bezzina, 2005), revealed the feeling of uncertainty or low self-esteem by respondents. Are there other factors that influence the job satisfaction of Maltese nurses? The following study will seek to identify these factors and how they are related with the nurses’ psychological states and job characteristics.

According to Azzopardi Muscat (1999), public health care professionals, especially nurses complain that they ‘spend a lot of time carrying out tasks which do not require their expertise’. Various solutions have been sought such as the introduction of ancillary staff (nursing aides, health assistants and clerical staff) but there is still debate to what extent this has been achieved. Redesigning the work of nurses by evaluating these job characteristics would be another alternative in improving both the nurses’ motivation and job satisfaction.

1.3 The aim of the study

Consequently, this cross-sectional study will first seek to diagnose the jobs of full-time nurses working in the same acute general hospital but in six different nursing specialties (namely critical care nurses, orthopaedic nurses, paediatric nurses, theatre
nurses, nurses working in general medical wards and nurses working in general surgical wards) using the Job Diagnostic Survey (JDS). In this way those JDS indicators that are significantly different for each specialty will be identified. Eventually, in order to validate the results obtained from the survey and to identify practical guidelines for redesigning the nurses’ job for each nursing specialty, the senior nursing managers responsible for each specialty will be interviewed.

1.4 Research Questions

- What is the relationship between the job characteristics of full-time nurses working in six different specialties and their general satisfaction, internal work motivation and growth satisfaction?
- What factors influence the job characteristics and the affective outcomes (in terms of general satisfaction, internal work motivation and growth satisfaction) of the nurses in the study?
- How can the job characteristics and other factors be modified, if required, for each specialty, in order to improve the affective outcomes of the nurses in the study in the opinion of senior management responsible for each specialty?

1.5 Objectives

The objectives of the study are:

1. To measure the Job Diagnostic Survey (JDS) scores for every nurse sampled in terms of the job characteristics of each nurse, the way that their job influences them psychologically and how these in turn influence their general satisfaction with the job, internal work motivation and growth satisfaction.
2. To test the applicability of the Job Characteristics Model in nurses working in an acute general hospital (refer to section 1.6)

3. To compare the JDS scores of each speciality and identify those that are significantly different

4. To explore why some JDS scores are significantly different between specialities and how they can be improved in the opinion of the senior management responsible for each speciality.

1.6 Hypothesis

The following hypothesis based on the Job Characteristics Model by Hackman and Oldham (1980) will be tested by this research:

H1: The higher the mean job characteristics scores, the significantly higher will be the mean experienced psychological states scores

H2: The higher the mean experienced psychological state score, the significantly higher will be the mean affective outcome scores

H3: The higher the “moderators” scores the significantly higher the mean psychological state scores

H4: The higher the “moderators” scores the significantly higher the mean affective outcome scores

H5: There will be no significant difference when comparing the JDS scores of nurses working in different specialities.
1.7 Conclusion

The following chapter examined the importance of job design as a technique for organisational development and change management. The ultimate aim of job design is to identify how the worker and the work fits together thereby improving productivity whilst at the same time enhancing the employee's job satisfaction and internal work motivation. A discussion followed about the local situation and how changing work practices are urgently required in the public health service especially at St. Luke’s Hospital in view of the current health reforms. The following chapter set the scene for studying the job characteristics of nursing staff at St. Luke’s Hospital in order evaluate the possibility of redesigning their jobs. Thus the aims and objectives were clearly stated and hypotheses presented. In chapter two, an analytical review of the relevant literature related to job design and the Job Characteristics Model will be presented.
Chapter 2: Literature review

2.1 Scope of the review and search strategy

The aim of the review is to provide both the theoretical and practical background of job design and the Job Characteristics Model. Eventually an analysis of a number of studies that applied job design and this model as a change strategy in the nurses’ job will be critically evaluated.

An initial search was carried out during the proposal stage in the Medline database (http://www.pubmed.nlm.gov/) and the Internet in general. Key words that were inputted included “Job design and nurses”, “Job Characteristics Model” and “Organisation of care and nurses”. Moreover, the theoretical background was obtained after looking in general management books, books on organisational behaviour and the book by Hackman and Oldham (1980), *Job Redesign*. Eventually the major studies related to application of the Job Characteristics Model in organisation of care of the nurses’ job were identified. It could have been desirable to include more literature related to other job design strategies. However during the literature search it was found that such literature is limited especially in the health care sector.

2.2 Theoretical background of job design

Contemporary approaches to work design can be traced back to views that emerged in the United Kingdom around the time of the Industrial Revolution (Parker, Wall & Corderly 2001). Before, the Industrial Revolution, work was designed around the needs of the individual craftsman who had more control on his job but at the expense of being less productive. Adam Smith promoted the division of labour, or the
breaking down of complex jobs into simpler jobs, as a way of enhancing performance. This type of specialised job design dramatically increased productivity and set the stage for the scientific management movement that evolved into what is now generally called job engineering. Pioneering scientific managers in the early 20th century, such as Fredrick W. Taylor and Adam Gilberth systematically examined jobs with techniques such as time and motion analysis. Their goal was to maximise human efficiency in jobs. Taylor (1911) suggested that task design might be the most prominent single element in scientific management (Luthans, 2005).

Although job specialization provides a number of benefits to organisations especially manufacturing industries, it has its negative consequences. Boredom and monotony leading to dissatisfaction and absenteeism have been found to be the main consequences of highly specialised jobs (Griffin, 1992). Furthermore, the anticipated benefits of specialization do not always occur (Kilbridge, 1960). As a result, starting in the 1950s, an extension of the job engineering were sought to try to take advantage of the division of labour and at the same time reduce the negative effects these engineered jobs have on employee satisfaction and performance.

Two of the most popular methods in the 1950s and 1960s were job rotation and job enlargement. Job rotation involves systematically moving employees from one relatively simple job to another after short time periods (Luthans, 2005). This approach has a number of advantages including reducing the incidence of repetitive injuries and increasing the employees' skills thereby increasing flexibility. The primary disadvantage is that each individual task eventually becomes as boring as the
rest of the simple tasks. Consequently, job satisfaction and performance may decline (Griffin, 1992).

Another alternative to job specialisation is job enlargement. This process involves increasing the number of tasks each employee performs. As a result, all workers perform a wider variety of tasks, with the aim of reducing the level of job dissatisfaction (Kilbridge, 1960). Workers in enlarged jobs are able to use more skills in performing their tasks. Unfortunately, although job enlargement does have some positive consequences, they are offset by a number of disadvantages such as a rise in training costs and difficulties in collective bargaining with unions who expect a pay rise with an increase in employee workload (Griffin, 1992). Moreover, job enlargement has been found to reduce the efficiency with which tasks are completed, thereby slowing work down (Luthans, 2005).

Both job rotation and job enlargement are referred to as horizontal loading programs; that is, each incorporates tasks from the same job level (horizontally) in terms of skill and responsibility. An extension of these techniques known as job enrichment has been extensively studied in the design or redesign of jobs.

Paul and Robertson (1970, p17) defined job enrichment as ‘building into people’s jobs, quite specifically, greater scope for personal achievement and recognition, more challenging and responsible work and more opportunity for advancement and growth’ (p17). As opposed to job enlargement which horizontally loads the job, job enrichment vertically loads the job. This means that there are not necessarily more tasks to perform, but more responsibility and accountability. Thus jobs are designed
(redesigned) to include a greater variety of work content and give workers more autonomy and responsibility in terms of planning, direct and controlling their own performance. In this way employees are provided with an opportunity for personal growth and meaningful work experience.

2.3 The application of the theories of motivation in job design

The theories underpinning the development of these techniques in job design are the content and process theories of motivation. Theories such as expectancy theories, activation theory, socio-technical systems theory and motivation-hygiene theory form the theoretical background of job design (Arnold et al., 1995; Hackman & Oldham, 1976; Oldham, 1996). The application of these theories in job design will be discussed.

Hackman and Oldham (1976) refer to activation theory, which emphasizes the negative consequences of under-activation. This may be seen as an answer to Taylorism, where the job is split into simple, easily performed tasks. According to activation theory the nature of the job has an impact on the worker's psychophysical activation at work. Job rotation was one of activation theory's practical solutions to monotonous, highly repetitive jobs.

Expectancy theory sees people as cognitively active decision makers able to choose between several possible actions. In the process of choosing actions, the theory sets out three important stages of appraisal. First, people consider if they have the necessary skills to do the work (expectancy), then they consider if the action will lead to identifiable outcomes which are rewarded (instrumentality), and finally they
consider the value and attractiveness of the rewards (valence) (Arnold et al. 1995; Vroom, 1964). But people’s behaviour is also difficult to explain with expectancy theory. The theory may have had some impact on the task significance and feedback factors of the Job Characteristics Model.

The central theory applied in job design and job satisfaction research is Hertzberg’s motivation-hygiene theory, which supposes that the primary causes underlying satisfaction and motivation are intrinsic to the work itself (Hackman & Oldham, 1976). These motivating factors are recognition, achievement, responsibility, advancement and personal growth. Dissatisfaction, in turn, is supposed to be caused by extrinsic factors such as quality of leadership, wages, and working conditions. It is therefore supposed that changes in these latter ‘hygiene’ factors cannot increase satisfaction (Figure 2.1)

![Figure 2.1 Factors influencing satisfaction and motivation according to Hertzberg’s Two-factor Theory (1959)](image-url)
Hertzberg (1959) argued that job enrichment is required for intrinsic motivation. Thus according to this theory, the job should have sufficient challenge to utilise the full ability of the employee and employees who demonstrate increasing levels of ability should be given increasing levels of responsibility.

Although the two-factor theory gave another perspective on the concept of job design, it did not gain empirical support and the dichotomy of the factors was not substantiated. The other problem with the theory is the weakness of methodology (Hackman & Oldham, 1976; Oldham, 1996).

Job design has also received some input from socio-technical systems theory, which aims to optimize both the technical and social systems. In socio-technical theory, as well as in Hertzberg’s theory and the Job Characteristics Theory, the major principles for motivating workers are to enrich and enlarge the job. These principles are used in forming natural job entities, combining tasks and creating interaction with clients, among others (Happ, 1993; Seppälä, 1994).

2.4 The Job Characteristics Model

To meet some of the limitations of the relatively simple Hertzberg approach to job enrichment, a group of researchers began to concentrate on the relation between certain job characteristics and employee motivation. J. Richard Hackman and Greg Oldham (1976, 1980) developed the most widely recognized model of job characteristics (Luthans, 2005). The model has several similarities to Hertzberg’s theory, especially in terms of task characteristics. However, the differences lie in the rejection of the hygiene factors, which Hackman and Oldham (1976) did not include.
in their model. Figure 2.2 below shows the Job Characteristics Model and how the five job characteristics influence the three critical psychological states which in turn affect a number of behavioural and affective outcomes.

The job characteristics model developed by Hackman and Oldham (1976) predicts what aspects of jobs reflect the level of job enrichment for employees, and how these relate to employees' individual differences and to the work outcomes required. It includes 5 core job characteristics that can be applied to any job: skill variety, task identity, task significance, task autonomy and feedback (Figure 2.2). Skill variety is the number of different skills required in the job, while task identity means the completeness of the tasks done in the job. Task significance refers to the importance of the job to the served population. Autonomy means the vertical expansion of responsibility, the amount of decision-making and independence allowed for employees. Feedback refers to the extent that the job itself provides information about
employees' performance. These characteristics are combined into a single predictive index, called the motivating potential score (Hackman and Oldham, 1980).

The core job characteristics are in continuous interaction with the individual differences that evoke three critical psychological states (Figure 2.2). When the job is structured by skill variety, task identity and task significance this could lead employees to experience meaningfulness in their work. Moreover, task autonomy leads to feelings of responsibility for the outcomes of work whilst feedback from the job leads employees towards knowledge of the results of their work.

In turn, these three critical psychological states lead to a set of affective and personal outcomes, namely: high internal work motivation, high growth satisfaction, high general satisfaction, high work effectiveness and a low rate of absenteeism. High internal work motivation refers to the degree to which the employee is willing to work and to consider the organizational objectives as a part of his/her goals. High growth job satisfaction is the achievement of the employee in overcoming challenges, succeeding and growing. High general job satisfaction is the feeling derived from the overall satisfaction with the work itself. This type of satisfaction is reflected mainly in decreased rates of absenteeism among employees.

The model also depicts three important attributes that are identified as moderators: knowledge and skills, context job satisfaction and employee growth-need strength (Figure 2.2). These attributes indicate which employee will respond positively to the motivating potential score of the job and its outcomes. Job-relevant knowledge and skills of employees are greatly dependent on their educational qualifications, which
will reflect their perceptions toward their work outcomes. Employees’ perceptions of context job satisfaction include factors such as pay, supervision, co-workers and job security, and these can also affect the outcomes achieved. Growth-need strength is the degree to which employees seek opportunities on the job for self-direction, learning and personal accomplishment, which in turn will determine the level of work internal motivation they perceive.

2.5 Studies on work design using the Job Characteristics Model (JCM)

Empirical research on work design has primarily focused on Hackman and Oldham’s (1976, 1980) Job Characteristics Model. Ambrose and Kulik (1999) reviewed the studies on work design using this model and identified more than 200 studies that were mostly carried out in the early 1990s. A review of some of these studies is summarised in Appendix 2. Moreover, Ambrose and Kulik (1999) broadly categorized these studies into three areas; first studies that explicitly tested the model, secondly studies that applied the theory, and thirdly extensions of the theory. The following section will discuss studies that tested and extended on the model. Studies that applied the model in the design of nursing jobs will be evaluated later.

2.5.1 Studies that tested the validity of the model

Several reviews and meta-analyses have attempted to synthesize the results of these studies (Fried & Ferris, 1987; Griffin & McMahan, 1994; Taber and Taylor, 1990; Wall & Martin, 1994). Fried and Ferris (1987) provided a comprehensive review and meta-analysis of relevant research on JCT. According to this study, on average there is an 87 percent probability that employees who perceive the characteristics found in the job characteristics model to be high, they have a higher their internal work
motivation and overall job satisfaction, when compared to those who do not perceive these job characteristics. Moreover, they concluded that the job characteristics are related to both psychological and behavioural outcomes; the critical psychological states mediate the role between job characteristics and outcomes; and growth need strength (GNS) moderates the relationship between job characteristics and performance. However, Fried and Ferris (1987) also noted that the correlations between job characteristics and the psychological states were less supportive of the model and although the results support the multidimensionality of job characteristics, there was no agreement on the exact number of dimensions.

During the 1990s, research continued to provide explicit tests of Job Characteristics Model. Several of these studies (Johns et al, 1992, Champoux, 1992) examined the mediating (psychological states) and moderating (GNS, knowledge and ability, context satisfactions) relationships identified by the theory. According to Ambrose and Kulik (1999) tests of the theory provide consistent support for the mediating effect of the critical psychological states. However, effects for GNS remain inconclusive, with the bulk of the research suggesting an un-moderated model is best (Johns et al, 1992). On the contrary, Perry et al (2006) argued that moderators such as the GNS are important influences on the efficacy of job design since they can reinforce or diminish changes in the psychological states which in turn affect behavioural outcomes.

2.5.2 Studies that extended on the model

One theoretical development that is currently popular is the concept of psychological empowerment (Liden, Wayne & Sparrowe 2000). This approach does not focus on the
objective features of the job but focuses on whether an individual perceives themselves as empowered. The state of psychological empowerment is defined as motivational state involving an assessment of meaning, impact, competence and choice (self-determination). These cognitive motivational assessments overlap considerably with the critical psychological states in the Job Characteristics Model. Meaning is similar to meaningfulness; impact is similar to knowledge of response and self-determination is similar to experienced responsibility. Evidence suggests that work characteristics result in psychological empowerment, which results in affective outcomes such as work satisfaction (Liden, Wayne & Sparrowe 2000). However, where the psychological empowerment approach is distinct form the JCM is that it recognizes that the psychological states of empowerment can arise from influences over and above work characteristics, such as peer helping and supportive customer relationships (Parker et al. 2001). This extension in the theory allows for one of the major limitation of the JCM; that of being too simplistic and does not recognise these variables in the design of work.

Another limitation of the JCM has been attributed to the fact that is mainly ‘context-insensitive’ (Parker et al, 2001, p 417). To be more realistic, Parker et al (2001) proposed an elaborated model of work design. This included the systematic consideration of antecedents of work characteristics and the expansion of the traditional range of work characteristics to include aspects salient to the modern context. Moreover, the authors proposed the extension of the range of outcome variables beyond the existing narrow focus on affective reactions, an analysis of the mechanisms that explain why work characteristics lead to particular outcomes and consideration of contingencies that moderate the effects of work characteristics.
(Appendix 3: Elaborated model of work design). They concluded that the particular choice of work design variables should be guided by theory and an analysis of the organizational context.

2.6 Evaluating the core job characteristics in the job content of nurses.

A consistent pattern of findings emerges from research focusing on the identification of staff nurse job content characteristics (Blouin and Tonges, 1996). In comparison to norms for professional and technical jobs reported by Hackman and Oldham (1980), staff nurses perceive higher levels of significance and variety, approximately the same levels of autonomy and feedback, and lower levels of task identity. Studies also suggest that there are significant positive relationships between the presence of these characteristics in nurses' jobs and their job and growth satisfaction (Blouin and Tonges, 1996). In fact, in a sample of 135 nurses, Roedel and Nystrom (1988) found statistically significant relationships between all five of the core dimensions and general satisfaction (feedback, $r = 0.30$, autonomy, $r = 0.24$, task identity, $r = 0.22$, $P < 0.01$; skill variety, $r = 0.14$ and task significance, $r = 0.12$, $P < 0.10$)

As far as skill variety is concerned, most nurses need a combination of clinical, teaching and managerial skills to do their work effectively. Task identity has increased in recent years because of the introduction of the nursing process, various models of work design in nursing (as discussed in the next chapter) and the development of primary nursing principles. These changes may have increased task identity in the sense that nurses are now more likely to be responsible for all, or at least most of the nursing needs of the patient.
Task significance is very evident in the nursing profession. Health care professionals including nurses are important to everyone, especially at times of crisis or when there is a prospect of serious illness. As a result, many nurses feel that what they are doing for other people is important, meaningful and significant.

Of the five characteristics included in the Job Characteristics Model, autonomy appears to be of particular importance and interest in nursing. The development of nursing as a profession in recent years has meant that nurses are increasingly accountable for the whole cycle of nursing care – its planning, its delivery and its evaluation. Stamps and Piedmonte's review of the nursing job satisfaction literature (1986) suggests that autonomy is the single most important aspect of nurses' work satisfaction. Consequently, there is considerable scope for autonomy in nursing, although the degree of autonomy of any individual nurse will depend on the type of managerial style of their nursing managers and the work environment of the individual nurse (Eaton and Thomas, 1997).

The fifth and final 'core job characteristic' is feedback from the job. 'Feedback from the job' for nurses would involve seeing the results of their care in the well-being of the patients. The increasing emphasis on clinical auditing and evaluation of care is likely to help the nurse to receive such feedback.

2.7 Models of work design in nursing

A number of different approaches to the work design are available to nurses. These include task nursing, total patient care nursing, team nursing, primary nursing, person-
centred planning and caseload management. Appendix 4 gives a summary of each of these care delivery systems in nursing.

According to Cuthbert, Duffield & Hope (1992) these different approaches can be summarised into two differing philosophies on how nursing care is organised to meet the total patient care needs; namely task-based nursing and case-based nursing. Task based nursing assumes that 'all the tasks related to patient care will ensure that patients’ needs for care are met'. This is congruent with the task or functional nursing. On the contrary, patient-based nursing assumes that all the patient’s needs will be identified and met by one nurse who will take all the responsibility for planning and providing the total care of the patient.

The task-based approach to the provision of nursing services is a result of job specialisation whereby maximum efficiency is achieved from the standardisation of overall processes into tasks which can be undertaken by a team of workers, each member of which becomes proficient in carrying a limited number of tasks. As already discussed above, job enrichment can improve motivation and job satisfaction. An example of job enrichment in nursing is case or patient based nursing. The advantages and disadvantages of task-based nursing and case-based nursing is given in Appendix 5.

The use of any of these models of organising nursing care has been critically evaluated in terms of nurses’ job satisfaction. A study in Finland examined the relationship between methods of organizing nursing and employee satisfaction (Makinen et al, 2003) Data was collected from 26 ward sisters and 568 nurses
working in 26 bed wards with different stabilized nursing models. Methods of organizing nursing, such as primary, modular, team and functional nursing, were associated with job satisfaction. However, this association involved only certain features of these organizational models and specific components of satisfaction. After the effects of demographic and ward characteristics were partialed out, hierarchical regression analyses showed that patient-focused work allocation, opportunity to write nursing notes and accountability for patient care contributed to nurses' satisfaction with supervision and personal growth.

Other studies have applied the Job Characteristics Model in nursing literature, to compare these models of care with job satisfaction and to evaluate the effect of a change from one care delivery system to another. The next section will review some of these studies.

2.8 The application of the Job Characteristics Model in the design of work in nursing

Job enrichment, work motivation, and job satisfaction in hospital wards was assessed by Kivimaki, Voutilainen & Koskinen (1995) using the Job Characteristics Model. This study investigated work motivation and job satisfaction at hospital wards with high and low levels of job enrichment. Primary nursing was assumed to represent a highly enriched job, whereas functional nursing represented a job with a low level of enrichment. Five surgical wards were divided into these two categories based on the structured interviews with head nurses. Work motivation and job satisfaction among ward personnel were assessed by the Job Diagnostic Survey. The ward personnel occupying highly enriched jobs reported significantly higher work motivation and
satisfaction with the management than the personnel occupying jobs with a low level of enrichment.

In a similar study, Edgar (1999) sought to describe the relationship among motivation, job satisfaction and the characteristics of nursing care delivery systems using the Job Characteristics Model and to test a framework of nursing care delivery system attributes that have been found to contribute to job satisfaction and good patient care outcomes. The model was tested with nurses working in medical-surgical areas of four Montreal teaching hospitals. The author measured the applicability of the Job Characteristics Model to the work of nursing. He also showed that four attributes of nursing care delivery systems, namely support for autonomy, communication, adequate time for patient care and the degree of environmental uncertainty, contributed to job satisfaction and motivation.

Improving nursing employee satisfaction in long-term care facilities (LTC) through job design of nursing care tasks was sought in a study by Tyler et al (2006). The researchers conducted job design and satisfaction surveys using a modified version of the Job Diagnostic Survey (JDS), of 1,146 employees of 20 Massachusetts LTC facilities. 144 employees representing all staffing levels from nursing directors to certified nursing aids (CNAs) were also interviewed and observed 37 frontline nurses and CNAs. Contrary to expectations, CNAs were more satisfied with their jobs than nurses and reported significantly higher levels of intrinsic feedback from residents, with whom they worked more closely than nurses. Nurses spent more time coordinating patient care than tending to patients. Researchers found that nurse satisfaction was primarily influenced by intrinsic feedback from nursing home
residents: for example, when residents tell them how much their care has helped them or meant to them or when nurses are able to see the tangible results of their efforts (such as the satisfaction of seeing a resident eat well at a meal as a result of patient coaching).

For CNAs, satisfaction was influenced by task identity, autonomy, and intrinsic feedback. However, satisfaction among nurses was influenced only by intrinsic feedback from residents. In fact, nurses described lack of interaction with residents as the worst part of their jobs, along with the burden of paperwork they had to complete. The LTC administrators interviewed in this study said that retaining nurses was their main concern. The researchers suggested that managers may improve nurse retention rates by hiring nurses who are seeking less direct patient care and more managerial positions. Another approach would be to permanently assign individual nurses to certain residents with whom they could build relationships and thus increase the time they have to interact with their patients.

Mohamed (1999) used the Hackman and Oldman’s Job Characteristics model to compare two methods of patient care assignment as perceived by nurses in 12 inpatient units of Alexandria Main, University Hospital. Six intensive care units (ICUs) that were applying the care method of patient care assignment (namely casualty, open heart, chest, neurosurgery, general and coronary care) were compared with six general care units that utilize the functional method. The job diagnostic survey was used to determine nurses’ perceptions toward the components of the model in relation to their performance in utilizing the case and functional methods of patient care assignment. The author however, did not define the meaning of care and functional method.
The percentage of professional nurses utilizing the case method who scored above average (> 60% of the mean perception score) ranged from 93.5% for feedback from the job to 73.9% for task identity and autonomy. For technical nurses utilizing the case method the range was from 87.5% for feedback to 50.0% for skill variety. For technical nurses utilizing the functional method the range was from 50.8% for task significance to 27.1% for motivating potential score. The job of intensive care unit nurses who utilized the case method was more enriched than those who utilized the functional method of assignment in the general care units, in terms of their perception scores towards all parts of the model (core job characteristics, critical psychological states, affective and personal outcomes, context satisfaction and individual growth-need strength).

From these findings the author suggested a number of recommendations including the following:

- Standard organization screening procedures should be established to match the skills, abilities and the growth-need strength of nurses with the requirements of the job.

- Nurse Managers should enrich the job of nurses who are utilizing the functional method of assignment by rotating them periodically between ICUs and the general care units.

- Nurses who are utilizing the case method of assignment could be given more responsibility and control over their performance and the ability to take decisions and to use other methods of patient care assignment (such as the team and primary care methods).

- Nurse managers should develop and maintain measurable criteria to assess the quality and quantity of nurses' performance.
• Periodical counselling between nurse managers and nurses should be conducted to discuss their feelings, interests and views in relation to their job, and to deal with dissatisfactions, as a part of the manager’s supervisory role.

However, evidence on the effectiveness of these recommendations to improve the job satisfaction and motivation of nurses needs to be verified by further experimental or longitudinal studies.

An assessment of the value of Hackman and Oldham’s Job Diagnostic Survey as an evaluative tool in the job design of paediatric nurses was sought by Eaton and Thomas (1997). A longitudinal study was conducted to evaluate whether the job characteristics as defined in the Job Characteristics Model changed with the introduction of primary nursing in four paediatric wards. In the first survey (T1) twenty-three nurses completed the questionnaire whilst in the second survey (T2) that was carried out after the implementation of primary nursing in the wards, nineteen questionnaires were completed.

The results showed that there was some improvement in skill variety and autonomy in three of the four wards; deterioration in task identity and task significance whilst no change was seen in the scores related to feedback from the job. The authors commented that these results were due either to the partial implementation of primary nursing in these wards or due to the fact the second data collection was made while primary nursing was still in the early stages of introduction. Moreover, another possible limitation is the small size of the sample studied. Nonetheless Eaton and Thomas concluded that the ‘Job Diagnostic Survey approach to analysing the
redesign of jobs is useful and valid way of evaluating the changes from the point of view of nurses and their managers... ' (p 173) However, more specific instruments are probably needed for evaluating outcomes for patients.

The development of such a tool based on the Job Characteristics Model was sought by Tonges et al (1998) to assess the specific elements in the nursing job that are a source of satisfaction. Two studies were conducted using a similar methodology. Focus groups of staff nurses were held to identify links between specific activities and characteristics and sources of satisfaction in staff nurses' job content. The Staff Nurse Job Characteristics Index (SNJCI) was developed to assess the presence of certain elements and activities in a nurse's job. An initial sample of 63 and a second sample of 146 staff nurses from Medical/Surgical and Coronary Care units completed the SNJCI, the JDS, and a demographic form through a mail survey. A selection criterion was used to identify the potential respondents consisting of all female nurses with at least two years experience, working 20 hours or more per week on medical, surgical wards or coronary care units. As a result of this selection criterion and the low number of eligible subjects it is not possible to generalise the results of the study to the whole population.

Although the authors argued that the internal consistency reliabilities (Cronbach's alpha) for eight of the nine SNJCI scales were acceptable, a number of constructs such as skill variety (α=0.36), feedback for work (α=0.65), required interaction (α=0.58) and attribution (α=0.6) were below the required α score of 0.7.

Correlation analysis between the job characteristics and the critical psychological state were not predicted with relationships heavily weighted toward knowledge of
results, rather than the other CPS. Moreover, knowledge of results was most strongly related to general satisfaction. (Pearson=0.22, p<0.05). The authors suggested that knowledge of results may be a particularly important psychological state for nurses, possibly because of the nature of the issues they work with and the life and death consequences sometimes involved.

Tonges et al (1998) suggested a number of measures to redesign the nurses’ job content. They suggested that in order to influence perceptions of task significance, nurse managers need to assess the nurses’ skills and to establish systems that enable them to care for the same patients across admissions and through the various stages of their illness. Secondly, the authors argued that perceived autonomy can be influenced by encouraging and emphasizing the nurses' roles in providing emotional support and by creating a practice environment in which nurses can make independent decisions about nursing.

Findings support the hypothesis that specific aspects of nurses' jobs are reliably related to the five core job characteristics as defined by Hackman and Oldham (1980). Consequently, the authors concluded that aspects of nurses' jobs that are important to their satisfaction include continuity in nurse-patient relationships, authority to initiate independent nursing actions, individual accountability for clinical outcomes, and regular performance feedback from managers (Tonges et al, 1998).
2.9 Conclusion

The following literature review gave an overview of the theories related to job design and more specifically to the Job Characteristics Model as a tool in the design of enriched jobs. The validity and subsequent extensions of this theory were presented. Finally the application of this theory in the context of the redesign of the nurses' jobs was shown through a number of research studies. The studies analysed, utilised this theory as a tool in the evaluation of job design interventions.

Similar to the above studies, the aim of the following study will apply the Job Characteristics Model in the context of nurses working in a hospital setting. In this way the relationship between the core job characteristics and job satisfaction and internal work motivation will be sought. Moreover, the study will also seek to identify a number of factors (moderators), such as the care assignment method that could influence the job characteristics and affective outcomes of the nurses working in this hospital. Finally, senior nursing managers of each speciality will be asked their opinion of how the jobs of nurses can be redesigned.
Chapter 3: Methodology

3.1 Research Design and method of data collection

The study consisted primarily of a cross-sectional study and the data required was collected by the Job Diagnostic Survey, 1980 (Appendix 6). Other biographical information (such as age, gender characteristics, grade, and total years of experience, current ward experience of nurses and their main care assignment method [in terms of patient allocation and task allocation]) was collected. A cross-sectional study was utilised in order to identify and compare the relationship between a set of job characteristics of a selected group of nurses working in the same hospital and a set of affective outcomes at a fixed point in time. Moreover, a cross-sectional design is considered as a practical and economical way to obtain information especially when the time to conduct the study is limited (Polit and Hungler, 1996).

Permission was sought and obtained from J. Richard Hackman who is one of the authors who developed the Job Characteristics Model (JCM) under study (Appendix 7). This questionnaire was used since it was considered very relevant to the research question in study. Moreover, as shown in the literature review, this questionnaire is a validated tool that has been repeatedly used in different backgrounds including nursing. Choosing to use a self-administered questionnaire was considered to confer the advantage of avoiding the possibility of evaluation apprehension and interviewer bias, where the respondents try to give responses they believe are expected or when the interviewer may even subconsciously influence the responses to a question in a certain way. The questionnaires were distributed to the nursing officers or charge nurses, who were asked to handle them to the nurses who work in their own wards. Besides the quantitative data obtained from the questionnaire, the study sought to
obtain qualitative data. This was collected through a set of interviews with the departmental nursing managers responsible for each speciality. Using two different methods of data collection provided the possibility to compare and verify the quantitative data obtained from the questionnaire with the rich qualitative data obtained from the interviews.

A covering letter of invitation and information was sent to each participant together with a copy of the research questionnaire. Instructions were given to complete the questionnaire and to return it in the postage paid envelope provided (Appendix 8). The postage paid envelope ensured that the respondent does not incur any costs. A reminder letter (Appendix 9) was prepared and sent to all surveyed nurses (since the returned questionnaires would be anonymous) after two weeks from the deadline date to return the survey.

3.2 Study population and sampling

The targeted population consisted of all staff nurses and enrolled nurses working in six nursing specialities namely; critical care nurses, orthopaedic nurses, paediatric nurses, theatre nurses, nurses working in general medical wards and nurses working in general surgical wards. The decision to consider the following specialities was taken since the study required large enough sub-populations who work in the same speciality for comparative reasons. All nurses in the target population work at St. Luke’s Hospital. This was considered essential in order to have the same working culture that could in itself act as a confounding factor between the variables under study. Moreover, St. Luke’s Hospital was taken since the author does not work there and can therefore be more objective when interpreting the results of the study.
As an inclusion criterion for the study, only full-time nurses were used since part-time nurses may be relievers and they may not have the necessary experience in a particular speciality. A list of full-time nurses working in the wards mentioned in Table 3.1 below was obtained from St. Luke’ Hospital administration after seeking the necessary permissions for this research from the relevant authorities and in accordance with Data Protection Act (Laws of Malta (Act XXVI of 2001). The list included their name, surname, grade and the ward that they are currently working in. Table 3.1 also shows that a number of wards have been excluded. This was done to make sure that the nurses from where the sample is taken is as homogenous as possible and has similar working practices and job content.

<table>
<thead>
<tr>
<th>Nursing specialty</th>
<th>Wards selected</th>
<th>Any exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Medical Nurses</td>
<td>M1, M2, M3, M4, M5, M6, M7</td>
<td>M8 will be excluded since it is distinct as it is known as a neurology ward</td>
</tr>
<tr>
<td>General Surgical Nurses</td>
<td>MS1, MS2, WS1, WS2, S3</td>
<td>All specialised surgical wards/units will be excluded (e.g. S4, CTS, NSU)</td>
</tr>
<tr>
<td>Orthopaedic Nurses</td>
<td>OT1, OT2, OT3</td>
<td></td>
</tr>
<tr>
<td>Paediatric Nurses</td>
<td>Fairyland, Disneyland, Wonderland</td>
<td></td>
</tr>
<tr>
<td>Critical Care Nurses</td>
<td>ITU, HDU, CICU, SCBU</td>
<td>CCU will be excluded since the job content is considered to be different from the wards selected</td>
</tr>
<tr>
<td>Theatre Nurses</td>
<td>MOT, OTKG, OOT, Gynae OT</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.1 Wards selected from where sample of nurses was taken

The sampling frame that was initially proposed to be used in the study was a multi-stage proportionate stratified sample. This method was considered, to ensure that a representative sample of nurses would have been obtained for each nursing speciality under study. All nurses in the list as obtained from St. Luke’s administration (i.e. a census) were utilised due the small number of nurses representing the target population. Unfortunately, this list was an inaccurate list of full-time nurses working in these wards. Regretfully, this discrepancy was found only after the data collection and analysis was carried out. Thus the study, rather then being based on an exhaustive
sample, is based on a convenience sample of full-time nurses whose name was on the list as obtained from St. Luke’s administration. This amounted to a total of 218 nurses consisting of 40 nurses working in medical wards, 14 nurse working in orthopaedic wards, 25 nurses working in surgical wards, 72 theatre nurses, 51 critical care nurses and 16 paediatric nurses. Due to the small size of these sub-populations it was not possible to stratify these populations further, for example according to grade.

3.3 Pilot Study
A pilot study was conducted with eight nurses working in a similar ward setting but in a different hospital. The aim of the pilot study was to ensure that the questions are easy to understand and follow. The pilot study was also intended to identify any potential errors in the questionnaire that required correction. The participants were asked to record the time they took to complete the questionnaire. It was found that the questionnaire took approximately twenty minutes to complete similar to studies carried out abroad (Hackman and Oldham, 1980). No difficulties were encountered to fill in the questionnaire. Moreover, they were also asked to answer the questionnaire a second time after three weeks from completing the first questionnaire. This enabled to carry out reliability analysis.

3.4 Ethical Considerations
Permission was sought from the Research Ethics Committee of the University of Malta and the St. Luke’s Hospital Management (Appendix 10). Before carrying out the study the following ethical issues were taken into consideration.
3.4.1 The Right to Privacy

The nurses’ anonymity and confidentiality was maintained, since a postal questionnaire was utilised to collect the data. Thus, the researcher did not meet the nurses in order to gather the data required. Moreover, the researcher was not able to identify the person from the data that he/she will give in the questionnaire. Besides, the reminder letter was sent indiscriminately to all the population taken. During content analysis of the interview, the Departmental Nursing Managers were identified by a code and not by their true names.

3.4.2 The Right to Self-determination

According to Polit & Hungler (1996) ‘self-determination means that prospective subjects have the right to voluntarily decide whether or not to participate in a study’. This was ensured by obtaining an informed consent from the nurses about the research project in which he/she were asked to participate. Consent, was obtained by a covering letter that was attached to the questionnaire. In this letter the nurses were informed about the aims of the study, the type of data collected and that privacy was assured at all times.

3.5 Interview with Departmental Nursing Managers

In order to validate the results obtained from the survey and to identify practical guidelines for redesigning the nurses’ job for each nursing speciality, the Departmental Nursing Managers responsible for each specialty were interviewed. A total of four interviews were carried out since two nursing managers were responsible for two specialities each. A semi-structured interview schedule was devised (after the results of the questionnaire were analyzed) that collected both qualitative and
quantitative data. The use of open ended questions was important to allow the managers to freely explore their opinion about how the nurses’ job can be redesigned to improve the job satisfaction and internal work motivation. The quality of the self-report data was enhanced through probing and clarification of any questions that were not understood or were misinterpreted. The discussion was recorded on tape so as to allow later transcribing and content analysis.

However, interviews have a number of drawbacks as well, that were taken into account such as the impossibility of maintaining anonymity and the interviewer bias. The latter drawback was minimized, by maintaining a neutral and unbiased position throughout the interview, as much as possible. Moreover, it was made sure that the questions were asked the same way each time.

3.6. Results and Findings

The data obtained from the questionnaires was inputted into a database on Microsoft Excel. The statistics software “Statistical Package for the Social Sciences” (SPSS) Version 15 was used to analyse the data. Various methods were used to present the research findings. Tables were used to group the JDS scores according to categories. The mean values and confidence intervals were calculated to summarise quantitative data. Bar charts and box-whisker graphs was used to display and compare discrete and continuous variables, respectively. Before comparing variables a Kolmogorov Smirnov Test was conducted to test for normality of the distribution.
3.7. Data analysis

3.7.1 The research model used in the study

The Job Characteristics Model (Hackman and Oldham, 1980) as shown in Figure 2.2 was used in the study. The results obtained for each JDS indicator was obtained by a scoring key as shown in Appendix 11.

3.7.2 Testing the model

Simple linear regression is the statistical method that will be used to examine the relationship between the dependent variable (y) and an independent or predictor variable (x). Linear regression can be used to define the equation \( y = a + Bx \), by which, one can best predict scores on the dependent variable from scores on the predictor variable (Swinscow T. D. V. & Campbell, 1996).

Multiple linear regression analysis is a method that can be used when more than independent variable is thought to predict the dependent variable. This method was adopted in this research to determine which of the independent JDS scores is predictive of the dependent variable.

3.7.3 Comparing the mean JDS scores of each specialty (Hypothesis 5)

In order to see whether there is a significant between-group difference in the JDS indicators of each specialty, an extension of the independent group t-test known One Way Analysis of Variance will be used. The ANOVA test will indicate whether the JDS score means of any of the six nursing specialties were not significantly different. Once the F-value was obtained and was found to be statistically significant for a particular mean JDS score, a multiple comparison test is used to see which of the
nursing specialties have a significant different mean JDS score. A type of multiple comparison test known as the Bonferroni t-test was used.

3.8 Analyzing the interviews with the Departmental Nursing Managers

Interviews were taped and transcribed verbatim by the interviewer. Moreover, field notes were also taken during the conversation. For those respondents who did not want to be tape recorded, written note-taking had to be employed. This was facilitated by the format of the interview schedule (Appendix 12) that provided field coding for some questions whilst giving the appropriate space for further comments. The other questions were office coded. This was done inductively by categorizing qualitative data using content analysis.

Conclusion

The following chapter gave a description of the methods used to collect and analyze the data required for this study. The next chapter will give a detailed analysis of the findings as obtained from the methodology just described.
Chapter 4: Findings

4.1 Introduction

This chapter presents the findings of the data analysis for this study. In section 4.2, the reliability of the instruments used is examined as obtained from the pilot study. The response rate (Section 4.3) and characteristics of the study participants (Section 4.4) are then given. In Section 4.5 the mean scores as obtained from the Job Diagnostic Survey will be shown and compared to the characteristics of the respondent and to the results of other studies; whilst in Section 4.6 the statistical testing of the Job Characteristics Model is presented. The chapter ends with a short presentation of the findings from analysis of the interviews with the departmental nursing managers responsible for the specialties studied.

4.2 Testing the reliability of the instrument

Cronbach’s Alpha reliability test and Paired samples T-Test are used for the 19 constructs of the Job Diagnostic Survey (JDS) submitted to 8 participants in the pilot project. Since the Cronbach’s Alpha score is more than 0.7, the model is reliable for the population studied. Moreover, paired sample T-test for the eight participants in the pilot project did not show any significant difference except for one subject as shown in Table 4.3.

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.945</td>
<td>.951</td>
</tr>
</tbody>
</table>

Table 4.1 Reliability statistics for the 19 constructs of the JDS (N=8)
### Correlation Significance

<table>
<thead>
<tr>
<th>Pair</th>
<th>P1901 &amp; P2901</th>
<th>Correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>.540</td>
<td>.017</td>
<td></td>
</tr>
<tr>
<td>Pair 2</td>
<td>.837</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Pair 3</td>
<td>.739</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Pair 4</td>
<td>.867</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Pair 5</td>
<td>.993</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Pair 6</td>
<td>.850</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Pair 7</td>
<td>.632</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>Pair 8</td>
<td>.678</td>
<td>.001</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2 Correlation analysis of paired samples

<table>
<thead>
<tr>
<th>Pair</th>
<th>P1901 - P2901</th>
<th>t</th>
<th>df</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>-1.980</td>
<td>18</td>
<td>.063</td>
<td></td>
</tr>
<tr>
<td>Pair 2</td>
<td>-.893</td>
<td>18</td>
<td>.384</td>
<td></td>
</tr>
<tr>
<td>Pair 3</td>
<td>-.085</td>
<td>18</td>
<td>.933</td>
<td></td>
</tr>
<tr>
<td>Pair 4</td>
<td>-3.589</td>
<td>18</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>Pair 5</td>
<td>.360</td>
<td>18</td>
<td>.723</td>
<td></td>
</tr>
<tr>
<td>Pair 6</td>
<td>-1.889</td>
<td>18</td>
<td>.075</td>
<td></td>
</tr>
<tr>
<td>Pair 7</td>
<td>-1.090</td>
<td>18</td>
<td>.290</td>
<td></td>
</tr>
<tr>
<td>Pair 8</td>
<td>.155</td>
<td>18</td>
<td>.879</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3 Paired samples T-test of the 8 participants in the pilot project

#### 4.3 Response rate

218 questionnaires were distributed during the month of September 2006. About 100 questionnaires (equivalent to 46% of the targeted population) were received after one month. After a reminder letter was sent to all potential respondents, the response rate rose to 115 questionnaires which is equivalent to 52.7% of the questionnaires distributed. Table 4.4 shows the distribution of the response rate according to each speciality.

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Questionnaires distributed</th>
<th>Questionnaires Received</th>
<th>Questionnaires Received (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>40</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>14</td>
<td>7</td>
<td>50</td>
</tr>
<tr>
<td>Surgical</td>
<td>25</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td>Theatre</td>
<td>72</td>
<td>36</td>
<td>50</td>
</tr>
<tr>
<td>Critical</td>
<td>51</td>
<td>28</td>
<td>55</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>16</td>
<td>11</td>
<td>69</td>
</tr>
<tr>
<td>Missing data</td>
<td>2</td>
<td>2</td>
<td>02</td>
</tr>
<tr>
<td>Total</td>
<td>218</td>
<td>115</td>
<td>53</td>
</tr>
</tbody>
</table>

Table 4.4 Distribution of the response rate according to speciality
In order to check whether the respondents can be considered as representatives of the whole population, the distribution of nurses according to grade and sex was compared. There was no significant difference between the proportion of respondents of the same grade ($z=0.54$, $p=0.6$) and sex ($z=1.47$, $p=0.15$) when compared to the nurses ($N=218$) found in the list that was used as a convenience sample.

4.4 Characteristics of respondents

4.4.1 Age and gender distribution of respondents

Table 4.1 shows the age and gender distribution of respondents. The majority of respondents (43.5%) fall within the 20-29 age group. 78 respondents (67.8%) are females compared with 35 male respondents (30.4%), whilst the gender of two respondents is unknown (1.7%). A Chi-square test shows no significant difference in the distribution of male and female respondents across age groups ($p=0.158$).

![Figure 4.1 Age and gender distribution of respondents](image)
The mean age of male respondents is 32.3 years (C.I., 29.3-35.3 years) compared with 34.4 (C.I., 32.2-36.5) years of female respondents. An independent Samples T-test did not indicate any significant difference in the mean ages between gender \( t=-1.042, p=0.30 \). Moreover, comparison of the mean age distribution across the six nursing specialties, did not show any difference \( F=1.712, p=0.138 \).

4.4.2 Age and grade distribution of respondents

81 respondents (71.7%) are staff nurses, 32 respondents are enrolled nurses (27.8%) whilst the grade of two respondents was unavailable. Comparison of the age groups with the grade of the respondents is given in Figure 4.2. The graph shows that the vast majority of respondents for each age group are staff nurses except for the 50-59 age groups. In fact, in this group, the majority of the respondents are enrolled nurses. However, there is no significant difference \( t=-1.4442, p=0.152 \) between the mean age of staff nurses (32.94 years, C.I., 31.1-34.8) and enrolled nurses (35.81 years, C.I., 31.8-39.8).
4.4.3 Work experience of respondents

The average total work experience of the respondents is 9.67 years (N=110, SD=7.46 years) whilst the average work experience at the ward/unit that they are currently working is 6.48 years (N=108, SD=4.667). There is a significant correlation (Pearson=0.604, p=0.000) between the total work experience and current work experience meaning that a significant number of respondents worked in the same speciality for most of their working years.

Figure 4.3 compares the total work experience according to the grade. Figure 4.3 shows that the respondents who have a total work experience of between 20-30 years are in majority enrolled nurses. This may be explained by Figure 4.2 that has shown
how the majority of the 50-59 age groups are enrolled nurses. Nevertheless, there is no significant difference in the mean number of years of work experience between grades ($t=0.623$, $p=0.535$). Similarly, comparison between the mean total work experience of male and female respondents did not show any significant difference ($t=-1.363$, $p=0.176$).

![Graph of Total Work Experience by Grade](image)

**Figure 4.3 Total work experience of respondents by grade**

### 4.4.4 Type of organisation of care as perceived by respondents

Question 1.7 asked the respondents whether in their opinion, the way care is organised in their wards, is best described as task-allocation or patient allocation. Figure 4.4 shows the distribution of responses according to whether they responded ‘task-allocation’ or ‘patient allocation’.
21 (18.2%) respondents did not respond to this question. However, out of those who responded, the majority of the respondents (70%) described the type of organisation of care that they practise in their wards as patient-allocation. Comparison of the responses obtained with the characteristics of the respondents showed that there was no significant difference in the responses obtained between grade (Chi-square = 2.506, p=0.113), sex (Pearson Chi-Square = 1.620, p=0.203) and age (t=0.373, p=0.710). However, there was a significant difference in the responses obtained between nurses working in different specialties (Pearson Chi-Square = 25.02, p=0.000). This may indicate that the type of organisation of care varies between specialties. Further evidence of this is seen in Figure 4.5 that compares the responses obtained according to the type of organisation of care as perceived by the respondents.
The graph above shows that the majority of orthopaedic, paediatric and critical care nurses perceive to practise patient allocation, whilst the majority of the respondents working in medical, surgical and the theatres, feel that their work is more a task-allocated.

4.5 Job Diagnostic Survey (JDS) scores as obtained from respondents

The JDS scores for the 21 constructs forming the Job Characteristics Model are calculated according to the scoring manual (Appendix 11) as presented by Hackman and Oldham (1981). The mean and standard deviation for each JDS score for all respondents is shown Table 4.5.
<table>
<thead>
<tr>
<th>Constructs</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill variety</td>
<td>2.7</td>
<td>6.7</td>
<td>5.177</td>
<td>1.0234</td>
</tr>
<tr>
<td>Task identity</td>
<td>1.7</td>
<td>7.0</td>
<td>4.713</td>
<td>1.2115</td>
</tr>
<tr>
<td>Task significance</td>
<td>3.3</td>
<td>7.0</td>
<td>5.759</td>
<td>.8736</td>
</tr>
<tr>
<td>Autonomy</td>
<td>1.0</td>
<td>7.0</td>
<td>4.351</td>
<td>1.3215</td>
</tr>
<tr>
<td>Feedback from the job</td>
<td>2.3</td>
<td>7.0</td>
<td>4.420</td>
<td>1.0365</td>
</tr>
<tr>
<td>Feedback from agents</td>
<td>1.0</td>
<td>7.0</td>
<td>3.441</td>
<td>1.4540</td>
</tr>
<tr>
<td>Dealing with others</td>
<td>2.7</td>
<td>7.0</td>
<td>6.014</td>
<td>.9213</td>
</tr>
<tr>
<td>Experienced meaningfulness</td>
<td>1.8</td>
<td>6.8</td>
<td>5.091</td>
<td>.9064</td>
</tr>
<tr>
<td>Experienced responsibility</td>
<td>2.5</td>
<td>6.8</td>
<td>4.983</td>
<td>1.0157</td>
</tr>
<tr>
<td>Knowledge of results</td>
<td>2.8</td>
<td>6.8</td>
<td>4.783</td>
<td>.8657</td>
</tr>
<tr>
<td>General satisfaction</td>
<td>1.6</td>
<td>7.0</td>
<td>4.795</td>
<td>1.0866</td>
</tr>
<tr>
<td>Internal work motivation</td>
<td>2.7</td>
<td>6.8</td>
<td>5.477</td>
<td>.7663</td>
</tr>
<tr>
<td>Growth satisfaction</td>
<td>2.0</td>
<td>7.0</td>
<td>4.822</td>
<td>.9799</td>
</tr>
<tr>
<td>Security satisfaction</td>
<td>1.5</td>
<td>7.0</td>
<td>4.526</td>
<td>1.3570</td>
</tr>
<tr>
<td>Pay satisfaction</td>
<td>1.0</td>
<td>7.0</td>
<td>3.187</td>
<td>1.5282</td>
</tr>
<tr>
<td>Supervisory satisfaction</td>
<td>1.0</td>
<td>7.0</td>
<td>4.322</td>
<td>1.3672</td>
</tr>
<tr>
<td>Social satisfaction</td>
<td>2.7</td>
<td>7.0</td>
<td>5.516</td>
<td>.8877</td>
</tr>
<tr>
<td>GNS (Would like format)</td>
<td>.0</td>
<td>4.0</td>
<td>2.712</td>
<td>1.1166</td>
</tr>
<tr>
<td>GNS (Job choice format)</td>
<td>1.9</td>
<td>6.5</td>
<td>3.691</td>
<td>.7708</td>
</tr>
<tr>
<td>Combined GNS</td>
<td>1.1</td>
<td>5.2</td>
<td>3.201</td>
<td>.7263</td>
</tr>
<tr>
<td>Motivating Potential Score (MPS)</td>
<td>16.0</td>
<td>295.6</td>
<td>105.607</td>
<td>55.2838</td>
</tr>
</tbody>
</table>

Table 4.5 Descriptive statistics of JDS scores for all respondents

The following section will compare the mean JDS scores of these constructs according to the age groups, gender, grade and type of organisation. The mean JDS scores according to different specialties will be compared in a separate section.

4.5.1 Comparison of mean job characteristic scores with different ages and gender

The mean scores of the seven job characteristics (i.e. skill variety, task identity, task significance, autonomy, feedback from the job, feedback from agents, dealing with others, and the motivating potential score[MPS]) are related with the ages and gender of the respondents. However, first normality of the scores obtained is assessed. The scores of skill variety, task identity, feedback from the job and feedback from the
agents are parametric whilst the scores for task significance, autonomy and dealing with others are non-parametric. For scores who are normally distributed Pearson's correlation Test (to compare with age) and One-way Analysis of Variance Test (ANOVA) is used (to compare with gender). For scores that are not normally distributed Spearman's correlation Test (to compare with age) and Kruskal Wallis Test (to compare with gender) is utilised. Table 4.6 summarises the results obtained and shows that there is no significant differences in the mean scores of the job characteristics for different age and gender.

<table>
<thead>
<tr>
<th>Job characteristics</th>
<th>Age</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill variety</td>
<td>Pearson=0.075, p=0.434</td>
<td>F=2.002, p=0.160</td>
</tr>
<tr>
<td>Task identity</td>
<td>Pearson=0.115, p=0.228</td>
<td>F=2.226, p=0.139</td>
</tr>
<tr>
<td>Task significance</td>
<td>Spearman=0.144, p=0.132</td>
<td>Chi-Square=1.343, p=0.246</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Spearman=0.069, p=0.469</td>
<td>Chi-Square=0.14, p=0.906</td>
</tr>
<tr>
<td>Feedback from job</td>
<td>Pearson=0.1, p=0.296</td>
<td>F=0.708, p=0.402</td>
</tr>
<tr>
<td>Feedback from agents</td>
<td>Pearson=-0.095, p=0.321</td>
<td>F=0.024, p=0.878</td>
</tr>
<tr>
<td>Dealing with others</td>
<td>Spearman=0.106, p=0.269</td>
<td>Chi-square=0.499, p=0.480</td>
</tr>
<tr>
<td>Motivating potential score (MPS)</td>
<td>Pearson=0.102, p=0.287</td>
<td>F=1.166, p=0.283</td>
</tr>
</tbody>
</table>

Table 4.6 Summaries of the comparison between the mean job characteristics scores and different ages and gender

4.5.2 Comparison of mean affective outcome scores with different ages and total work experience

Similar to above, the mean affective outcome scores are compared with different ages and gender. Parametric tests are used for growth satisfaction and general satisfaction as the mean scores are normally distributed. Non-parametric tests are used for internal work motivation scores. There is a weak positive correlation between age and general...
satisfaction (Pearson=0.282, p=0.003) and age and internal work motivation (Spearman=0.348, p=0.000). No significant correlation is found between age and growth satisfaction (Pearson=0.085, p=0.373).

Similarly there is a slightly positive relationship between total work experience and internal work motivation (Spearman=0.217, p=0.023). No other relationship is found between total work experience and affective outcomes.

4.5.3 Comparison of mean affective outcome scores and gender

There is a significant relationship between the affective outcomes of growth satisfaction (F=6.082, p=0.015) and internal work motivation scores (Chi-Square=9.968, p=0.002) with gender. Females seem to have higher mean internal work motivation score (mean=5.162, SD=0.794) than males (mean=5.667, SD=0.624). Moreover, females have a significantly higher mean growth satisfaction score (mean=4.514, SD=0.991) than males (mean=4.987, SD=0.921).

4.5.4 Comparison of mean job characteristic scores with grade and organisation of care

The mean job characteristic scores are compared with the grade and the type of organisation of care. The same tests were used as above. Table 4.7 gives the results of these tests.
Table 4.7 Summaries of the comparison between the mean job characteristics scores and different grades and type of organisation of care

No significant difference is found in the mean job characteristic scores of staff nurses and enrolled nurses. However, a significant difference is found in the job characteristics (particularly mean skill variety, autonomy score and total MPS score) of respondents who perceive to work in different types of organisation of care. Figure 4.6 compares the mean MPS score of nurses who said to be allocated to the patient (89.5) and those respondents who said that their care is organised around tasks (119). Respondents who felt that their organisation of care is patient allocated had a significant higher MPS score than respondents who said that their care is organised around tasks.
4.5.5 Comparison of mean affective outcome scores with grade and organisation of care

There is no difference in any affective outcomes (i.e. growth satisfaction ($p=0.885$), general satisfaction ($p=0.120$) and internal work motivation ($p=0.278$)) of staff nurses and enrolled nurses. Similarly, no difference is found in the affective outcomes (i.e. growth satisfaction ($p=0.872$), general satisfaction ($p=0.797$) and internal work motivation ($p=0.301$)) of the respondents who perceived their organisation of care to be different.
4.5.6 Comparison of the mean job characteristic scores with the mean affective outcome scores

The direct relationship between the job characteristics and the affective outcome is tested as shown in Table 4.8

<table>
<thead>
<tr>
<th>Job characteristics</th>
<th>General satisfaction</th>
<th>Internal work motivation</th>
<th>Growth satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill variety</td>
<td>Pearson=0.250, p=0.007</td>
<td>Pearson=0.215, p=0.021</td>
<td>Pearson=0.370, p=0.000</td>
</tr>
<tr>
<td>Task identity</td>
<td>Pearson=0.200, p=0.032</td>
<td>Pearson=0.230, p=0.013</td>
<td>Pearson=0.325, p=0.000</td>
</tr>
<tr>
<td>Task significance</td>
<td>Spearman=0.289, p=0.002</td>
<td>Spearman=0.342, p=0.000</td>
<td>Spearman=0.323, p=0.000</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Spearman=0.0.280, p=0.002</td>
<td>Spearman=0.067, p=0.476</td>
<td>Spearman=0.478, p=0.000</td>
</tr>
<tr>
<td>Feedback from job</td>
<td>Pearson=0.199, p=0.033</td>
<td>Pearson=0.187, p=0.045</td>
<td>Pearson=0.289, p=0.002</td>
</tr>
<tr>
<td>Feedback from agents</td>
<td>Pearson=0.227, p=0.015</td>
<td>Pearson=0.047, p=0.617</td>
<td>Pearson=0.198, p=0.034</td>
</tr>
<tr>
<td>Dealing with others</td>
<td>Spearman=0.1567, p=0.074</td>
<td>Spearman=0.097, p=0.304</td>
<td>Spearman=0.136, p=0.146</td>
</tr>
<tr>
<td>Motivating potential score (MPS)</td>
<td>Pearson=0.346, p=0.000</td>
<td>Pearson=0.221, p=0.018</td>
<td>Pearson=0.542, p=0.000</td>
</tr>
</tbody>
</table>

Table 4.8 Comparison between mean job characteristic scores and mean affective outcome scores

The results above show that there is a very strong positive relationship especially between the core job characteristics (i.e. skill variety, task identity, autonomy, task significance and feedback from the job) and general and growth satisfaction. Moreover, except for autonomy, there is also a significant positive relationship between all other core job characteristics and internal work motivation.

4.5.7 Comparison of the mean JDS scores to results obtained in other studies

The mean JDS scores above are compared to other studies that used the Job Diagnostic Survey. Table 4.9 compares the scores obtained in this study with another study by Mohammed (2004) as obtained from nurses working in Egypt and the JDS
scores as obtained by Hackman and Oldham (1981) for professional and technical people working in 56 organisations throughout the United States.

<table>
<thead>
<tr>
<th>Skill variety</th>
<th>This study</th>
<th>Mohammed (2004)</th>
<th>Hackman and Oldham (1981)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.177</td>
<td>4.63±1.0</td>
<td>5.4±1.0</td>
</tr>
<tr>
<td>Task identity</td>
<td>4.713</td>
<td>4.13±0.95</td>
<td>5.1±1.2</td>
</tr>
<tr>
<td>Task significance</td>
<td>5.759</td>
<td>5.33±0.85</td>
<td>5.6±0.95</td>
</tr>
<tr>
<td>Autonomy</td>
<td>4.351</td>
<td>4.57±0.9</td>
<td>5.4±1.0</td>
</tr>
<tr>
<td>Feedback from the job</td>
<td>4.420</td>
<td>4.38±0.8</td>
<td>5.1±1.1</td>
</tr>
<tr>
<td>Feedback from agents</td>
<td>3.441</td>
<td></td>
<td>4.2±1.4</td>
</tr>
<tr>
<td>Dealing with others</td>
<td>6.014</td>
<td></td>
<td>5.8±0.96</td>
</tr>
<tr>
<td>Experienced meaningfulness</td>
<td>5.091</td>
<td>4.03±0.7</td>
<td>5.4±0.87</td>
</tr>
<tr>
<td>Experienced responsibility</td>
<td>4.983</td>
<td>5.00±0.6</td>
<td>5.8±0.72</td>
</tr>
<tr>
<td>Knowledge of results</td>
<td>4.783</td>
<td>4.56±0.4</td>
<td>5.0±0.99</td>
</tr>
<tr>
<td>General satisfaction</td>
<td>4.795</td>
<td>4.00±0.7</td>
<td>4.9±0.99</td>
</tr>
<tr>
<td>Internal work motivation</td>
<td>5.477</td>
<td>4.77±0.6</td>
<td>5.8±0.65</td>
</tr>
<tr>
<td>Growth satisfaction</td>
<td>4.822</td>
<td>4.30±0.8</td>
<td>5.1±1.1</td>
</tr>
<tr>
<td>Security satisfaction</td>
<td>4.526</td>
<td>3.20±1.0</td>
<td>5.0±1.2</td>
</tr>
<tr>
<td>Pay satisfaction</td>
<td>3.187</td>
<td>4.56±1.0</td>
<td>4.4±1.5</td>
</tr>
<tr>
<td>Supervisory satisfaction</td>
<td>4.322</td>
<td>4.27±0.6</td>
<td>4.9±1.3</td>
</tr>
<tr>
<td>Social satisfaction</td>
<td>5.516</td>
<td>4.23±1.0</td>
<td>5.5±0.85</td>
</tr>
<tr>
<td>GNS (Would like format)</td>
<td>2.712</td>
<td>5.3±0.8</td>
<td>6.1±0.82</td>
</tr>
<tr>
<td>GNS (Job choice format)</td>
<td>3.691</td>
<td>3.30±0.5</td>
<td>4.8±0.64</td>
</tr>
<tr>
<td>Combined GNS</td>
<td>3.201</td>
<td>4.77±0.7</td>
<td>5.6±0.57</td>
</tr>
<tr>
<td>Motivating Potential Score (MPS)</td>
<td>105.607</td>
<td>106±36</td>
<td>154±55</td>
</tr>
</tbody>
</table>

Table 4.9 Comparison of the mean JDS scores as obtained in the study with other studies

The above table shows that in general the mean JDS scores obtained in the study are higher when compared to the study by Mohamed (2004), but lower when compared to Hackman and Oldham (1981) scores. However, all JDS scores in the studies fall within the 95% confidence interval of the corresponding scores, except for the combined Growth Need Strength (GNS) score that fall significantly below (p=0.000) the scores of both studies.
4.6 Testing the applicability of the Job Characteristics Model for the respondents of the study

The following section will seek to answer the hypothesis as proposed in Section 1.6 based on the Job Characteristics Model. Simple and multiple linear regression analysis will be used to estimate the equation of the line of best fit for the possible relationship/s between the constructs as defined by the Model shown in Figure 4.7. Figure 4.8 gives a more detailed description of the relationships that will be tested between the job characteristics, critical psychological states and affective outcomes.

![Figure 4.7 Relationships between major constructs in the model](image)

![Figure 4.8 A detailed description of the relationships to be analysed in Hypothesis 1 and Hypothesis 2](image)
4.6.1 Testing the relationship between the job characteristic and the psychological states (Hypothesis 1)

The following section will test hypothesis one (H1) which postulates that the higher the mean job characteristics scores, the significantly higher will be the mean experienced psychological states scores. Three main relationships will be analysed as shown in Figure 4.9; that is the combined relationship between skill variety, task identity and task significance and experienced meaningfulness (H1a), the relationship between autonomy and experienced responsibility (H1b) and the relationship between feedback and knowledge of results (H1c).

4.6.1.1 Regression analysis between skill variety, task identity, task significance and experienced meaningfulness (H1a)

Multiple regression analysis show that experienced meaningfulness is dependent to task identity \( (p=0.047) \) and task significance \( (p=0.000) \) but independent from skill variety \( (p=0.287) \). Therefore, the equation that best explains this relationship is:

\[
\text{Experienced meaningfulness} = 1.528 + 0.516 \text{ task significance} + 0.126 \text{ task identity}
\]

4.6.1.2 Regression analysis between autonomy and experienced responsibility for work outcome (H1b)

There is a significant relationship between the autonomy and experienced responsibility \( (p=0.038) \) when one anomalous response was excluded. \( (N=114) \). The equation \( (y = a + bx) \) that best fits the relationship is:

\[
\text{Experienced responsibility} = 4.304 + 0.153 \text{ autonomy}
\]
4.6.1.3 Regression analysis between feedback and knowledge of results (H1c)

A significant positive relationship is found between feedback and knowledge of results \( (p=0.019) \). The equation that best predicts the relationship between the two constructs is the following:

\[
\text{Knowledge of results} = 3.976 + 0.182 \text{ feedback}
\]

Summary:

In general, there is a significant positive correlation between the mean job characteristics scores (except skill variety) and the mean psychological states scores of the respondents. Therefore, **H1 is accepted**.

4.6.2 Testing the relationship between the psychological states and affective outcomes Hypothesis 2)

Hypothesis two (H2) states that the higher the mean experienced psychological state score, the significantly higher will be the mean affective outcome scores. Stepwise regression analysis will be used to test the three relationships that are summarised in this hypothesis namely the relationship between the experienced psychological states and internal work motivation (H2a), general satisfaction (H2b) and growth satisfaction (H2c).

4.6.2.1 Regression analysis between experienced psychological states and internal work motivation (H2a)

A positive relationship is present between experienced meaningfulness and internal work motivation \( (p=0.000) \) but no relationship is found between experienced responsibility \( (p=0.221) \), knowledge of results \( (p=0.646) \) and internal work motivation. Thus although the model postulates that internal work motivation is
related with all three psychological states, the study showed that experienced meaningfulness is the only antecedent to internal work motivation as shown in the equation (in the form of $y = a + bx$) below:

$$\text{Internal work motivation} = 3.052 + 0.476 \text{experienced meaningfulness}$$

4.6.2.2 Regression analysis between experienced psychological states and general job satisfaction (H2b)

All three psychological states namely experienced meaningfulness ($p=0.000$), experienced responsibility ($p=0.049$) and knowledge of results ($0.036$) are found to be dependent variables of general satisfaction. This can be seen in the equation below:

$$\text{General Job satisfaction} = 1.093 + 0.707 \text{experienced meaningfulness} + 0.189 \text{experienced responsibility} + 0.219 \text{knowledge of results}$$

4.6.2.3 Regression analysis between experienced psychological states and growth job satisfaction (H2c)

The relationship between the experienced psychological states and growth satisfaction is sought using stepwise regression analysis. There is a significant positive relationship between the experienced responsibility ($p=0.001$) and growth satisfaction and experienced meaningfulness and growth satisfaction ($p=0.011$). However, there is no significant relationship between knowledge of results and growth satisfaction ($p=0.803$). Thus the relationship between experienced meaningfulness and growth satisfaction can be expressed as:

$$\text{Growth satisfaction} = 1.743 + 0.32 \text{experienced meaningfulness} + 0.309 \text{experienced responsibility}$$

Summary:

In general, there is a positive correlation between the experienced psychological states and almost all mean affective outcomes. Therefore, H2 is partly accepted.
4.6.3 Testing the relationship between the “moderators” and the experienced psychological states (Hypothesis 3)

Hypothesis three states that the higher the “moderators” scores the significantly higher the mean psychological state scores. The moderators as defined in the Model consist of the Growth Need Strength (GNS) and context satisfaction which in turn consist of four constructs; namely social satisfaction, pay satisfaction, security satisfaction and supervisory satisfaction. This section will seek to analyse the relationship between the constructs and the experienced psychological state as shown in Figure 4.9

![Figure 4.9 A description of the relationship as proposed in Hypothesis 3](image)

4.6.3.1 Regression analysis between growth need strength and the psychological states

The relationship between the combined growth need strength and the experienced psychological states (i.e. H3a, H3b and H3c) is analysed using simple linear regression. No significant relationship is found between the combined Growth Need
Strength (GNS) score and any of the experienced psychological states as shown in Table 4.10

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>B</th>
<th>R</th>
<th>R Square</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3a</td>
<td>0.125</td>
<td>0.089</td>
<td>0.008</td>
<td>0.344</td>
</tr>
<tr>
<td>H3b</td>
<td>0.119</td>
<td>0.148</td>
<td>0.022</td>
<td>0.113</td>
</tr>
<tr>
<td>H3c</td>
<td>0.057</td>
<td>0.048</td>
<td>0.002</td>
<td>0.611</td>
</tr>
</tbody>
</table>

Table 4.10 Summary of results obtained when comparing combined GNS scores and experienced psychological state scores

4.6.3.2 Regression analysis between mean “context” satisfaction scores and mean psychological states scores

The association between “context” satisfaction and the experienced psychological states is examined as shown in Figure 4.9. Out of the four “context” satisfaction constructs the only predictor for all the experienced psychological states is social satisfaction as shown in Table 4.11.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>“Context” satisfaction constructs</th>
<th>B</th>
<th>R</th>
<th>R Square</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3d</td>
<td>Security satisfaction</td>
<td>-0.006</td>
<td>0.301</td>
<td>0.091</td>
<td>0.937</td>
</tr>
<tr>
<td></td>
<td>Pay satisfaction</td>
<td>-0.013</td>
<td>0.301</td>
<td>0.091</td>
<td>0.853</td>
</tr>
<tr>
<td></td>
<td>Social satisfaction</td>
<td>0.257</td>
<td>0.301</td>
<td>0.091</td>
<td>0.024</td>
</tr>
<tr>
<td></td>
<td>Supervisory satisfaction</td>
<td>0.115</td>
<td>0.301</td>
<td>0-091</td>
<td>0.137</td>
</tr>
<tr>
<td>H3e</td>
<td>Security satisfaction</td>
<td>0.124</td>
<td>0.458</td>
<td>0.210</td>
<td>0.061</td>
</tr>
<tr>
<td></td>
<td>Pay satisfaction</td>
<td>-0.032</td>
<td>0.458</td>
<td>0.210</td>
<td>0.575</td>
</tr>
<tr>
<td></td>
<td>Social satisfaction</td>
<td>0.353</td>
<td>0.458</td>
<td>0.210</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Supervisory satisfaction</td>
<td>0.052</td>
<td>0.458</td>
<td>0.210</td>
<td>0.416</td>
</tr>
<tr>
<td>H3f</td>
<td>Security satisfaction</td>
<td>-0.004</td>
<td>0.220</td>
<td>0.049</td>
<td>0.951</td>
</tr>
<tr>
<td></td>
<td>Pay satisfaction</td>
<td>-0.24</td>
<td>0.220</td>
<td>0.049</td>
<td>0.689</td>
</tr>
<tr>
<td></td>
<td>Social satisfaction</td>
<td>0.193</td>
<td>0.220</td>
<td>0.049</td>
<td>0.049</td>
</tr>
<tr>
<td></td>
<td>Supervisory satisfaction</td>
<td>0.045</td>
<td>0.220</td>
<td>0.049</td>
<td>0.505</td>
</tr>
</tbody>
</table>

Table 4.11 Summary of results obtained when comparing the “context” satisfaction scores and experienced psychological state scores

Summary:

The above results show that with respect to the “moderators” constructs, the only predictor of the experienced psychological scores is social satisfaction. Thus, hypothesis 3 is not accepted.
4.6.4 Testing the relationship between the "moderators" and affective outcomes (Hypothesis 4)

Hypothesis four states that the higher the "moderators" scores the significantly higher the mean affective outcome scores. Figure 4.10 shows the relationship as proposed in this hypothesis.

![Diagram](image)

**Figure 4.10** A description of the relationship as proposed in Hypothesis 4

4.6.4.1 Regression analysis between mean growth need strength score and mean affective outcome scores

Table 4.12 below summarises the results obtained when the relationship between the combined Growth Need Strength and the affective outcomes is analysed (H4a, H4b, H4c).

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>( B )</th>
<th>( R )</th>
<th>( R ) Square</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4a</td>
<td>0.234</td>
<td>0.222</td>
<td>0.049</td>
<td>0.017</td>
</tr>
<tr>
<td>H4b</td>
<td>-0.002</td>
<td>0.001</td>
<td>0.000</td>
<td>0.987</td>
</tr>
<tr>
<td>H4c</td>
<td>0.185</td>
<td>0.137</td>
<td>0.019</td>
<td>0.145</td>
</tr>
</tbody>
</table>

**Table 4.12** Summary of results obtained when comparing combined GNS scores and affective outcome scores

As shown above, the combined Growth Need Strength (GNS) is only related to internal work motivation.
4.6.4.2 Regression analysis between mean “context” satisfaction scores and mean affective outcome scores

The association between “context” satisfaction and the affective outcome states is sought. Table 4.13 summarises the results obtained using multiple regression analysis.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>“Context” satisfaction constructs</th>
<th>B</th>
<th>R</th>
<th>R Square</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4d</td>
<td>Security satisfaction</td>
<td>0.037</td>
<td>0.426</td>
<td>0.181</td>
<td>0.549</td>
</tr>
<tr>
<td></td>
<td>Pay satisfaction</td>
<td>-0.039</td>
<td>0.426</td>
<td>0.181</td>
<td>0.425</td>
</tr>
<tr>
<td></td>
<td>Social satisfaction</td>
<td>0.334</td>
<td>0.426</td>
<td>0.181</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Supervisory satisfaction</td>
<td>0.044</td>
<td>0.426</td>
<td>0.181</td>
<td>0.425</td>
</tr>
<tr>
<td>H4e</td>
<td>Security satisfaction</td>
<td>0.131</td>
<td>0.438</td>
<td>0.192</td>
<td>0.101</td>
</tr>
<tr>
<td></td>
<td>Pay satisfaction</td>
<td>0.062</td>
<td>0.438</td>
<td>0.192</td>
<td>0.374</td>
</tr>
<tr>
<td></td>
<td>Social satisfaction</td>
<td>0.334</td>
<td>0.438</td>
<td>0.192</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Supervisory satisfaction</td>
<td>0.065</td>
<td>0.438</td>
<td>0.192</td>
<td>0.402</td>
</tr>
<tr>
<td>H4f</td>
<td>Security satisfaction</td>
<td>0.120</td>
<td>0.709</td>
<td>0.502</td>
<td>0.035</td>
</tr>
<tr>
<td></td>
<td>Pay satisfaction</td>
<td>0.126</td>
<td>0.709</td>
<td>0.502</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>Social satisfaction</td>
<td>0.508</td>
<td>0.709</td>
<td>0.502</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Supervisory satisfaction</td>
<td>0.116</td>
<td>0.709</td>
<td>0.502</td>
<td>0.035</td>
</tr>
</tbody>
</table>

Table 4.13 Summary of results obtained when comparing the “context” satisfaction scores and affective outcome scores

The table above indicates that the greatest association is between “context” satisfaction and growth satisfaction. As in the previous section, social satisfaction is the only predictor for all the affective outcomes.

Summary:

The relationship between “context” satisfaction and affective outcomes are only partly fulfilled. Therefore hypothesis 4 is only partly accepted.

4.6.5 Conclusion

Figure 4.11 summaries all the relationships found to test the JCM. It shows that in general the Job Characteristics Model is applicable to the respondents in the study.
Figure 4.11 Summary of all the relationships found in the study to test the JCM
4.7 Comparing the JDS indicators of nurses working in different nursing specialities (Hypothesis 5)

Hypothesis five predicts that there will be no significant difference in the JDS indicators of nurses working in different specialities. The following section will seek to provide evidence to verify or refute this hypothesis. However, the distribution of respondents working in different specialities according to their age, gender, grade and working experience will be analysed first.

4.7.1 Distribution of nurses working in different specialities according to age

Figure 4.12 compares the age distribution according to the different specialities. As shown in this box-plot diagram there is no difference in the mean age distribution of respondents working in the same speciality although the mean age of paediatric nurses in the sample is slightly higher than the rest (F=1.786, p=0.122).

![Box-plot diagram showing age distribution of nurses in different specialities.](image)

Figure 4.12 Age distribution of nurses working in different specialties
4.7.2 Distribution of nurses working in different specialities according to gender

The gender distribution of respondents working in different specialties is given in Figure 4.13. The bar chart below shows that there is a higher percentage of male respondents working in medical, surgical wards and theatre nurses although this difference in gender distribution is not found to be statistically significant (Pearson Chi-square=6.167, p=0.290).

![Gender distribution of nurses working in different specialities](image)

**Figure 4.13 Gender distribution of nurses working in different specialities**

4.7.3 Distribution of nurses working in different specialities according to grade

The grade distribution of respondents working in different specialties is given in Figure 4.14. As shown in the graph below, the majority of the respondents working in the critical units, theatres and paediatric wards are staff nurses, whilst the majority of respondents in medical, surgical and orthopaedic are enrolled nurses. This difference in grade distribution between specialties is also found to be significant (Pearson Chi-square=14.549, p=0.012).
4.7.4 Distribution of nurses working in different specialities according to their total work experience

The mean total work experience of the nurses for each speciality is compared in Figure 4.15. No significant difference is found in the total years of experience of nurses working in different specialities (F=1.266, p=0.284).
### 4.7.5 Mean JDS scores of nurses working in different specialities

Table 4.14 shows the mean JDS scores and confidence intervals (in brackets) of respondents working in different specialities.

<table>
<thead>
<tr>
<th>Job characteristics</th>
<th>Medical</th>
<th>Surgical</th>
<th>Theatre</th>
<th>Paediatrics</th>
<th>Critical care</th>
<th>Orthopaedics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill variety</td>
<td>4.62 (4.15-5.15)</td>
<td>5.36 (4.89-5.83)</td>
<td>4.79 (4.40-5.14)</td>
<td>5.39 (4.7-6.09)</td>
<td>5.69 (4.50-5.99)</td>
<td>5.95 (5.47-6.44)</td>
</tr>
<tr>
<td>Task identity</td>
<td>3.92 (3.33-4.51)</td>
<td>5.36 (4.89-5.83)</td>
<td>4.99 (4.57-5.41)</td>
<td>4.88 (4.04-5.72)</td>
<td>5.00 (4.55-5.45)</td>
<td>5.05 (4.12-5.98)</td>
</tr>
<tr>
<td>Task significance</td>
<td>5.52 (5.04-6.00)</td>
<td>5.44 (4.86-6.03)</td>
<td>5.84 (5.58-6.11)</td>
<td>5.76 (4.99-6.53)</td>
<td>5.98 (5.11-6.67)</td>
<td>5.95 (5.25-6.65)</td>
</tr>
<tr>
<td>Autonomy</td>
<td>3.83 (3.12-4.55)</td>
<td>3.80 (3.28-4.72)</td>
<td>3.99 (3.57-4.41)</td>
<td>5.03 (4.21-5.85)</td>
<td>4.96 (4.6-5.33)</td>
<td>5.00 (3.87-6.13)</td>
</tr>
<tr>
<td>Feedback from job</td>
<td>4.06 (3.69-4.44)</td>
<td>4.42 (3.96-4.85)</td>
<td>4.15 (3.77-4.53)</td>
<td>4.76 (3.98-5.53)</td>
<td>4.81 (4.42-5.20)</td>
<td>4.95 (4.00-5.9)</td>
</tr>
<tr>
<td>Feedback from agents</td>
<td>2.90 (2.32-3.48)</td>
<td>3.62 (2.75-5.00)</td>
<td>3.65 (3.12-4.17)</td>
<td>3.70 (2.64-4.75)</td>
<td>3.37 (2.88-3.86)</td>
<td>3.33 (1.57-5.10)</td>
</tr>
<tr>
<td>Dealing with others</td>
<td>5.86 (5.4-6.39)</td>
<td>5.84 (5.27-6.42)</td>
<td>6.08 (5.73-6.44)</td>
<td>5.97 (5.26-6.69)</td>
<td>6.02 (5.75-6.29)</td>
<td>6.33 (5.56-7.11)</td>
</tr>
<tr>
<td>Motivating potential score</td>
<td>74.7 (56.3-93.2)</td>
<td>86.9 (61.7-111.9)</td>
<td>88.1 (74.1-102.2)</td>
<td>136.3 (88.3-184.3)</td>
<td>136.7 (116.7-156)</td>
<td>147.4 (78.7-216.0)</td>
</tr>
<tr>
<td>Experienced meaningfulness</td>
<td>4.77 (4.38-5.15)</td>
<td>5.02 (4.50-5.54)</td>
<td>5.07 (4.76-5.38)</td>
<td>5.34 (4.66-6.02)</td>
<td>5.35 (5.00-5.70)</td>
<td>5.04 (4.23-5.84)</td>
</tr>
<tr>
<td>Experienced responsibility</td>
<td>4.59 (4.05-5.14)</td>
<td>5.04 (4.44-5.65)</td>
<td>4.91 (4.65-5.18)</td>
<td>5.11 (4.37-5.84)</td>
<td>5.38 (5.00-5.78)</td>
<td>4.80 (3.70-5.90)</td>
</tr>
<tr>
<td>Knowledge of results</td>
<td>4.58 (4.04-5.11)</td>
<td>4.53 (4.00-5.07)</td>
<td>4.82 (4.58-5.06)</td>
<td>4.86 (4.20-5.33)</td>
<td>4.96 (4.62-5.31)</td>
<td>4.93 (4.23-5.63)</td>
</tr>
<tr>
<td>General satisfaction</td>
<td>4.63 (4.04-5.29)</td>
<td>5.00 (4.43-5.57)</td>
<td>4.61 (4.22-5.00)</td>
<td>4.91 (4.12-5.7)</td>
<td>4.96 (4.57-5.34)</td>
<td>4.77 (3.65-5.88)</td>
</tr>
<tr>
<td>Internal work motivation</td>
<td>5.56 (5.04-6.08)</td>
<td>5.48 (5.10-5.86)</td>
<td>5.36 (5.13-5.59)</td>
<td>5.53 (5.08-6.00)</td>
<td>5.69 (5.41-5.96)</td>
<td>5.52 (5.24-5.81)</td>
</tr>
<tr>
<td>Growth satisfaction</td>
<td>4.59 (4.17-5.02)</td>
<td>4.97 (4.41-5.53)</td>
<td>4.44 (4.10-4.79)</td>
<td>5.16 (4.55-5.77)</td>
<td>5.15 (4.89-5.42)</td>
<td>5.43 (4.30-5.66)</td>
</tr>
<tr>
<td>Security satisfaction</td>
<td>3.88 (3.22-4.53)</td>
<td>5.07 (4.53-5.62)</td>
<td>4.50 (4.02-4.98)</td>
<td>4.41 (3.50-5.32)</td>
<td>4.86 (4.36-5.35)</td>
<td>5.57 (4.71-6.43)</td>
</tr>
<tr>
<td>Pay satisfaction</td>
<td>2.91 (2.33-3.50)</td>
<td>3.8 (2.96-4.64)</td>
<td>2.97 (2.47-3.48)</td>
<td>3.77 (2.61-4.94)</td>
<td>2.88 (2.29-3.46)</td>
<td>4.29 (2.6-5.97)</td>
</tr>
<tr>
<td>Social satisfaction</td>
<td>5.60 (5.22-5.99)</td>
<td>5.53 (4.93-6.14)</td>
<td>5.26 (4.94-5.58)</td>
<td>5.49 (4.85-6.12)</td>
<td>5.74 (5.49-6.00)</td>
<td>6.19 (5.79-6.58)</td>
</tr>
<tr>
<td>Supervisory satisfaction</td>
<td>3.83 (3.30-4.37)</td>
<td>4.69 (3.78-5.59)</td>
<td>4.21 (3.80-4.63)</td>
<td>4.27 (3.2-5.34)</td>
<td>4.62 (4.12-5.11)</td>
<td>4.67 (3.12-6.22)</td>
</tr>
<tr>
<td>Combined GNS</td>
<td>3.00 (2.76-3.44)</td>
<td>3.2 (2.76-3.63)</td>
<td>3.05 (2.76-3.34)</td>
<td>3.33 (2.85-3.82)</td>
<td>3.42 (3.17-3.66)</td>
<td>3.31 (2.94-3.68)</td>
</tr>
</tbody>
</table>

Table 4.14 Mean JDS scores and confidence intervals of nurses working in different specialities
4.7.6 Comparison of JDS indicators of nurses working in different specialities

Table 4.15 compares the mean JDS scores of nurses of different specialties. Similar to the above, analysis of variance (ANOVA) was used for parametric scores whilst Kruskal Wallis Test was used for non-parametric scores.

<table>
<thead>
<tr>
<th>Job characteristics</th>
<th>F value</th>
<th>Chi-Square value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill variety</td>
<td>5.319</td>
<td>-</td>
<td>0.000</td>
</tr>
<tr>
<td>Task identity</td>
<td>3.005</td>
<td>-</td>
<td>0.014</td>
</tr>
<tr>
<td>Task significance</td>
<td>-</td>
<td>4.421</td>
<td>0.490</td>
</tr>
<tr>
<td>Autonomy</td>
<td>-</td>
<td>16.331</td>
<td>0.006</td>
</tr>
<tr>
<td>Feedback from job</td>
<td>2.441</td>
<td>-</td>
<td>0.039</td>
</tr>
<tr>
<td>Feedback from agents</td>
<td>0.729</td>
<td>-</td>
<td>0.603</td>
</tr>
<tr>
<td>Dealing with others</td>
<td>-</td>
<td>3.616</td>
<td>0.616</td>
</tr>
<tr>
<td>Motivating potential score</td>
<td>6.604</td>
<td>-</td>
<td>0.000</td>
</tr>
<tr>
<td>(MPS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experienced meaningfulness</td>
<td>1.075</td>
<td>-</td>
<td>0.378</td>
</tr>
<tr>
<td>Experienced responsibility</td>
<td>1.504</td>
<td>-</td>
<td>0.195</td>
</tr>
<tr>
<td>Knowledge of results</td>
<td>0.730</td>
<td>-</td>
<td>0.602</td>
</tr>
<tr>
<td>General satisfaction</td>
<td>0.490</td>
<td>-</td>
<td>0.783</td>
</tr>
<tr>
<td>Internal work motivation</td>
<td>-</td>
<td>4.020</td>
<td>0.547</td>
</tr>
<tr>
<td>Growth satisfaction</td>
<td>3.087</td>
<td>-</td>
<td>0.012</td>
</tr>
<tr>
<td>Security satisfaction</td>
<td>2.036</td>
<td>-</td>
<td>0.079</td>
</tr>
<tr>
<td>Pay satisfaction</td>
<td>2.097</td>
<td>-</td>
<td>0.071</td>
</tr>
<tr>
<td>Social satisfaction</td>
<td>-</td>
<td>9.522</td>
<td>0.090</td>
</tr>
<tr>
<td>Supervisory satisfaction</td>
<td>1.054</td>
<td>-</td>
<td>0.390</td>
</tr>
<tr>
<td>Combined GNS</td>
<td>0.941</td>
<td>-</td>
<td>0.457</td>
</tr>
</tbody>
</table>

Table 4.15 Results of comparisons between mean JDS scores of different specialities

The table above shows that there is a significant difference in the job characteristics (namely skill variety, task identity, autonomy and feedback from the job), MPS and
growth satisfaction between groups. The result of post-hoc analysis using Bonferroni are shown in Table 4.16

<table>
<thead>
<tr>
<th>Significant JDS constructs</th>
<th>Comparison between specialities</th>
<th>Mean Difference</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill variety</td>
<td>Between theatre and critical care nurses</td>
<td>±1.0446</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>Between theatre and orthopaedic nurses</td>
<td>±1.3065</td>
<td>0.038</td>
</tr>
<tr>
<td>Task identity</td>
<td>Between medical and theatre nurses</td>
<td>±1.0741</td>
<td>0.039</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Between theatre and critical care nurses</td>
<td>±0.9735</td>
<td>0.037</td>
</tr>
<tr>
<td>Growth satisfaction</td>
<td>Between theatre and critical care nurses</td>
<td>±0.7073</td>
<td>0.044</td>
</tr>
<tr>
<td>Motivating potential score</td>
<td>Between medical and paediatric nurses</td>
<td>±61.571</td>
<td>0.030</td>
</tr>
<tr>
<td>(MPS)</td>
<td>Between medical and orthopaedic nurses</td>
<td>±72.631</td>
<td>0.024</td>
</tr>
<tr>
<td></td>
<td>Between theatre and critical care nurses</td>
<td>±48.548</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>Between surgical and critical care nurses</td>
<td>±49.814</td>
<td>0.033</td>
</tr>
</tbody>
</table>

Table 4.16 Comparison of significant JDS scores between groups

From these results the following difference are inferred:

- Critical care nurses and orthopaedic nurses in the sample have a significant higher mean skill variety score than nurses working in medical wards and theatres
- Respondents working in theatres have a significant higher mean task identity score than nurses working in medical wards
- Respondents working in critical care have a significant higher mean autonomy score than nurses working in theatres
- Critical care nurses in the sample have a significant higher mean growth satisfaction score than theatre nurses
- Nurses working in medical wards in the sample have a significant lower MPS than nurses working in paediatric, orthopaedic and critical care wards/units
- Nurses working in surgical wards in the sample have a significant lower MPS than critical care nurses
- Nurses working in critical care in the sample have a significant higher MPS than nurses working in medical, surgical wards and the theatres
4.8 Analysis of the interviews with the Departmental Nursing Managers (DNM)

The following section will analyse the responses given during the interviews with the Departmental Nursing Managers responsible for the six nursing specialties under study. A total of four interviews were carried out since two nursing managers are responsible for two specialties. Content analysis will be used to analyse the responses given for the open-ended questions. Section 4.8.1 analysis the answers given by the DNM during the interview with regards to the job characteristics whilst Section 4.8.2 summarises the responses given in relation to the type of organisation of care.

4.8.1 Analysis of the responses given by the DNM regarding the job characteristics of nurses working in their department

Question one of the interview schedule dwelt about the managers' opinion about the need of changing the job characteristics of the nurses working in their department and if yes, how. Table 4.17 shows the departmental nursing managers' opinion about the need to change the job characteristics of nurses working in their department.

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Core job characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skill variety</td>
</tr>
<tr>
<td>Medical</td>
<td>Yes</td>
</tr>
<tr>
<td>Surgical</td>
<td>Yes</td>
</tr>
<tr>
<td>Orthopaedic</td>
<td>Yes</td>
</tr>
<tr>
<td>Theatre</td>
<td>Yes</td>
</tr>
<tr>
<td>Paediatric</td>
<td>Yes</td>
</tr>
<tr>
<td>Critical care</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 4.17 Nursing managers' opinion about the need to change the job characteristics of nurses working in their department

The responses of how they would implement changes in the following job characteristics are shown Tables 4.18. Some respondents gave more than one solution.
<table>
<thead>
<tr>
<th>Job characteristics</th>
<th>Main themes</th>
<th>Some responses</th>
</tr>
</thead>
</table>
| Skill variety       | - Continuous professional development                                        | 'continuous development of nurses to keep abreast’  
'Regarding NG tube insertion...there was a seminar and suggestions were put forward...it will be accepted more' (DNM1)  |
|                     | - Experiential learning                                                      | 'Learning by experience...’(DNM2)  
'if you are not updated and with experience and competence you go in the theatres and remain idle’ (DNM4) |
|                     | - Job rotation                                                              | 'Job rotation between different staff...due to migration to Mater Dei...skills have to adapt to needs for example we have introduced rotation of staff between HDU and ITU so that staff learns from one another' (DNM3) |
|                     | - Role clarification and specialised post-graduate training                   | 'Role clarification of paediatric nurses...post-graduate training in paediatrics’(DNM3)                                                                                                                        |
|                     | - Introduction of new technology                                             | 'If at Mater Dei will have monitors...if we don’t know how to use them...it will be useless (DNM1)  
'drastic changes are already done due to technology’(DNM2) |
|                     | - Role sharing and flexible job descriptions                                 | '...There is a need for some role sharing, it is imperative that there is. In my job description, part of my job is an no and another part is an DNM, I have to be flexible to the part of the job of who is below me and who is above me...’ (DNM4) |
|                     | - Job enlargement                                                           | 'Before certain jobs were done by a lab technician, nowadays even blood gases, it is being done by the nurse as well’ (DNM3)  
if i.v. antibiotics (administration) now we are saying that it is the nurses 'job they have to be trained for it’ (DNM2) |
| Task identity       | - Adequate staffing levels                                                  | 'Appropriate number of staff’ (DNM2)  
'(Job) can be done better where the number of patients is lower than in other wards’(DNM3) |
|                     | - Involving the family in the care                                           | 'In order for the care to be 'holistic’...the family can be involved more’ (DNM3)                                                                                                                        |
|                     | - Improving community support                                                | 'We do not have community support...if we don’t organise outreach (programmes) they will be coming to the hospital every few days... ’ (DNM1)  
'Follow ups or community support by a multidisciplinary teams to provide holistic care...both physically and psychologically...this is more evident in orthopaedic wards than surgical wards...this depends on the patients’ needs’(DNM2) |
|                     | - Role clarification of specialist nurses                                    | 'The concept of specialist nurses doing everything ...which is a wrong concept...we have fragmented our job more than ever before...the specialist nurse' |
- Psychological input by nurses
  
  'teaches but does not take our job...There is a need for role clarification of specialists...we have devised roles that were not planned...' (DNM1)
  'The basics are respected but (staff) need to give more psychological input' (DNM3)

Task significance
- More structured team meetings
  
  'Periodic meetings are held...although not structured enough between nurses, doctors and therapists...they meet and discuss what needs to be done...if they are more structured, we will benefit more...they should be done more often' (DNM1)

Autonomy
- More input from practice development nurses
  
  'Practice development nurses need to be involved more with nursing officers to ...give the option to nurses...to change practise on evidence' (DNM1)
  'For change to occur...it needs an initiator' (DNM3)
- Need of a change agent
- Need more assertive staff
  
  'more assertive ...by the nurse...especially with consultants' (DNM1)

Feedback from the job
- Developing new methods of getting feedback
  
  'Patient Assessment Clinic (PAC) has helped to assess the needs of the patient...so that they are prepared'... But there is a need for such clinics to plan the care better.' (DNM2)

Table 4.18 Responses as to how they would implement the change

Table 4.19 summarises the reason why some respondents felt that there is no need for changing these job characteristics.

<table>
<thead>
<tr>
<th>Job characteristics</th>
<th>Main themes</th>
<th>Some responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task identity</td>
<td>- Already present in the structure of the job</td>
<td>'staff is already responsible to the whole care...during the day...the night is different' (DNM2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'If a nurse is scrub nurse, he will be in the surgeon to do a job...the operation...from beginning to an end.' (DNM4)</td>
</tr>
<tr>
<td></td>
<td>- Disagreement from managers about the best way to organise care</td>
<td>'Certain wards are task allocated but there are wards who are patient allocated. There is a lot of disagreement regarding this...there are nursing officers who agree, others don’t. Naturally if n.o’s do not agree...staff are not certain' (DNM1)</td>
</tr>
<tr>
<td></td>
<td>- Not the right time</td>
<td>'Now, we have to face migration...it is not the right time to change anything' (DNM2)</td>
</tr>
<tr>
<td>Task significance</td>
<td>- Outcome is visible</td>
<td>'Outcome is already there' (DNM4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'There are no complaints' (DNM2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'Decrease length of stay' (DNM1)</td>
</tr>
<tr>
<td></td>
<td>- Already present in the structure of the job</td>
<td>'If you are a theatre nurse you have to be special' (DNM4)</td>
</tr>
</tbody>
</table>
### Autonomy
- Already present in the structure of the job
- Staff not prepared
- Job itself does not allow it

'new charts...new styles...all developed by nurses...'
'Clinically (the decision) is done by the doctor, but how many they need changing...that is done by the nurses...the care is done by the nurse...' (DNM1)

'Staff is not really prepared in autonomy' (DNM2)

'You have to understand that there is a certain procedures that are proved to have to be done in that way...in the case of wards there are issues that you can take initiative but in the case of theatres you have to do 1,2,3 up to 20 sections of a procedures and you cannot make others' (DNM4)

### Feedback from the job
- Usually taken for granted
- Already present in the structure of the job

'usually you are expected to deliver...however when the situation varies...you have to rise up to the challenge' (DNM3)

'from a technical point of view they have a good input’
‘they know if the wound is better or not...if the patient does not have bed sores we (know) we are doing well...it depends on the incidence of complications...’

‘Performing is your duty...is a must and you find the satisfaction performed even from the surgeon who will say, ‘Thank you for your help and for being part of the team’ (DNM4)

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Organisation of care</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Task Allocation</td>
<td>Patient Allocation</td>
</tr>
<tr>
<td>Medical</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Surgical</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Orthopaedic</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Theatre</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Paediatric</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Critical care</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 4.19 Responses as to why there is no need for changing these job characteristics

### 4.8.2 Analysis of the responses given by the DNM regarding the type of organisation of care

The second part of the interview schedule was focused on the departmental nursing managers’ opinion about whether the care in their department is task or patient allocation or a mixture of both. Table 4.20 describes the type of organisation of care according to the departmental managers.

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Organisation of care</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Task Allocation</td>
<td>Patient Allocation</td>
</tr>
<tr>
<td>Medical</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Surgical</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Orthopaedic</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Theatre</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Paediatric</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Critical care</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 4.20 Type of organisation of care according to the departmental managers

The responses above as given by nursing managers in Table 4.17 are congruent with the responses obtained by the majority of the nurses working in the different
departments as shown in Figure 4.5. The only difference is associated with the medical department and the theatres whereby the majority of the nurses in the medical wards and theatres felt that their work is more associated with task allocation, whilst their respective nursing managers felt that it is more a mixture of both types of organisation of care.

The nursing managers were further probed to identify what has facilitated the introduction of patient allocation in their wards. Their responses are summarised in Tables 4.21.

<table>
<thead>
<tr>
<th>Main themes</th>
<th>Some responses</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate staffing levels</td>
<td>'The number of patient to staff is better (than other wards)...one drawback is that (if) it is not possible to fill in sick leave or vacation leave...standards may deteriorate...patient ratio should change according to the needs of staff.'</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>'Staffing levels are 1:1 to deliver appropriate intensive care' (DNM3)</td>
<td></td>
</tr>
<tr>
<td>Accountable staff</td>
<td>'Staff are accountable in order to deliver the care' (DNM3)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>'Increased accountability of nursing staff...staff are recognised for their job' (DNM4)</td>
<td></td>
</tr>
<tr>
<td>Formal documents that specify who is responsible for the procedure with a named patient</td>
<td>'You have got a named theatre, a named surgeon, a named patient a named scrub nurse and there is a complement of staff in one theatre..all on the patient’s list that you are caring for...the scrub nurse is named on the operation (list) while the anaesthetic nurse is named on the anaesthetic sheet. ...that is why you have a register in order that you are accountable and responsible as part of the team' (DNM4)</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4.21 Factors that facilitated the introduction of patient allocation according to nursing managers

Finally, for the departments that have not yet introduced patient allocation, the respondents were asked to identify the factors that are impeding its introduction (Table 4.22).
Table 4.22 Factors that are impeding the introduction of patient allocation according to nursing managers

All the respondents who felt that they do not practise patient allocation agreed that they would introduce this system. One respondent also gave his reasons why it is better for management:

'In terms of administration, if I have a named nurse with a named patient it is better. If I need to know anything about the patient I know whom to look for...'

When asked how they would introduce it the following responses were obtained as shown in Table 4.23

Table 4.23 Responses as to how they would introduce patient allocation in their units according to the nursing managers

4.9 Conclusion

The following chapter gave a comprehensive analysis of the findings obtained in the study. The next chapter will critically discuss these results and compare them to related literature.
Chapter 5 Discussion

5.1 Introduction

The following section will critically discuss the results as shown in the previous section and compare them with other studies. The second part of this section will discuss a number of practical approaches to job redesign as suggested by the nursing managers interviewed. However, a summary of the research findings will be given first.

5.2 Summary of research findings

The study sought to measure the relationship between the job characteristics and the affective outcomes of nurses working in an acute hospital, identify the factors related to them and evaluate any possible measures that could be taken to modify these job characteristics according to the nursing managers responsible to six nursing specialties. The first part of the study consisted of the distribution and the analysis of the Job Diagnostic Survey (JDS) to a convenience sample of 218 full-time nurses working in six nursing specialties. 115 questionnaires or 52.7% of the sample were collected. The majority of the respondents were females (67.8%) and fall within the 20-29 years of age (43.5%). However, no significant difference was found in either the age and gender distribution of the respondents. 81 respondents (71.7%) were staff nurses, 32 respondents were enrolled nurses (27.8%) whilst the grade of two respondents was unavailable.

The average total work experience of the respondents was 9.67 years (N=110, SD=7.46 years) whilst the average work experience at the ward/unit that they are currently working is 6.48 years (N=108, SD=4.667). There was a significant
correlation (Pearson=0.604, p=0.000) between the total work experience and current work experience meaning that a significant number of respondents worked in the same speciality for most of their working years.

With regards to the question related to the type of organisation of care that they practice, out of those who responded (N=94), the majority of the respondents (70%) described the type of organisation of care that they practise in their wards as patient-allocation. Comparison of the responses obtained with the characteristics of the respondents showed that there was no significant difference in the responses obtained between grade (Chi-square =2.506, p=0.113), sex (Pearson Chi-Square=1.620, p=0.203) and age (t=0.373, p=0.710). However, there was a significant difference in the responses obtained between nurses working in different specialties (Pearson Chi-Square=25.02, p=0.000). This may indicate that the type of organisation of care varies between specialties; with the majority of orthopaedic, paediatric and critical care nurses perceive to practise patient allocation, whilst the majority of the respondents working in medical, surgical and the theatres, feel that their work is more a task-allocated.

The mean job characteristics scores and the mean affective outcome scores as obtained in the study were related to a number of characteristics of the respondents such as age, gender, grade, organisation of care and total work experience. No significant difference was found in the mean job characteristic scores of nurses of different ages, different grades or gender. However, a significant difference was found in the job characteristics (particularly mean skill variety, autonomy score and total MPS score) of respondents who perceive to work in different types of organisation of
care. Respondents who felt that their organisation of care is patient allocated had a significant higher MPS score than respondents who said that their care is organised around tasks. With regards to affective outcomes, increase in age was positively related with general satisfaction (Pearson=0.282, p=0.003) and internal work motivation (Spearman=0.348, p=0.000) whilst females seem to have significant higher mean internal work motivation score and mean growth satisfaction score than males. On the contrary, comparison of mean affective outcome scores with grade and organisation of care did not show any significant difference.

In Section 4.6, the applicability of the Job Characteristics Model was tested for the respondents of the study. Hypothesis one tested the relationship between the mean job characteristics and the mean psychological states. Model testing using linear regression showed a positive correlation between the mean job characteristics scores (except skill variety) and the mean psychological states scores of the respondents. Hypothesis two argued that the higher the mean experienced psychological states scores the significantly higher will be the mean affective outcomes. Although not fully supported, in general, there was a positive correlation between the experienced psychological states and almost all mean affective outcomes.

The relationship between the ‘moderators’ and the experienced psychological states and affective outcomes was tested in hypothesis three and four respectively. Regression analysis showed that with respect to the “moderators” constructs, the only predictor of all experienced psychological scores and all affective outcomes was social satisfaction. Moreover, except for internal work motivation, no significant
relationship was found between Growth Need Strength (GNS) and the psychological states or the other affective outcomes.

Hypothesis five predicted that will be there will be no significant difference in the JDS indicators of nurses working in different specialities. No significant difference was found in the distribution of nurses working in different specialities in the sample taken according to age (F=1.786, p=0.122), gender (Pearson Chi-square=6.167, p=0.290) and total work experience (F=1.266, p=0.284). However, the difference in grade distribution in the sample between specialties was found to be significant (Pearson Chi-square=14.549, p=0.012).

Finally comparison of the mean JDS scores between different specialities was carried using ANOVA for parametric scores and Kruskal Wallis Test for non-parametric scores. The analysis showed that there was a significant difference in the job characteristics (namely skill variety, task identity, autonomy and feedback from the job), MPS and growth satisfaction between groups in the sample taken. Further post-hoc analysis using Bonferroni identified a number of specific differences in these scores between specialities.
5.3 Factors influencing the job satisfaction and internal work motivation of nurses

The study showed that both individual characteristics and organisational characteristics are strongly related with the nurses’ job satisfaction and internal work motivation. The following section will discuss some of these characteristics in the light of the results obtained and relevant literature.

5.3.1 Age and seniority

A significant positive relationship was found in the study between age and general satisfaction and internal work motivation. It seems that older nurses have a higher job satisfaction and internal work motivation than younger nurses. Similarly a significant linear relationship was found between total work experience (i.e. seniority) and internal work motivation. Similar to these results, in a cross-sectional study (NEXT-Study, 2005) that investigated the reasons, circumstances and consequences surrounding premature departure from the nursing profession across 10 EU countries, a curvilinear relationship was observed between job satisfaction and age and seniority. The NEXT study showed that scores were higher for the lowest and highest ages and seniority ranges and lower after 5 to 10 years of experience, which corresponds to an age of 30. The inability to identify this difference could be attributed to small population size of the study. However, contrary to these results, age and length of ward service were not found to be significantly related to job satisfaction in a national representative survey of 834 nurses in England (Adams and Bond, 2000).

There are many possible reasons for the linear relationship between age and job satisfaction. Stordeur et al (2005) argues that, higher satisfaction could be explained
among older nurses by a better knowledge of nursing, by benefits linked to seniority (schedules, salary), and by less external demands. It is also possible that older nurses refocus their priorities to factors outside the work setting, such as family and planning for retirement. Nurses older than 50 years of age may also be more able to favourably assess what is possible and available today in the nursing profession as compared to previous years (Ingersoll et al., 2003). Moreover, it is possible that older nurses have lower expectations of their job content and consequently a higher satisfaction with their job. There is also the possibility of some form of selection bias, since dissatisfied nurses could have already left the profession.

5.3.2 Gender

Similar to some studies (Next, 2005) but contrary to others (Zawacki et al., 1995), female nurses seem to be more satisfied and more motivated than male nurses. Differences in job satisfaction between men and women have to be interpreted according to the low proportion of men in our sample. These differences could be explained by differences in professional aspirations. Women's lower expectations are likely to result from their poorer position in the labour market but also from their higher investment in family sphere. The basis for this argument is the finding that individuals tend to evaluate experiences relative to some kind of norm or reference level (Clark, 1997). Some male nurses feel that higher performance standards are required from them compared with their female colleagues and that peers may resent them having a traditionally female role (Farella, 2000). One of the misconceptions is that men are not capable of being nurses, nursing being a "woman's job". These unfair misconceptions make it difficult for men to find satisfaction in the nursing profession.
5.3.3 Grade

No relationship was found in the study between the type of grade and any of the affective outcomes. This is contrary to other studies (Adams and Bond, 2000, Mohamed 2004) that found a significant difference in job satisfaction of nurses of different clinical grades. One can argue that the difference in the job content of staff nurses and enrolled nurses at St Luke’s Hospital is almost insignificant since both types of grade have similar clinical roles. Moreover, effort is being made by the Directorate of Nursing at the Health Division, to have a single grade for all nurses by encouraging enrolled nurses to take up a post-qualification course to become staff nurses. As a result unlike other countries where nurses are categorised according to different grades (e.g. professional nurse and technical or associate nurse) and their job description varies accordingly, the difference in grades at St Luke’s Hospital is becoming increasingly insignificant and this may explain the result obtained in the study.

5.3.4 Core job characteristics and psychological states

The first research question sought to identify the relationship between a number of job characteristics of nurses and their general satisfaction, internal work motivation and growth satisfaction. The results obtained in the study showed that there is both a direct and indirect relationship between the presence of the job characteristics such as skill variety, task identity task significance, and feedback from the job as perceived by nurses, with both general satisfaction and growth satisfaction. These results validate the Job Characteristics Model as proposed by Hackman and Oldham (1980). Similarly Roedel and Nystrom (1988) and Tonges et al (1998) have shown the direct and
indirect relationship (with the psychological states acting as mediators) between these job characteristics in nurses and job satisfaction.

Other studies have identified one or more of these job characteristics as important components of job satisfaction. Badawy and Essawy (1992) sought to determine the possible influence of job characteristics on job satisfaction of paediatric nurses. A positive correlation was found between job characteristics and job satisfaction with variety, task identity, and feedback being statistically significant individual characteristics. In another study that sought to redesign the nursing work in long-term care environments, the results indicated that the job dimensions of skill variety, task identity, task significance, autonomy and feedback were considered highly important for the general satisfaction of nursing staff (McGillis Hall and O’Brien-Pallas, 2000). Irvine and Evans (1995) have also underlined the importance of work characteristics (routine, autonomy, and feedback), characteristics of how the work role is defined (role conflict and role ambiguity) and characteristics of the work environment (leadership, stress, advancement opportunities and participation) in relation to nurses’ job satisfaction.

The study also showed that except for autonomy, these job characteristics are both directly and indirectly related to the nurses’ intrinsic work motivation. Similarly, the presence of these job characteristics has been directly linked with the nurses’ intrinsic motivation which refers to ‘the degree to which a person wants to work well in his or her job, in order to achieve intrinsic satisfaction’ (Warr et al, 1979, p.135). Janssen et al (1998) tested a model that sought to relate the quality of the job content with the intrinsic work motivation of 156 Dutch general hospital nurses. The authors concluded that intrinsic work motivation seems to be primarily determined by
elements of the job that make the work challenging and worthwhile such as skill variety, autonomy, social contacts and opportunities to learn.

5.3.5 Satisfaction with co-workers
The results of the study showed that an important predictor of all affective outcomes is social satisfaction or satisfaction with co-workers. Adams and Bond (2000) highlighted the importance of interpersonal relationships to nurses' job satisfaction; particularly the cohesiveness of ward nursing staff and nurses' relationships with the medical staff. The authors concluded that managers need to focus attention on creating conditions that facilitate intra-professional teamwork amongst nurses and inter-professional teamwork especially with medical colleagues. Similarly, in survey of 413 registered nurses using an extension of the Job Characteristics Model, Tonges (1997) found that characteristics of the interpersonal aspects of nurses' job, in addition to the job content itself, are important attributes for work-place wellbeing. Consequently, the combination of individual, interpersonal and organisational characteristics can be important predictors of job satisfaction. In fact, Campion et al. (1993) insisted that characteristics such as job design, interdependence, team composition, environmental context and process (e.g. workload sharing, communication/cooperation within groups, potency and social support) better account for criteria such as productivity and satisfaction.

5.3.6 Growth Need Strength
Growth need strength refers to the need of an employee to gain personal growth and self-esteem in its current job. Hackman and Oldham (1980) predicts that people who have high strong 'growth needs' will develop high internal work motivation when
working in a complex challenging job. Others have less strong needs for growth and will be less eager to exploit the opportunity for personal accomplishment by a job high in motivating potential. The study showed that the higher growth need strength of nurses in the study, the significantly higher was their internal work motivation. Nevertheless, the perceived need for growth was found to be unrelated to the job characteristics.

Another interesting finding is that the mean growth need strength score obtained in the study was significantly lower than other studies. Due the lack of relevant literature it is not easy to identify possible reasons for this difference. However, one possible reason could be the lack of rewards systems (such as job opportunities and performance bonuses) that could provide incentives for personal growth and development. Siegrist’s model of effort-reward imbalance (ERI) (Siegrist, 1996a, 1996b) postulates that there should be a balance between what the employee gives (‘effort’) and what he or she receives (‘reward’). According to Seigrist (1996), reward does not only implicate financial reward, but also esteem and career opportunities including job security. Thus one can argue that staff with low growth need strength (GNS) may have a high effort-reward imbalance. Evidence shows that the ERI varies between countries. In a study that applied this model in nurses (N=21,229) in seven European countries (Hasselhorn and Peter, 2004) nurses in transitional countries, experienced high ERI and as a result low job satisfaction and intent to leave the profession. Moreover, high ERI in stable countries suggested that their economic sectors, particularly health care, may be in transition. Since both Maltese health care and economic sector are currently in a state of transition and major reforms (Health Care System in Transition, Malta, 1999), one can argue that nurses in Malta are
experiencing high effort-reward imbalance and this is in turn influencing their low growth need strength. However, further studies need to be carried out to identify whether the association between these two psychological states really exists and if the ERI in Maltese nurses is higher than other countries.

5.4 Factors influencing the organizational characteristics and the motivating potential of the nurses’ job

The section above showed that numerous individual, interpersonal and organizational characteristics influence the job satisfaction and internal work motivation of nurses. From a managerial perspective very little can be done to change the individual characteristics. However, management can influence both the organizational and interpersonal characteristics by redesigning the nurses’ job structure and in this way improving job satisfaction and internal work motivation. The fact the Job Characteristics Model has been found to be applicable for the nurses taken in the study, indicates that the affective outcome of nurses at St. Luke’s Hospital can be improved if the job is redesigned to include the job characteristics studied that are high in motivating potential, as proposed by Hackman and Oldham (1980). However, another objective of the study was also to identify the situations or factors that are most likely to be related with the presence of these job characteristics. Two significant and possibly inter-related factors have been identified, namely the type of nursing specialty and the type of organization of care. These two factors will be discussed further in the following sections.
5.4.1 Type of nursing speciality

One of the objectives of the study was to compare the JDS scores of each speciality and identify those that were significantly different. Due to the small size of the sub-populations and the fact that a convenience sample is taken, the results obtained do not necessarily reflect a clear difference between all nurses working in those specialties. Nevertheless, the findings revealed that there is a significant difference in the job characteristics (namely skill variety, task identity, autonomy, feedback from the job and overall motivating potential) of respondents working in different specialties. Moreover, this difference could have accounted for the difference in growth satisfaction between groups that was found to be also significantly different. Further post-hoc analysis revealed that the respondents working in medical and surgical wards had significantly lower motivating potential score than the respondents working in critical care. One possible rationale for this difference could be the difference in the nature of the job between intensive care and non-intensive care nursing. This difference was sought by Tummers et al (2002) who compared the organizational characteristics, work characteristics and psychological work reactions between intensive care units and non-ICUs. Questionnaires were distributed to intensive care (n=184) and non-intensive care units (n=927) working in 15 general hospitals in the Netherlands. Similar to this study, ICU nurses reported significantly higher complexity (F=88.31, p<0.001) and higher decision authority (F=14.56, p<0.001) and higher uncertainty (F=74.48, p<0.001) than general nurses. However, contrary to the findings, Tummars et al (2000) found that autonomy did not seem to differ between ICU and non-ICU nurses. The results in this study showed that difference in autonomy between groups was attributed to the difference in autonomy between critical care nurses and theatre nurses. This difference may also explain why
theatre nurses seem to have a lower growth satisfaction than critical care nurses. Finn (2001) found that autonomy was the most important component for registered nurses’ job satisfaction. One of the possible reasons for this lack of autonomy of theatre nurses was given when interviewing the nursing manager responsible for theatre nurses. He argued that the nature of the job does not allow the nurse to take any initiative. However, the utilization of other job design strategies such as increasing the skill variety of theatre nurses through job rotation (e.g. shifting nurses from one specialised operating theatre to another) could be a possible alternative to redesigning the job and thereby increase their job satisfaction.

Another reason for the difference in the job characteristics between respondents working in different specialties could be as a result of the different type of organization of care that is practiced in different specialties. This could have acted as a confounding factor. The study showed that the job characteristic scores were highest in those respondents who work in departments where the organization of care was predominantly patient-allocated that is in orthopaedic, paediatric and critical care wards. The impact of the different care delivery models on the job characteristics of nurses is discussed further in the next section.

5.4.2 Type of organization of care

One of the questions in the survey asked the respondents to categorize the way their job is organized as either being predominantly task-oriented or predominantly patient-oriented. A significant finding was that the mean job characteristic scores (particularly skill variety, autonomy and total motivating potential score) were higher for those respondents who said that their work is predominantly patient-oriented than those
who said it is more task-oriented. Thus, one can conclude that patient-allocation has a higher motivating potential. This is congruent with many studies that sought to show how different care delivery models have different motivating potentials. Mohamed (2004) showed that the jobs of intensive care unit nurses who utilized the case method were more enriched than those who utilized the functional method of care delivery in general care units. On the contrary, Boumans and Landerweerd (1996) evaluated the effects of primary nursing on the job characteristics (namely autonomy, responsibility, feedback, complexity and job demands) of nurses using a quasi-experimental study. They found no significant effects for the five job characteristics when compared before and after the implementation of primary nursing. However, the authors attributed these results to difficulties in the implementation or due external variables such as changes in the general hospital policy.

According to Neissner and Raymond (2002) the effects of different care delivery models on nurses’ job satisfaction, patient’s satisfaction and quality of care remain inconclusive since much of the literature is based on anecdotal evidence. However, one particular care delivery model known as Professional Nursing Practice Model (PNPN) has been positively related to perceptions of autonomy, control over practice, and job satisfaction, and has been found to improve staff retention and patient outcomes (Neissner and Raymond, 2002). This model has been identified as the core feature of Magnet Hospitals. Magnet Hospitals is a term for hospitals that embody a set of organizational attributes that nurses find desirable such as autonomy, control over the practice environment and effective communication between nurses, physicians and administrators. Thus, although literature does not support a clear choice for a type of care delivery system, redesigning the jobs by changing to a care
delivery model that incorporates these characteristics, can improve the nurses' job satisfaction and possibly also the patient's outcome. This approach, together with other possible approaches to job redesign of nurses working at St. Luke's Hospital will be discussed in the next chapter.

5.5 Alternative approaches to job redesign of nurses at St. Luke's Hospital

5.5.1 Job enlargement

One of the main themes that emerged from the interviews with the departmental nursing managers when asked to identify potential changes in the skill variety of nurses working in their department was through job enlargement. This job redesign strategy can be implemented either through role expansion or through role extension. The terms 'expanded role' and 'extended role' are often used interchangeably and inconsistently (Mitchinson and Goodland 1996). However Davis (1992) defined these terms as:

- Expanded role implies any enlargement of the nurse's role within the boundaries of nurse education, theory and practice.
- Extended role implies the performance of any activities by the nurse that were previously undertaken by medical doctors, or other healthcare professionals

Evidence indicates that nursing roles are extended in some areas as in a technical skills-based manner, and expanding in others following a holistic care model (Land et al 1996). Therefore role expansion appears to support the perspectives of nurse theorists who advocate a holistic approach and consequently improve the task identity of nurses. Conversely, role extension could be seen to be anti-holistic and therefore more task-focused (Parse 1981, Watson 1988).
Many of the more recent developments involving role extension are based on an assumption that some duties previously considered medical tasks would now be undertaken by nurses (Dowling et al 1995, Higgins 1997). Indeed, these roles appear to have evolved in UK as a direct response to the drive to reduce junior doctors' hours (NHSME, 1991, Tuthill, 1995). Structured training and development initiatives designed to enhance the nurse's role in response to the need to reduce junior doctors' hours, are widely reported in the literature (Dowling et al 1995, Higgins 1997, Richardson and Maynard 1995). Practical examples of role extension have been identified by the nursing managers such as the introduction of the new role of intravenous administration by nurses and the checking of blood gases done by nurses working in critical care.

Although such measures have been successfully implemented in practice as evidenced in the literature (Carlisle 1992, Day 1995, Page 1995, Pickersgill 1993, Coulter 1997), there is much debate about their impact on the nursing profession. The subsequent erosion of the boundaries between the two professions, and the development of nursing roles that impinge on traditional medical roles, has created fears regarding role change and a lack of appreciation of the true value of 'basic nursing' (Hoover and Oojen 1995, Shepherd 1993). A qualitative study conducted by Magennis (1999 UK) examined whether nurses viewed extension or expansion of their traditional roles in a positive light. T-test analysis revealed that cardiology nurses viewed role expansion significantly more favourably than general or ICU nurses. This was attributed to greater emphasis on psychological support, health promotion and holistic care in the cardiology setting. 60% of respondents felt that extended roles were due to doctors unloading what they considered to be mundane tasks and 72% of respondents saw this
as a cost cutting exercise. They were concerned that these extended activities decreased their ability to expand the scope of their practice in the nursing domain. This was of significance as expansion of the nursing role was seen in a much more positive light. Extension of activities was not the only barrier to role expansion, with 78% identifying that training for expanded roles was inadequate. The importance of adequate training as a tool to increase the skill variety of nurses has been also highlighted by the nursing managers interviewed.

5.5.2 Job rotation

Another strategy for job design in nursing is job rotation. Job rotation between the nurses working in HDU and nurses working in ITU has been successfully implemented at St. Luke's Hospital according to the nursing manager. There is a dearth of both theoretical and empirical literature about the effectiveness of job rotation on the patient's outcome and the nurses' employee satisfaction (Jarvi & Uusitalo, 2004). In a survey to evaluate the attitudes of ophthalmic nurses (n = 84) to job rotation, one third of the nurses who had participated in job rotation considered it a positive experience. Self-development was rated substantially useful, but fewer were interested in participating in various kinds of developmental activities. (Jarvi & Uusitalo, 2004). On the contrary, Lucock (2006) integrated job rotation as part of developmental programme. This action research study showed that the model of job rotation used, was effective with a small cohort, to attract, recruit and retain them within hard to staff health and social care areas. Moreover, this model was shown to facilitate the extensive development of reflective practice capabilities, and to enable junior nurses to gain the education they needed to make planned changes to their careers. However, the lack of commitment of nurses who are on rotation and the
difficulty in building effective and sustained working teams, has been identified as potential long-term difficulties in its implementation (Lucock, 2006).

5.5.3 Job enrichment by changing the type of care delivery model

One of the objectives of the study was to investigate how job redesign can be implemented by restructuring the jobs of nurses so as to introduce the job characteristics as described by the Job Characteristics Model. The study showed that in those specialities where patient allocation is practised, the job was perceived to be more enriched since the job characteristic scores were significantly higher. Thus, another job redesign strategy could be to move from task-based nursing to patient-based nursing in those units, where this model of care is not being practised to the full, such as in some medical and surgical wards.

During the interviews with the nursing managers responsible for these specialities, a number of facilitating and hindering factors to the introduction of patient allocation were identified. The lack of resources, especially human resources, was highlighted as one of the main hindering factors in its implementation. The need for a more nurses has also been acknowledged in view of the upcoming ‘expansion’ of the Maltese health service. (Sharples, 2007)

The managers interviewed felt that only where the patient to staff ratio is high, this model of care could be implemented. Evidence shows that in order to sustain such organisation of care, appropriate staffing levels and skill mix are required (Neisner and Raymond, 2002). For example, Magnet hospitals in US have been found to have slightly richer RN-to-patient ratios and are richer skill mix than equivalent hospitals.
Moreover, adequate support systems, including the distribution of medication from pharmacy to patients, linen from laundry to patient rooms, supplies from central supply to patients and staff onto wards, and the transportation of patients, are critical in allowing the nurses time to focus on the patients' needs. (McManus and Pearson, 1993). Inadequate support systems necessitate utilising nursing resources to perform these support (i.e. non-nursing) functions. The presence of these services is not only cost-effective but could also influence the job satisfaction of nurses.

One of the nursing managers argued that there is some resistance, both from the staff and the nursing officers in the introduction of patient allocation system in their ward. According to Dienemann and Gessner (1992) attempts to implement changes in the distribution of work are sometimes met with resistance by both nursing staff and hospital administration. This resistance can be successfully overcome if change agents, such as practise development nurses and nursing officers plan ahead and are skilled at using persuasion within the hospital (Dienemann and Gessner, 1992). Another important factor as identified by one of the nursing managers is to find the appropriate time for its implementation. He considered the migration to Mater Dei hospital as the right time for such change to take place. However, this depends on effective planning (for example through an analysis of the resources required), the development of appropriate control mechanisms (for example through formal documents that delineate who is accountable to whom) and the setting of a clear 'vision' for change. The driving and resisting forces in the implementation of patient allocation are described in a force-field analysis (Lewin, 1952) as shown in Figure 5.1 below.
5.6 Conclusion: Job design as a strategy for organisational change and the management of human resources.

According to Dienemann and Gessner (1992), job redesign can be used by nursing managers as a strategy to bring about change in a hospital setting. The choice of approach within a particular setting depends upon both the people within the setting and the demands from the external environment. However, an analysis of both the strengths and weaknesses of the organisation and the external opportunities and threats of the environment is required prior implementation of job redesign strategies. For example, reference has been made to the appropriate timing in implementing such strategies by one of the nursing managers interviewed. Nevertheless, job redesign in a hospital setting, can be an effective tool for fixing localised problems in the delivery
of care and for creating a readiness for more widespread system change (Dienemann and Gessner, 1992).

Besides setting the pace for organisational change, job redesign can be used as a tool for restructuring the nurses’ job in order to improve their job satisfaction and intrinsic work motivation. The following study has validated once again the Job characteristics Model by Hackman and Oldham (1980) that emphasises the presence of these job characteristics to enrich the job and thus improve the employee’s job satisfaction and internal work motivation. Thus, job redesign can be used together with other human resource strategies to influence both the nurses’ affective and behavioural outcomes and as a result improve the patient’s care. An understanding of how job design fits in the link between the work context and the patient’s outcome is given by Michie and West (2002) as shown in Figure 5.2.

Figure 5.2 A model to understand the link between the context of work, management of people practices, psychological consequences for staff, staff behaviour and performance and patient outcomes (Michie and West, 2002)
5.7 Limitations of the study

A convenience sample was used that does not fully represent the whole population of full-time nurses working in the speciality. Thus the results obtained and the conclusions drawn on the whole population are of limited generalisability. The author had to use a convenience sample consisting of a list of nurses as obtained from the administration since he was unaware of the completeness of this list until data collection was carried out. Although it is difficult to identify whether there is a possible bias in the selection of nurses in the list obtained, one possible bias could be that newly qualified nurses were excluded from the list. This is due to the fact that these nurses could have been labelled as 'relievers' even though they work as full-timers in the wards and therefore were not included in the population used in the study.

Although an effort was made to increase the number of responses (for example by sending a reminder letter) it was not possible to increase the response rate more than 52.7%. The author acknowledges that if more effort was made on his behalf during the data collection, the response rate could have been better. Besides, the decision to take six nursing specialities could have been too ambitious and made comparison between specialities somewhat difficult. A better option could have been to take only two or three specialities and seek to obtain a higher response rate from these sub-populations.

There could have been a number of reasons for this low response rate. The fact that the author does not work in the hospital selected for the study could have impinged on the response rate since the nurses do not know the author personally. Moreover, the
format of the questionnaire and fact that it is relatively long could have further detracted nurses from responding. Another factor could be that the specialities selected were subject to other surveys during the period of data collection. Moreover, it was not possible to know beforehand the nurses who were on long-sick leave or long vacation leave during the period of data collection. Finally, since the addresses of the respondents could not be given by the administration, the author had to depend on the charge nurse or the nursing officer to handle the questionnaires to the nurses selected in the study. Thus some questionnaires could have been misplaced or lost and this could have influenced the low response rate.

The decision to select the six specialties in the study may be a type of selection bias. The following specialties were chosen since they are the largest group of nurses from which a reasonably good sample can be obtained. Moreover, certain wards were also excluded from the studies that were not considered to have the same job content as other studies. Hackman and Oldham (1980) warned that care should be taken not to define jobs too broadly since it would not be possible to draw conclusions about the strengths and the weaknesses of specific job if a large heterogeneous group is taken. Nevertheless, it is important to keep in mind, that due to this decision to restrict the study to a selection of these six specialties it is not possible to generalise the results obtained to all nurses working at St. Luke’s hospital.

The Job Diagnostic Survey does not address the whole parameters of the Job Characteristics Model. Knowledge and skills (as moderators), work effectiveness (i.e. job performance) and absenteeism have to be measured using other methods. Since the Job Diagnostic Survey provides a good number of variables for analysis, the
author decided to restrict the study on the evaluation of the JDS indicators given by the questionnaire.

Besides these limitations, Hackman and Oldham (1980) identified a number of limitations of the Job Diagnostic Survey. The job characteristics are not independent of one another. This means that when a job is high in one characteristic (such as skill variety) it also tends to be high on one or more others. Hackman and Oldham pointed out that due to this fact, one should not over interpret the JDS scores for any single job characteristic considered alone. As a result in the following study the MPS score (which is a non-linear function of the five core job characteristics) will be used in order seek the relationships of the model as presented in this study.

The Job Diagnostic Survey can be easily faked and results may be distorted or the respondents may not give the information that is required from them. In order to reduce this risk, the covering letter gave a full explanation of how the information will be used and that anonymity will be maintained throughout the study.
Chapter 6: Recommendations

6.1 Recommendations for management

6.1.1 Redesign the job of nurses by shifting from task allocation to patient-allocation

The study showed that an enriched job such as patient allocation, incorporates a number of characteristics as proposed by the Job Characteristics Model, that are directly and indirectly related with the presence of high job satisfaction and high internal work motivation. Thus, the main recommendation is to introduce job redesign strategies whereby the care is re-oriented towards the patient. This job redesign has been found to be more needed in specialties such as medical wards and surgical wards that seem to be more task-oriented than in other wards. However, in order for this redesign to take place, the following change management implications need to be considered.

6.1.1.1 Increase nurse to patient ratio

There is a need to increase the nurse to patient ratio in those wards such as in medical and surgical wards where job redesign is envisaged. The migration to Mater Dei Hospital with a 24 patients each ward, can be considered as an opportunity for improving the nurse to patient ratio. Two options can be taken to increase this ratio; either recruiting more nursing staff with all its financial implications or reduce the number of patients. In a recent interview (Sharples, 2007) the Director of Nursing Services in the Health Division, said an additional 300 nurses would be needed to run the upcoming expansions in the local health system. He identified a number of strategies to increase the staffing levels of nurses. Some of these measures include marketing drives to recruit new nurses in the profession and incentives that attract
nurses especially women, out of service to resume their jobs. However, according to Mr Pace, President of the Malta Union of Midwives and Nurses (MUMN), there is still a lot of uncertainty about how the nurse to patient ratio at Mater Dei Hospital will be improved (Pace, 2007a).

### 6.1.1.2 Increase support staff

Support staff, including nursing aides and ward clerks, would enable nurses to focus on their nursing duties by helping in other jobs, like administrative work and accompanying patients to hospital appointments. According to Azzopardi Muscat (1999), public health care professionals, especially nurses complain that they 'spend a lot of time carrying out tasks which do not require their expertise'. Various solutions have been sought such as the introduction of ancillary staff (nursing aides, health assistants and clerical staff). Since then, there is still debate whether enough supporting staff is available in order to provide the necessary conditions for changes in the care delivery model to take place. According to the President of MUMN, he felt that he would prefer the presence of support staff to be well established at Mater Dei before migration could take place (Pace, 2007b). It is recommended that an analysis of both the type and number of the supporting staff required is carried out and recruitment is initiated before job redesign is implemented.

### 6.1.1.3 Increase commitment for change from nursing officers and nursing staff

Lack of commitment in moving from task allocation to patient allocation has been identified as one of the main resisting forces. In order to put all stakeholders on board for the changes required, the actors that have a say in implementing this job design strategy should be identified and engaged in the changes required. A number of actors
can be identified. The Directorate of nursing services is not only responsible to write the policies and procedures of how care will be organized, but is responsible for organizing meetings prior its implementation with all stakeholders and makes sure that control mechanisms are in place for evaluating the care delivery model once implemented. Another role of Directorate of Nursing Services (in collaboration with the Institute of Health Care) is to provide the tools for a change in attitude (in favour of patient-based nursing) to take place. This is being sought by giving the opportunity to student nurses and nurses undergoing the Conversion course to reflect about the different care delivery models as part of their course.

Nursing officers have been identified by the nursing managers as change agents in the successful implementation of patient allocation. There is considerable research evidence which shows that leaders can make either positive or negative impact to the job satisfaction, organisational commitment and psychological distress of their staff, departments and organisations (National NHS staff survey, 2003). The Directorate of Nursing Services need to make sure that all nursing officers and staff are committed to job redesign. This can be done by involving nursing officers directly in the preparation of the policy document and in its implementation possibly with the help of action research.

The other main actor that represents the nurses working in these units are the nursing unions that will thrive to seek the best possible conditions for example by pushing for more nursing and ancillary staff. The fact that this study has shown that by changing to patient-based nursing, both the nursing staff and the management at St’ Luke’s
Hospital are most likely to benefit, certainly contributes in reaching an agreement between the two sides.

6.1.2 Improve the skill variety of nurses through job enlargement and job rotation

The importance of skill variety has been highlighted in the study as one of the job characteristics that are directly and indirectly related with the nurses’ job satisfaction and internal work motivation. Two possible strategies to improve skill variety for nurses as identified by the nursing managers include job enlargement and job rotation. The need to improve efficiency in the delivery of care, the presence of more sophisticated technology which requires learning new skills and the process of the professionalization of nurses, are some of the driving forces towards extending and expanding the role of nurses. However, it is recommended that before extending the role of nurses, an evaluation of the impact on the affective outcomes of nurses and on the patient outcomes is carried out. On the other hand, expanding the role of nurses through strategies that encourages more holistic care may not only increase the skill variety but also the task identity of the job. Possible strategies for role expansion as proposed by nursing managers include the possibility of involving acute care nurses in discharge planning, community outreach programmes to enhance the smooth transition into the community and teaching skills to nurses to enable them to provide psychological support to both patients and their family.

Job rotation has also been recommended by one of the nursing managers as a tool to increase the skill variety of nurses. The introduction of job rotation has also been recommended by the Employment and Training Corporation (ETC) as a tool to
improve the skills of workers, makes work less monotonous and workers more flexible on the job (ETC, 2006). However, the costs incurred in retraining staff and the impact of this job redesign strategy on both the staff and the patient needs to be further studied. Besides, a project to rotate nurses between different wards was blocked by the MUMN when it was implemented at St Luke’s Hospital.

6.1.3 Increase autonomy of nurses through a warrant

In the study, autonomy has been found to increase the nurses’ job satisfaction and internal work motivation. According to a press release issued on the 10th August 2006 by the Department of Information, ‘nurses already benefit from full autonomy in their practice of work as a result of the laws that regulate the health care professions. This right is given from the Act of Registration with the Nursing and Midwifery Council of 2003’. Nevertheless, the MUMN is pushing the government to be given a warrant. According to Pace (2006) "A warrant means that we have a licence to work on our own, something that we are already doing”. The issuing of a warrant instead of a registration for practice, together with facilitating continuous professional development of nurses can be measures to improve the nurses’ autonomy in their job and consequently their job satisfaction and internal work motivation

6.1.4 Increase the satisfaction with co-workers through effective team building

A significant finding of the study was that satisfaction with co-workers was an important predictor of all affective outcomes. Although this study focused on evaluating and comparing the individual design of a set of nursing jobs, the possibility of group redesign through team building can be an interesting alternative. In fact, Figure 5.2 identifies team building as a tool for the management of human resources
(National NHS staff survey 2003). Similar to job design, team working has been also been reported to improve staff motivation and satisfaction (Michie and West, 2002). Consequently, it is recommended that managers need to focus their attention on creating conditions that facilitate intra-professional teamwork and inter-professional teamwork between the other members of the health care team.

6.2 Recommendations for further research

6.2.1 The implementation and evaluation of different types of care delivery models

Similar to the job rotation between staff at ITU and HDU, innovative care delivery models in other units or wards can be piloted and evaluated possibly using action research or project management as a change management tool. Whatever the tool used, it is imperative that impact of these changes in the organisation of care are evaluated by comparing the effectiveness before and after the new care delivery model is introduced or between a unit that has adopted a new model and another unit that is using an old model. The outcomes measured need to focus not only on the nurses’ affective and behavioural outcomes, but the impact of these changes on the patients’ outcomes (e.g. mortality and morbidity rates) can also be measured and compared. Likewise the costs saved or lost with adopting a particular job redesign strategy can be identified.

6.2.2 Identifying the reasons attributed to the low Growth Need Strength (GNS) score in the study

A significant finding in the study was the low Growth Need Strength (GNS) of the respondents when compared to score of other studies carried out abroad. Although the
author sought to give a plausible rationale, it would be interesting to dwell into more
depth about this subject possibly by including nurses working in other specialities or
other health care professionals. In this way it could be possible to verify whether this
feeling of low personal growth and low self-esteem is restricted to the nurses working
in the specialities or is perceived by a greater number of employees working at Saint
Luke’s Hospital.

6.2.3 Applying the Job Characteristics Model to the jobs of other employees
working at Saint Luke’s Hospital

The study showed that in general the relationships as suggested by Hackman and
Oldham (1980) in the Job Characteristics Model have been verified for the sample in
the study. It would be interesting to see whether these relationships are applicable to
the jobs of other employees working at Saint Luke’s Hospital. Besides, it could be
possible to compare the job characteristics scores and affective outcomes scores of
different jobs (for example of different health care professionals) and seek possible
job redesign strategies to improve the job satisfaction and internal work motivation of
these employees.
Reference:

Adams A and Bond S (2000) Hospital nurses’ job satisfaction, individual and organisational characteristics *Journal of Advanced Nursing* 32(3) pp536-543


Badawy YA and Essawy MA (1992) Influence of job characteristics on job satisfaction *Journal Egypt of Public Health Association* 67(3-4) pp403-17


Bezzina C (2005) *Nurses’ job satisfaction in Maltese long-term care institutions- A Husserlian phenomenological study* Institute of Health Care University of Malta


Carlisle D (1992) Scope for extensions *Nursing Times* 88 37, 26-28


Cuthbert M, Duffield C & Hope J (1992) Management in Nursing London Baillaire Tindall


Deguara L (2003) Health reform proposals to be presented to cabinet for discussion Malta Today 23 August 2003 Issue 197


Higgins M (1997) Developing and supporting expansion of the nurse's role *Nursing Standard* 11, 24, pp41-44


Irvine DM and Evans MG (1995) Job satisfaction and turnover among nurses: integrating research findings across studies *Nursing Research* July-August 44(4) pp 246-253


Magennis C, Slevin E, Cunningham J (1999) Nurses' attitudes to the extension and expansion of their clinical roles. *Nursing Standard* 13, 51, 32-36

Mäkinen a., Kivimäki m., elovainio m., Virtanen m & Bond. (2003) Organization of nursing care as a determinant of job satisfaction among hospital nurses *Journal of Nursing Management* 11, 299–306


Sharples J (2007) Expanded health service ‘requires’ 300 more nurses The Times of Malta Monday April 12 p7

Shepherd J (1993) Nurses are changing, not extending their role. British Journal of Nursing 3, 9, 447


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Appendices

Appendix 1 Degree of satisfaction with working conditions by country
(Source: European Foundation for the Improvement of Living and Working Conditions, 2003)
## Appendix 2 Summary of Job Design Research Reviews

(Adapted from Perry et al, 2006)

<table>
<thead>
<tr>
<th>Source</th>
<th>Type of Review</th>
<th>Sectors from Which the Sample is Drawn</th>
<th>Type of Job Design</th>
<th>Mediating/Modulating Variables</th>
<th>Behavioral Outcomes</th>
<th>Overall Results/Findings/Conclusions</th>
</tr>
</thead>
</table>
• Relationship moderated by growth-need strength. |
• Little or no evidence for relationship with work outcomes. |
| Farrell, Dan, and Carol Lee Stamm. 1988. Meta-Analysis of the Correlates of Employee Absence. Human Relations | Meta-analysis | 72 studies, sectors not specified | Work environment factors: task significance, task variety, task autonomy, task identity, feedback | Personal factors (e.g., age, tenure); organization-wide factors (pay, control policy); occupation | Total time absent, absence frequency | • Work environment and organization-wide correlates better predictors of absence than psychological or demographic factors.  
• Job involvement, task significance, task variety, and pay all statistically significant correlates of absence frequency. |
• Task identity has highest relationship with performance; job feedback also affects performance.  
• Job characteristics-psychological outcomes stronger and more consistent than job characteristics-behavioral outcomes.  
• Effects of job characteristics on work performance vary with individual or situational differences. |
| Griffin, Ricky W., Ann Welsh, and Gregory Moorhead. 1981. Perceived Task Characteristics and Employee Performance: A Literature Review. Academy of Management Review | Narrative review | 13 studies, sector not specified | Task or job scope, i.e., the degree to which a job is enriched | Growth-need strength, contextual satisfaction, need for achievement | Performance | • Results for task scope-performance relationships are contradictory.  
• Measures for performance vary from study to study and, at best, only moderately valid. |
| Guzzo, Richard A., Richard D. Jette, and Raymond A. Katzell. 1985. The Effects of Psychologically Based Intervention Programs on Worker Productivity: A Meta-Analysis. Personnel Psychology | Meta-analysis | 98 studies published between 1971 and 1981; government, business, and nonprofit sectors | 11 different intervention programs, including work redesign and work rescheduling | Three types of productivity outcomes: output (quantity and quality), withdrawal (turnover and absenteeism), and disruption (e.g., accidents) | Performance | • Work redesign had moderately strong effects on output but not on the other two types of productivity.  
• Work rescheduling had small positive effects on output and withdrawal. |
### Appendix 2 Summary of Job Design Research Reviews (cont)
(Adapted from Perry et al, 2006)

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Research</th>
<th>Type</th>
<th>Findings/Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kelly, John</td>
<td>Job Re-Design Theory Explain Job Re-Design Outcomes? Human Relations</td>
<td>Research synthesis</td>
<td>31 field experiments; a variety of occupations were included, but none clearly from the public sector</td>
</tr>
</tbody>
</table>

- Redesigns that led to perceptions of improved job content also produced higher job satisfaction.
- No strong evidence indicating that job redesign improves job performance.
- Changes in job performance were associated with pay raises and job losses, two changes often accompanying job redesign.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Research</th>
<th>Type</th>
<th>Findings/Implications</th>
</tr>
</thead>
</table>

- Median impact on productivity across studies of 6.4 percent.
- Job redesign modestly reduces absenteeism.
- Median effect on work quality (typically error reduction) was an improvement of 28 percent.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Research</th>
<th>Type</th>
<th>Findings/Implications</th>
</tr>
</thead>
</table>

- Individual job dimensions and summary (job scope) characteristics highly correlated with organizational commitment.
- Organizational commitment shows weak relationship with job performance.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Research</th>
<th>Type</th>
<th>Findings/Implications</th>
</tr>
</thead>
</table>

- Job enrichment twice as effective at reducing turnover as RJP.
- Moderate effect sizes for both RJP and job enrichment.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Research</th>
<th>Type</th>
<th>Findings/Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kopelman, Richard E.</td>
<td>1985. Job Redesign and Productivity: A Review of the Evidence. National Productivity Review</td>
<td>Meta-analysis</td>
<td>20 studies that met three criteria—measured job scope, one or more employee outcomes, and growth-need strength</td>
</tr>
</tbody>
</table>

- Both high and low need strength individuals respond favorably to high scope (i.e., enriched) jobs.
- Evidence for moderator effects of higher-order need strength on job satisfaction, motivation, and performance.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Research</th>
<th>Type</th>
<th>Findings/Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kopelman, Richard E.</td>
<td>1985. Job Redesign and Productivity: A Review of the Evidence. National Productivity Review</td>
<td>Meta-analysis</td>
<td>27 field experiments, 7 laboratory; sectors not specified</td>
</tr>
</tbody>
</table>

- Laboratory and field research results are highly consistent for job scope-satisfaction relationships.
- Job scope relates more strongly to satisfaction with the work itself than overall satisfaction.
- Job scope-job performance relationships are modest, but positive.
Antecedents

External organizational factors, e.g.
- environmental uncertainty
- political and labour institutions
- labour market
- available technology

Internal organizational factors, e.g.
- management style
- technology/tasks
- organizational design (strategy, culture, reward systems, etc.)

Individual, e.g.
- proactive personality
- efficacy beliefs
- interpersonal trust

Expanded work characteristics, e.g.

Individual-level, e.g.
- job control
- skill variety
- feedback/performance monitoring
- cognitive demands
- physical demands
- emotional demands
- role conflict
- opportunity for skill acquisition
- social contact

Group-level, e.g.
- team autonomy
- team feedback
- team skill variety
- team task interdependence

Interactions between work characteristics
- individual-level (e.g. demand and control)
- group-level (e.g. interdependence and autonomy)

Mechanisms (intermediary outcomes), e.g.
- motivation
- quick response
- learning and development
- interaction processes

Expanded outcomes

Individual/group outcomes, e.g.
- job performance
- affective reactions
- safe working
- outside-work activities
- creativity

Organizational outcomes, e.g.
- productivity
- customer satisfaction
- absence/turnover
- accidents
- innovation

Contingencies

Organizational, e.g.
- interdependence, uncertainty, implementation process, alignment of HR, information/technological systems

Group, e.g.
- norms, knowledge structures, size, skill composition, goal clarity, information support, outcome interdependence

Individual, e.g.
- growth need strength, ability, context satisfaction, proactive personality, preference for group work, tolerance for role ambiguity, interpersonal trust
Appendix 4 Different care delivery systems in nursing

1. Task allocation
Task allocation (also known as functional nursing) is a highly ritualistic method of organising care that centres on nurses and support workers being assigned tasks. With this system, one nurse will be assigned to undertake the observations of temperature, pulse, blood pressure and respiration. Another nurse undertakes all the dressings, whereas another takes care of the drugs. This is a very fragmented method of providing nursing care that will ensure that the client receives aspects of care from a multiplicity of nurses and support workers, akin to a production line process. The emphasis on tasks naturally removes the notion of individualised client care and is as such incompatible with the nursing process.

2. Client allocation
One step removed from task allocation is client allocation. Here, total care for a number of clients is undertaken by one nurse, often assisted by a support worker. Although this system means that there is an emphasis on total client care being delivered by an individual nurse for a designated period of time, continuity of care may become compromised if the same clients are not cared for on a regular basis by the same nurse. With this system, extra attention needs to be paid to the detail in the nursing care plan because of the number of nurses who may have contact with a client.

3. Team nursing
Team nursing occurs where a designated group of clients is cared for by a team of two or more nurses (at least one of whom is a registered nurse) who accept collective responsibility for the assessment, planning, implementation and evaluation of the clients’ care. Although each team will be headed by a team leader, each registered nurse is accountable for his or her actions in accordance with the Code of Conduct. This is important to remember in an effort to counteract any criticism surrounding who is ultimately responsible under a system of collective responsibility. There is a plethora of literature available on team nursing, although much of it compares team nursing with primary nursing and is now rather dated.

4. Primary nursing
Primary nursing has been described as a professional patient-centred In this approach, the primary nurse accepts full responsibility and accountability for his or her clients during their stay. In its purest form, the implication is that the primary nurse has 24 hour responsibility 7 days a week. In reality, a team of associate nurses continues to provide nursing care under the direction of the primary nurse and in his or her absence. There is a great deal of literature on the efficacy of primary nursing, some of the discussion centring on the difference between primary nursing and the named nurse approach.

5. Person-centred planning
Popular in the field of learning disabilities, a person-centred approach to planning care starts with the individual, is seen as a mechanism for reflecting the needs and preferences of a person with learning disability and covers issues such as housing, education employment and leisure’.
Appendix 4 Different care delivery systems in nursing (cont)

6. Caseload management
This is the most popular method of organising nursing care in the community setting. It revolves around the designated named nurse with extended qualifications in health visiting/district nursing who acts as the caseload manager. Caseloads are normally organised either geographically or by GP attachment, each caseload manager leading a team of qualified nurses and health-care support workers. Continuity of care is maintained because the teams are organised to ensure that a member of the team is available every day of the week; as such, it is less affected by the demands of the shift system. Each registered nurse is accountable for his or her own actions, the caseload manager being responsible for ensuring that the skill mix and resources are adequate.
Appendix 5: Advantages and disadvantages of task-based nursing and case-based nursing (Cuthbert et al, 1992)

<table>
<thead>
<tr>
<th>Task-based nursing (Task allocation)</th>
<th>Case-based nursing (Patient allocation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>Is very efficient in getting all the work done</td>
<td>Promotes care rituals</td>
</tr>
<tr>
<td>Is the most economical way to deliver nursing services which meet the minimum identified health care standards with as few personnel as possible</td>
<td>There is no challenge to improve the nursing quality</td>
</tr>
<tr>
<td>As staff are assigned specific tasks on the basis of qualifications, experience and competence, there is efficient use of all levels of staff</td>
<td>It reduces desire or opportunity to attempt innovations in practice</td>
</tr>
<tr>
<td>Workload is determined by what can realistically be expected of one nurse in one working day</td>
<td>Variations in patient acuity are perceived as affecting the available, amount of a worker's time for task completion, not as the time available to provide services to individual patients</td>
</tr>
<tr>
<td>Part-time staff can be easily assimilated into the system</td>
<td>Part-time staff are usually assigned the most monotonous tasks as other staff are less knowledgeable about their services</td>
</tr>
<tr>
<td>Learners can develop proficiency in performing the specific tasks</td>
<td>Task allocation reduces vision for nursing practice to a series of hurdles which must be overcome which must be overcome before the nurse us a professional/specialist in the area</td>
</tr>
<tr>
<td>There is a checklist of care for evaluation and co-ordination purposes</td>
<td>There is no responsibility of care planning, as assessment and planning is related to the task</td>
</tr>
<tr>
<td>It provides a degree of security for patients and staff as job descriptions are highly specialized and narrowly defined with each nurse responsible for the completion of the identified tasks</td>
<td>The fragmentation of care causes difficulty for patients' families, and coworkers, in determining whom to approach about what aspect of care</td>
</tr>
</tbody>
</table>
### Appendix 5: Advantages and disadvantages of task-based nursing and case-based nursing (cont...)

<table>
<thead>
<tr>
<th>Staff, patients and their families know what the normal operating routines are and the times when activities should occur</th>
<th>Patients have to conform to strict routines in provision of care</th>
<th>Ideally the role of the nurse making such assignments is one of guidance and advice, which enables others to draw upon his/her experience. More time is available to know the abilities of the nurses, know what is happening overall, and to apply management techniques such as communication, leadership and the estimation and appropriate deployment of resources – to manage nursing, rather than the individual nurses</th>
<th>The nurses in charge may feel threatened at having to hand over responsibility for the delivery of care to the nurses, based on the perception that they do not know what is happening, or that they do not know the capabilities of their staff. As some nurses feel unable to use their initiative although given the opportunity to do so, so much time and effort can be directed to coaching and attempting to develop the confidence of the nurses. Frequently those in charge find themselves caught in the dilemma of being expected to manage nursing, but in fact have to manage nurses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>As many different nurses are in contact with the patient, any gross care deficiencies are likely to be identified and addressed</td>
<td>Although each nurse is responsible for own actions, all nurses are not responsible for identifying problems which occur with the patients</td>
<td>The role of the nurse in charge is fragmented - role confusion can occur, time is spent on acting as an information gatherer and disseminator, delegating and supervising tasks rather than on total care outcomes of individual patients (managing nurses, rather than nurses)</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 6 Job Diagnostic Survey

**Section 1**

<table>
<thead>
<tr>
<th>1.1 Age: _______</th>
<th>1.2 Grade: Staff nurse [ ] Enrolled nurse [ ]</th>
<th>1.3 Sex: Male [ ] Female [ ]</th>
<th>1.4 Ward: ____________</th>
<th>1.5 Total years of experience ________ (i.e. number of years as qualified nurse)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6 Current ward experience</td>
<td>________</td>
<td>1.7 Which one of the following statements best describes the way care is organised in your ward?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i.e. number of years working in the present ward)</td>
<td>1. [ ] Task-allocation: You are assigned specific tasks (e.g. administering medications of all patients, bathing all patients) that are carried out one after the other</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. [ ] Patient allocation: You are allocated to a one or more patients and provide the total care for these patients according to their needs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Section 2**

Select the number which is the most accurate description of your job on the scale provided under each question

<table>
<thead>
<tr>
<th>2.1 To what extent does your job require you to work closely with other people?</th>
<th>Very Little</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Moderate</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very much</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2 How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?</td>
<td></td>
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</tr>
<tr>
<td>2.3 To what extent does your job involve doing a whole and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end?</td>
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<tr>
<td>2.4 How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?</td>
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<tr>
<td>2.5 In general how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?</td>
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</tr>
<tr>
<td>2.6 To what extent do managers or co-workers let you know how well you are doing on your job?</td>
<td></td>
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<tr>
<td>2.7 To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide the clues about how well you are doing - aside from any feedback co-workers or supervisors may provide?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Statement</td>
<td>Very Inaccurate</td>
<td>Mostly Inaccurate</td>
<td>Slightly Inaccurate</td>
<td>Uncertain</td>
<td>Slightly Accurate</td>
<td>Mostly Accurate</td>
<td>Very Accurate</td>
<td></td>
<td></td>
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<tr>
<td>--------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>3.1 The job requires me to use a number of complex or high-level skills</td>
<td>[ ]</td>
<td>[ ]</td>
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<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>3.2 The job requires a lot of cooperative work with other people</td>
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<tr>
<td>3.3 The job is arranged so that I do not have the chance to do an entire piece of work from beginning to end</td>
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<tr>
<td>3.4 Just doing the work required by the job provides many chances for me to figure out how well I am doing</td>
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<tr>
<td>3.5 The job is quite simple and repetitive</td>
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<tr>
<td>3.6 The job can be done adequately by a person working alone - without talking or checking with other people</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.7 The supervisors and co-workers on this job almost never give me any feedback about how well I am doing in my work</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>3.8 This job is one where a lot of other people can be affected by how well the work gets done</td>
<td>[ ]</td>
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<tr>
<td>3.9 The job denies me any chance to use my personal initiative or judgment in carrying out the work</td>
<td>[ ]</td>
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<td>[ ]</td>
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<tr>
<td>3.10 Supervisors often let me know how well they think I am performing the job</td>
<td>[ ]</td>
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<tr>
<td>3.11 The job provides me the chance to completely finish the pieces of work I begin</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>3.12 The job itself provides very few clues about whether or not I am performing well</td>
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<tr>
<td>3.13 The job gives me considerable opportunity for independence and freedom in how I do the work</td>
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<td>3.14 The job itself is not very significant or important in the broader scheme of things</td>
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</tbody>
</table>
Each of the statements below is something that a person might say about his or her job. Please indicate your own personal feelings about your job by indicating how much you agree with each of the statements. How much do you agree with each of these statements about your job?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree Strongly</th>
<th>Disagree Slightly</th>
<th>Neutral</th>
<th>Agree Slightly</th>
<th>Agree</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 It is hard, on this job, for me to care very much about whether or not the work gets done right</td>
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<tr>
<td>4.2 My opinion of myself goes up when I do this job well</td>
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<td>[ ]</td>
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<tr>
<td>4.3 Generally speaking, I am very satisfied with this job</td>
<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>4.4 Most of the things I have to do on this job seem useless or trivial</td>
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<tr>
<td>4.5 I usually know whether or not my work is satisfactory on this job</td>
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<tr>
<td>4.6 I feel a great sense of personal satisfaction when I do this job well</td>
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<tr>
<td>4.7 The work I do on this job is very meaningful to me</td>
<td>[ ]</td>
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<tr>
<td>4.8 I feel a very high degree of personal responsibility for the work I do on this job</td>
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<tr>
<td>4.9 I frequently think of quitting this job</td>
<td>[ ]</td>
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<tr>
<td>4.10 I feel bad and unhappy when I discover that I have performed poorly on this job</td>
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<td>[ ]</td>
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<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>4.11 I often have trouble figuring out whether I am doing well or poorly on this job</td>
<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>4.12 I feel I should personally take the credit or blame for the results of my work on this job</td>
<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>4.13 I am generally satisfied with the kind of work I do in this job</td>
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<tr>
<td>4.14 My own feelings are not affected much one way or the other by how well I do on this job</td>
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<tr>
<td>4.15 Whether or not this job gets done right is clearly my responsibility</td>
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<td>[ ]</td>
</tr>
</tbody>
</table>
Now please indicate how *satisfied* you are with each aspect of your job listed below.

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Extremely Dissatisfied</th>
<th>Slightly Dissatisfied</th>
<th>Neutral</th>
<th>Slightly Satisfied</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>The amount of job security I have</td>
<td></td>
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<tr>
<td>5.2</td>
<td>The amount of pay and fringe benefits I receive</td>
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<tr>
<td>5.3</td>
<td>The amount of personal growth and development I get in doing my job</td>
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<tr>
<td>5.4</td>
<td>The people I talk to and work with on my job</td>
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</tr>
<tr>
<td>5.5</td>
<td>The degree of respect and fair treatment I receive from my boss</td>
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<tr>
<td>5.6</td>
<td>The feeling of worthwhile accomplishment I get from doing my job</td>
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<tr>
<td>5.7</td>
<td>The chance to get to know other people while on the job</td>
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<tr>
<td>5.8</td>
<td>The amount of support and guidance I receive from my supervisor</td>
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<tr>
<td>5.9</td>
<td>The degree to which I am fairly paid for what I contribute to this organization</td>
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<tr>
<td>5.10</td>
<td>The amount of independent thought and action I can exercise in my job</td>
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<tr>
<td>5.11</td>
<td>How secure things look for me in the future in this organization</td>
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<tr>
<td>5.12</td>
<td>The chance to help other people while at work</td>
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<tr>
<td>5.13</td>
<td>The amount of challenge in my job</td>
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<tr>
<td>5.14</td>
<td>The overall quality of the supervision I receive in my work</td>
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</tbody>
</table>
Section 6

Now please think of the other people in your organization who hold the same job you do. Please think about how accurately each of the statements describes the feelings of those people about the job. It is quite all right if your answers here are different from when you described your own reactions to the job. Often different people feel quite differently about the same job.

How much do you agree with each of the following statements?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree Strongly</th>
<th>Disagree Slightly</th>
<th>Neutral</th>
<th>Agree Slightly</th>
<th>Agree</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Most people on this job feel a great sense of personal satisfaction when they do the job well</td>
<td>[ ]</td>
<td>[ ]</td>
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<td>[ ]</td>
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<tr>
<td>6.2 Most people on this job are very satisfied with the job</td>
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<tr>
<td>6.3 Most people on this job feel that the work is useless or trivial</td>
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<tr>
<td>6.4 Most people on this job feel a great deal of personal responsibility for the work they do</td>
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<tr>
<td>6.5 Most people on this job have a pretty good idea of how well they are performing their work</td>
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<tr>
<td>6.6 Most people on this job find the work very meaningful</td>
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<tr>
<td>6.7 Most people on this job feel that whether or not the job gets done right is clearly their own responsibility</td>
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<tr>
<td>6.8 People on this job often think of quitting</td>
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<tr>
<td>6.9 Most people on this job feel bad or unhappy when they find that they have performed the work poorly</td>
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<tr>
<td>6.10 Most people on this job have trouble figuring out whether they are doing a good or a bad job</td>
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</tbody>
</table>
Listed below are a number of characteristics which could be present on any job. People differ about how much they would like to have each one present in their own jobs.

Please indicate the degree to which you would like to have each characteristic present in your job:

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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</thead>
<tbody>
<tr>
<td>7.1 High respect and fair treatment from my supervisor</td>
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<td>7.2 Stimulating and challenging work</td>
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<tr>
<td>7.3 Chances to exercise independent thought and action in my job</td>
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<tr>
<td>7.4 Great job security</td>
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<td></td>
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<tr>
<td>7.5 Very friendly co-workers</td>
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<td></td>
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<tr>
<td>7.6 Opportunities to learn new things from my work</td>
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<tr>
<td>7.7 High salary and good fringe benefits</td>
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</tr>
<tr>
<td>7.8 Opportunities to be creative and imaginative in my work</td>
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<td></td>
<td></td>
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<tr>
<td>7.9 Quick promotions</td>
<td></td>
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<tr>
<td>7.10 Opportunities for personal growth and development in my job</td>
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<td></td>
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<tr>
<td>7.11 A sense of worthwhile accomplishment in my work</td>
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</tbody>
</table>
Section 8

People differ in the kinds of jobs they would most like to hold. The questions give you a chance to say what it is about a job that is most important to you.

For each question, two different kinds of jobs are briefly described. In answering each question, assume that everything else about the job is the same.

Please check which of the jobs you personally would prefer - and by how much.

<table>
<thead>
<tr>
<th>Job A</th>
<th>Job B</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1 A job where the pay is very good.</td>
<td>A job where there is considerable opportunity to be creative and innovative.</td>
</tr>
<tr>
<td>Prefer A</td>
<td>Prefer B</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>

| 8.2 A job where you are often required to make important decisions. | A job with many pleasant people to work with. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.3 A job in which greater responsibility is given to those who do the best work. | A job in which greater responsibility is given to loyal employees who have the most seniority. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.4 A job in an organization which is in financial trouble - and might have to close down within the year. | A job in which you are not allowed to have any say whatever in how your work is scheduled, or in the procedures to be used in carrying it out. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.5 A very routine job. | A job where your co-workers are not very friendly. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.6 A job with a supervisor who is often very critical of you and your work in front of other people. | A job which prevents you from using a number of skills that you worked hard to develop. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.7 A job with a supervisor who respects you and treats you fairly. | A job which provides constant opportunities for you to learn new and interesting things. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.8 A job where there is a real chance you could be laid off. | A job with very little chance to do challenging work. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.9 A job in which there is real chance for you to develop new skills and advance in the organization. | A job which provides lots of vacation time and an excellent fringe benefit package. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.10 A job with little freedom and independence to do your work in the way you think best. | A job where the working conditions are poor. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.11 A job with very satisfying team-work. | A job which allows you to use your skills and abilities to the fullest extent. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

| 8.12 A job which offers little or no challenge. | A job which requires you to be completely isolated from co-workers. |
| Prefer A | Prefer B |
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

Thank you
Appendix 7 Email sent to author of the Job Diagnostic Survey and email received giving permission to the use the tool

Subject: Permission to use Job Diagnostic Survey

Dear Prof. Hackman,

My name is Anthony Scerri, and I am a nurse currently reading a Masters in Health Services Management at the University of Malta. As for my dissertation, I would like to study the job design of nurses working in the Maltese public hospitals. I have been doing a literature review on the subject and have been reading your book that you have co-authored; "Work Redesign", which I have found very interesting. I would like to ask your permission to use the "Job Diagnostic Survey" in the questionnaire for my study. Looking forwards to your reply, and thanking you for your assistance,

Yours truly,

Anthony Scerri

Subject: Re: Permission to use Job Diagnostic Survey

On 11/19/2005 Anthony Scerri wrote:
> I would like to ask your permission to use the "Job Diagnostic Survey" in the questionnaire for my study.

Permission granted...and good luck in your study.

r.

Mailing address:
J. Richard Hackman
Department of Psychology
33 Kirkland St.
Harvard University
Cambridge, MA 02138
Appendix 8 Letter of invitation to nurses to participate in the study

Anthony Scerri  
M.Ger., BSc.(Hons) Nursing., Dip. Ger., SRN  
‘Jasmine’, 128  
Claire Engel Str.,  
St. Julians  
Tel. no: 21384169  
Mob.No: 79728770  
Email: antscerri@keyworld.net  

13th March 2006  

Dear Nurse,  
I am a nurse who is currently conducting a research study as part of a course leading to a Masters Degree in Health Service Management at the University of Malta. The title of my dissertation is "Re-designing the jobs of nurses working in six nursing specialties". The study will seek to measure the characteristics of your job (e.g. how much your job is varied or how significant is the job for you) and how this influence your motivation and job satisfaction. I hope that this research will yield useful results in understanding how to re-design your job in such a way that it becomes more enriched and fulfilling for you.

You have been chosen as a participant at random from a list of nurses employed at St. Luke’s Hospital and who work in six specialties namely critical care nurses, orthopaedic nurses, paediatric nurses, theatre nurses, nurses working in general medical wards and nurses working in general surgical wards. It is important to note that this research has been approved by the Nursing Management at St’ Luke’s Hospital, by the Research and Ethics Committee of the University of Malta and by the Health Services Management Board of Studies of the Institute of Healthcare. The information obtained will be treated confidentially and your anonymity will be respected throughout by not asking for any personal identifiable information. Moreover, you can withdraw from the study at any time and all the data collected will be destroyed after successful completion of your study. It would be appreciated if you could spare some time to complete the attached questionnaire (which takes around 20 minutes) and to return it by mail in the postage-paid addressed envelope provided. The success of this study depends on obtaining as many replies as possible and it would be very kind if you could return the completed form by the ____________.

If you would like to receive further information or would like to know more about the outcome of the study, kindly contact me by email and I will be most pleased to reply to your requests. In the meantime I thank you in advance for helping me with this research.

Yours truly,  
Anthony Scerri  

- 130 -
Appendix 9 Reminder letter sent to all surveyed nurses after two weeks from deadline date to return the survey

Anthony Scerri  
M.Ger., BSc.(Hons) Nursing., Dip. Ger., SRN  
‘Jasmine’, 126  
Claire Engel Str.,  
St. Julians  
Tel. no: 21384169  
Mob.No: 79728770  
Email: antscerri@keyworld.net  

4th October 2006

Dear,

I wish to refer to the letter I sent you on the 1st September 2006, in which I have asked you to participate in the study that I am currently conducting entitled “Redesigning the jobs of nurses working in six nursing specialties”. If you have not completed the questionnaire that I have sent you, I would appreciate if you could spare some time to complete it and to return it by mail in the postage-paid addressed envelope provided. The success of this study depends on obtaining as many replies as possible and it would be very kind if you could return the completed form as soon as possible. I also wish to remind you that you can still post the envelope even though it has a seven cents stamp attached. Any extra costs will be incurred by me.

P.S. If you have already sent the questionnaire, I would like to sincerely thank you for participating in the study.

Yours truly,

Anthony Scerri
Appendix 10 Letter sent to St. Luke’s Hospital Management to seek permission to conduct the study

Anthony Scerri
M.Ger., BSc.(Hons) Nursing., Dip. Ger., SRN
‘Jasmine’, 126
Claire Engel Str., St. Julians
Tel. no: 21384169 Mob.No: 79728770
Email: antscerri@keyworld.net

Mr Emanuel Bezzina
Nursing Manager
St. Luke’s Hospital

25th March 2006

Research Proposal- Master of Health Science (Health Services Management)

Dear Mr Bezzina,

I am a Master degree student in Health Services Management and I am currently working on my dissertation as part of my course. The study entitled ‘Redesigning the jobs of nurses working in six nursing specialities’, will seek to measure the job characteristics of nurses and how this influence their internal work motivation and job satisfaction. I hope that this research will yield useful results in understanding how to redesign the nurses’ job in such a way that it becomes more enriched and fulfilling.

A sample of full-time nurses working at St. Luke’s Hospital in six nursing specialties namely critical care nurses, orthopaedic nurses, paediatric nurses, theatre nurses, nurses working in general medical wards and nurses working in general surgical wards, will be selected for the study. A self-administered questionnaire will be distributed to the nurses in their own wards/units.

I am requesting your authorisation to proceed with the study. The course coordinator Dr. Natasha Azzopardi Muscat has recommended that with your permission, I could proceed with submitting for further approval by the University of Malta Ethics Committee and the Health Service Management Board of Studies at the Institute of Health Care. I also wish to inform you that Mr Jesmond Sharples, Director of Nursing Services, has been appointed as my supervisor.

I am enclosing a copy of the proposal for your attention. I look forward in receiving a letter of approval from you so that I can proceed in my studies. In the meantime, I thank you in advance.

Yours truly,

Anthony Scerri
Appendix 11 Scoring key for the Job Diagnostic Survey
(Source: Hackman and Oldham, 1980)

1. Job characteristics
   - Skill variety (Average score of q 2.4, q 3.1, subtract q 3.5 from 8)
   - Task identity (Average score of q 2.3, q 3.11, subtract q 3.3 from 8)
   - Task significance (Average score of q 2.5, 3.8. subtract q 3.14 from 8)
   - Autonomy (Average score of q 2.2, 3.13 subtract q 3.9 from 8)
   - Feedback from the job itself (Average score of q 2.7, 3.4, subtract 3.12 from 8)

2. Experienced psychological states
   - Experienced meaningfulness of the work (Average score of q 4.7, subtract q 4.4 from 8, q 6.6, q subtract q 6.3 from 8)
   - Experienced responsibility for the work (Average score of q 4.8, q 4.12, q 6.4, q 6.7 subtract q 4.1 from 8)
   - Knowledge of results (Average score of q 4.5, q 6.5, subtract q 4.11 and q 6.10 from 8)

3. Affective outcomes
   - General satisfaction (Average score of q 4.3, q 4.13, q 6.2, subtract q 4.9 and q 6.8 from 8)
   - Internal work motivation (Average score of q 4.3, q 4.6, q 4.10, q 6.1 and q 6.9, subtract q 4.14 from 8)
   - Growth satisfaction (Average score of q 5.3, q 5.6, q 5.10 and q 5.13)

4. Context satisfactions
   - Satisfaction with job security (Average score of q 5.1 and q 5.11)
   - Satisfaction with compensation (Average score of q 5.2 and q 5.9)
   - Satisfaction with co-workers (Average score of q 5.4, q 5.7 and q 5.12)
   - Satisfaction with supervision (Average score of q 5.5, q 5.8 and q 5.14)

5. Individual growth need strength
   - ‘Would like’ format (Average score of q 7.2, q 7.3, q 7.6, q 7.8, q 7.10, q 7.11, Before averaging subtract 3 from each item score)
   - ‘Job Choice’ format (Average score of q 8.1, q 8.5, q 8.7, q 8.10, q 11, q 12 = x Subtract 6 from score of q 8.2, q 8.3, q 8.4, q 8.6, q 8.8, q 8.9 average and add to x Transform to 7 point scale using Y= 1.5X-0.5)
   - Combined growth need strength score (Average ‘would like’ and ‘job choice’ score)

6. Motivating Potential Score (MPS)

MPS = (Skill variety + Task identity + Task significance)/3 * Autonomy * Feedback
Appendix 12: Interview schedule

The aim of this interview is to evaluate the characteristics of the nurses’ job who work in your department and the type of organisation of care that is practised.

1. In your opinion, is there a need for changing the following job characteristics in the ____________:

a) Skill variety: *The degree to which a job requires a variety of different activities in carrying it out, involving the use of a number of different skills and talents of the employee*

   Yes ( )  No ( )  Don’t know ( )

   If yes how?

   If no why?

b) Task identity: *the degree to which a job requires completion of a “whole” and identifiable piece of work; that is, doing a job from beginning to end with visible outcome*

   Yes ( )  No ( )  Don’t know ( )

   If yes how?

   If no why?

c) Task Significance: *The degree to which the job has a substantial impact on the lives or work of other people, either in the immediate organization or to the external environment.*

   Yes ( )  No ( )  Don’t know ( )

   If yes how?

   If no why?

d) Autonomy: *The degree to which the job provides substantial freedom, independence and discretion of the employee in scheduling the work and in determining the procedures to be used in carrying it out*

   Yes ( )  No ( )  Don’t know ( )

   If yes how?

   If no why?
e) Feedback from the Job Itself: The degree to which carrying out work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of their personal performance
Yes ( )  No ( )  Don’t know ( )
If yes how?

If no why?

2. In terms of whether the care is task allocated or patient allocated or a mixture of both, how would you best describe the organisation of care in the

<table>
<thead>
<tr>
<th>Task allocated</th>
<th>Patient allocated</th>
<th>Mix of both</th>
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<tbody>
<tr>
<td>( )</td>
<td>( )</td>
<td>( )</td>
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If the answer is patient allocation,
3. What factors have facilitated the introduction of patient allocation in these units?

If the answer is task allocation or a mixture of both
What factors is impeding the introduction of total patient allocation in these units or wards?

4. Would you consider introducing total patient allocation in your units?
Yes ( )  No ( )  Don’t know ( )
If yes how?

If no, why no?