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Graduate Nurse Transition Programs in Western Australia: A Comparative Study of their Percieved Efficacy

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CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides a comprehensive review of the literature that relates to the research, that is, factors that contribute to the Western Australian nursing shortfall, nursing workforce composition, and nurse retention within the workforce. Initiatives to stabilise the workforce; graduate nurse transition programs; research into the benefits of graduate nurse programs; the context of the present research; and the methods chosen to conduct it are also discussed.

The literature was reviewed using primary and secondary sources. Online access to the University of Notre Dame, Australia library enabled utilisation of Google Scholar to search relevant databases. Keyword searches and search filters were employed to identify as many relevant studies as possible. These were then assessed for relevance and importance, and then annotated for ease of tracking. Preference was given to the most recent articles to ensure contemporaneous information was availed, and where applicable, manual searches were employed within specific journals, or for key articles. Reports from websites such as the Australian Bureau of Statistics and the Australian Institute of Health and Welfare were vital for obtaining current and comparative data and to further support arguments. Health and nursing websites, including the Australian College of Nursing, the National Nursing and Nursing Education Taskforce and Health Workforce Australia, were also sources of valuable information and reports.

It is clear that the number of RNs in the workforce is in decline (Council of Deans of Nursing & Midwifery, 2005; DoHA, 2005; Nowak, 2000; Senate

Community Affairs Committee, 2002; Thorgrimson & Robinson, 2005; Woods & Craig, 2005). Available literature reveals the factors contributing to this decline and the consequent impact on the sector's ability to provide quality healthcare (AIHW, 2010a; Camerino, et al., 2006; Duffield, et al. 2009; Johnstone, 2007; National Health Workforce Taskforce, 2009; Oulton, 2006; Preston, 2006). The ageing of the Australian population and, consequently, the nursing workforce, is currently the most fundamental issue impacting upon nursing provision (Camerino, et al., 2006; Duffield, et al., 2009). This issue is not able to be reversed in the short-term, and consequently, is one that requires innovative solutions. While most literature agrees that developing and increasing the novice nursing workforce will assist in improving supply, it is also recognised that many of the current graduates are older themselves (Dorion, Hall & Jones, 2008; Morrow, 2009). Consequently, the length of tenure of the older, novice nurse in the health workforce, in comparison to the younger graduate, is reduced and implicates the overall RN gain (Drury, Francis & Chapman, 2008).

Additional factors impacting on adequacy of supply within the RN workforce include the increased intensity of the workload. This has been demonstrated by the many studies of retention within nursing suggesting a strong link between perceptions of stress, career burnout, and intention to leave the nursing workforce when the workload is felt to be beyond the nurse's physical and mental sustainability (Cowin & Jacobsson, 2003; McHugh, Kutney-Lee, Cimiotti, Sloane & Aiken, 2011). Numerous factors can lead to stress-induced attrition. Among these are, firstly, new modalities of care, such as the requirement to reduce, as much as is possible, the length of time a patient spends in hospital and emergency centres. This may prove to be stressful because the nurse may perceive an inability to provide the nurturing time

to better understand the patient's needs or to fully recognise changes in a patient's illness profile (Duffield, et al., 2009; Johnson & Preston, 2001).

Secondly, while technology is designed to simplify most tasks, complexity may impact upon stress levels if not well understood or implemented. Most nursing tasks involve some form of technology and require cognisance of, not only how the technology works, but also how to extract and interpret the necessary data. Moreover, troubleshooting technology-related problems can result in increased levels of stress (Kjerulff, Pillar, Mills & Lanigan, 1992). Thirdly, the current epidemic of obesity adds to the workload in that caring for the obese patient requires specific equipment, increases the risk of personal injury and can add to the degree of treatment difficulty (Byles, 2009). Fourthly, although it is desirable to be able to demonstrate sufficient nurse numbers in staffing profiles, ample numbers are of little use if the necessary mix of nurses is not able to be supplied. This is critical for ensuring functional cohesiveness. Further, experienced staff are required to provide the appropriate levels of supervision and expertise to less experienced colleagues.

Finally, those responsible for health budgets are constantly formulating ways of improving efficiencies and moderating expenditure, while balancing delivery of patient safety and quality services, amidst the escalating demand for, and cost of, contemporary treatments (Marchildon, 2005). Such a climate is stressful for nurses when they are required to take time out of clinical duties to either acquire scarce resources, or to negotiate and justify expenditure upon equipment or treatment modalities that ultimately improve patient care (Bartram, Joiner & Stanton, 2004).

The above factors all impact upon the transitional experiences of the newly graduated nurse. The degree to how well these are managed, and translated to the workplace by health care organisations, is crucial to the degree of positive experiences gained by the novice nurse in their assimilation into the nursing workforce and future intentions to remain within it.

2.2 Factors Impinging on Nurse Numbers

While there are many factors contributing to the shortfall of nurse numbers in Australia, an issue that appears to be of great concern in the literature and health workforce planning is the shift in the age profiles of the overall population and the impact this will have on the future nursing workforce (Camerino, et al., 2006; Duffield, et al., 2009). Additional demands on the RN are found in the changes to health profiles and care delivery; technological advancements; and the increasing focus on practice modalities that are based upon quality and contemporary evidence, and consequently, impact on the composition of the workforce and necessitate innovative and productive workforce planning.

2.2.1 Ageing Population

Australia has the third highest life expectancy in the world with Australian females' life expectancy at birth in 2010 being 83.9 years and males 79.3 years. Western Australians' life expectancy at birth is slightly higher at 84.1 years for females and 79.5 for males (ABS, 2011). The cohort aged greater than 65 years has expanded from 8.3% of the total population in 1971 to 13.3% in 2009, and the proportion of those aged greater than 85 years old increasing substantially by 170.6% over the past two decades to form 6.1% of the overall population (ABS, 2010). In

addition to this increased longevity, which adds to the population numbers, immigration rates have increased and added to the rate of the population growth. Since the 1990s, Australia's median age has risen from 31.8 years to 36.9 years in 2009. Figure 2.1 presents the changing age profile of Australia's population from 1990 to 2010.

Figure 2.1. ***Australia, Population Structure, Age and Sex, 1990-2010***

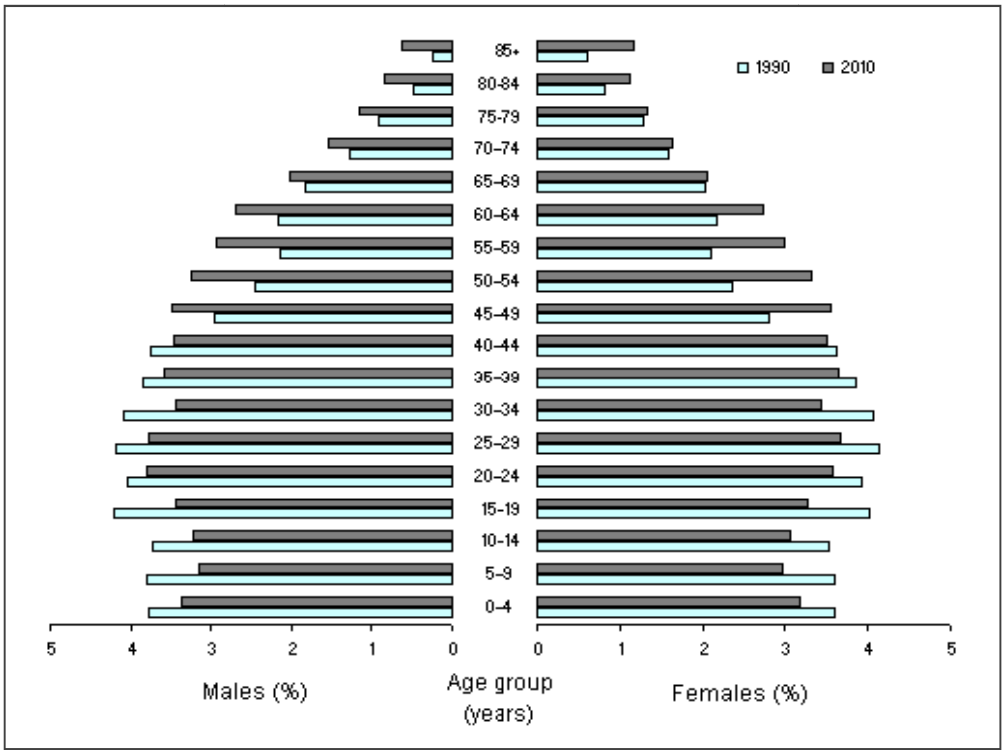

Figure 2.1. Australia's population structure by age group and gender comparing 1990 to 2010. Age groups demonstrate the increase in the older clusters and the decreasing proportion of younger cohorts. Source: Australian Bureau of Statistics (2010).

Chronic diseases become more prevalent with age, consequently, the burden of disease on the health care system increases substantially as populations age; as does the demand for related modes of health care (National Health Workforce Taskforce, 2009). In addition to the age-associated health implications of this trend, and in terms of the ability to fund appropriate care for those dependent upon government

support, the diminishing distribution of working age groups (between 15 to 65-years) that are able to contribute to the economy and to the support of those who have not yet entered (less than 15-years of age), or who are moving out (greater than 65-years of age) of the workforce is also of consequence. This shifting profile of diminishing younger and increasing older cohorts has a significant negative impact on the *'Dependency Ratio'*, which is indicative of the ratio of income earners (15 to 64-year olds) to those dependant on direct or indirect financial and/or physical support, including healthcare resources (AIHW, 2010a).

Ischemic heart disease, diabetes, anxiety and depression, cancer and stroke are among the major diseases contributing to the health care burden of Australia (AIHW, 2010a; National Health Workforce Taskforce, 2009). A major change in the burden of disease profile has been seen within Mental Health with the increase in mental illness impacting negatively on all areas of health care (AIHW, 2010a). This change also has implications in health care worker training as many nurses are underprepared for effectively managing mental illness (National Health Workforce Taskforce, 2009).

In the Western Australian population, the proportion of the 60-year old-plus age group has been steadily increasing over the past 15 years at an average of 1.86% per year, but more recently in 2006-2008 at an average increase of 2.45% per year as depicted in Figure 2.2. As discussed, this increased life span is associated with an increase in chronic illnesses and co-morbidities with which patients present to health care facilities (ABS, 2006). The impact of these additional disease burdens that require adjusting the modes of health care delivery also requires additional resources in terms of nursing care and education.

Figure 2.2. *Population Percentage of 60+ Age Group (Western Australia)*

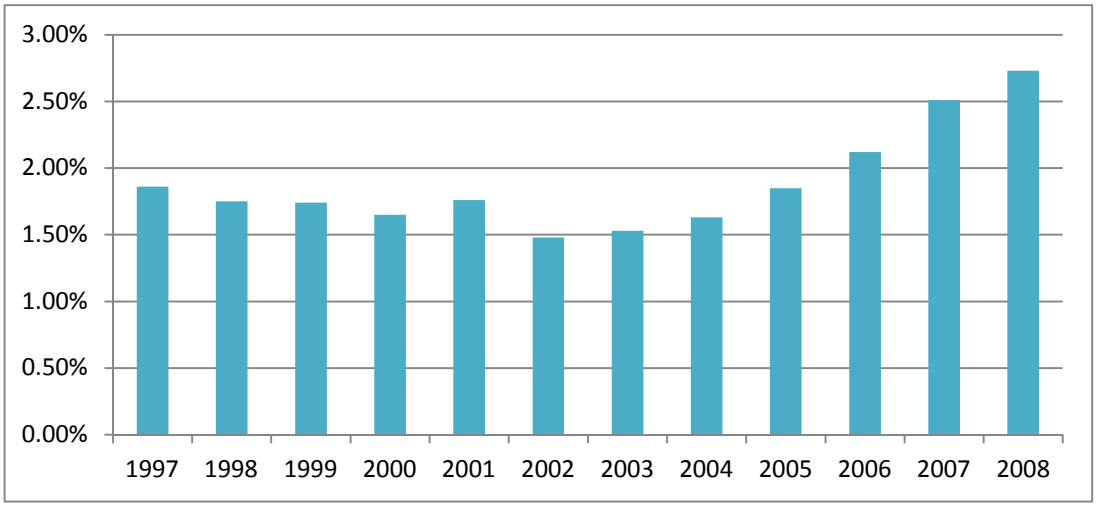

Figure 2.2. Proportion of 60+ Western Australia age group from 1997 to 2008 showing percentage increase from 2002 to 2008. From: Australian Bureau of Statistics, 2008.

A further factor contributing to the increase in the 60-year old-plus age groups is the decrease in the number of births per family unit since the 1950's resulting in a slower growth of the younger age cohorts (ABS, 2010).

2.2.2 Ageing Workforce

In Western Australian males, the percent of the population in 2004 surviving to age 85 was 40% and females were 57%. The national figures for survival rate to age 85 are 38% for males and 55% for females (ABS, 2008). Such figures suggest the Western Australian aged population will place an even greater burden on the health system than the national average. It stands to reason that if the Western Australian population is ageing, then so too is the nursing workforce. The average age of Western Australian nurses in 2007 was 45.2 years compared to 43.7 years for all Australian nurses (AIHW, 2009) while the average age of the Australian worker in 2004 was 38 (ABS, 2008). Although these figures come from data three-years apart,

it is highly unlikely that large changes would occur over this time. Figure 2.3 demonstrates not only the shift in the older age groups of nurses over a 10-year period but also the decline in entry to the workforce of the younger age groups and is inclusive of both Registered and Enrolled Nurses.

Figure 2.3. ***Registered and Enrolled Nurses by Age Group, 1999, 2005 and 2009***

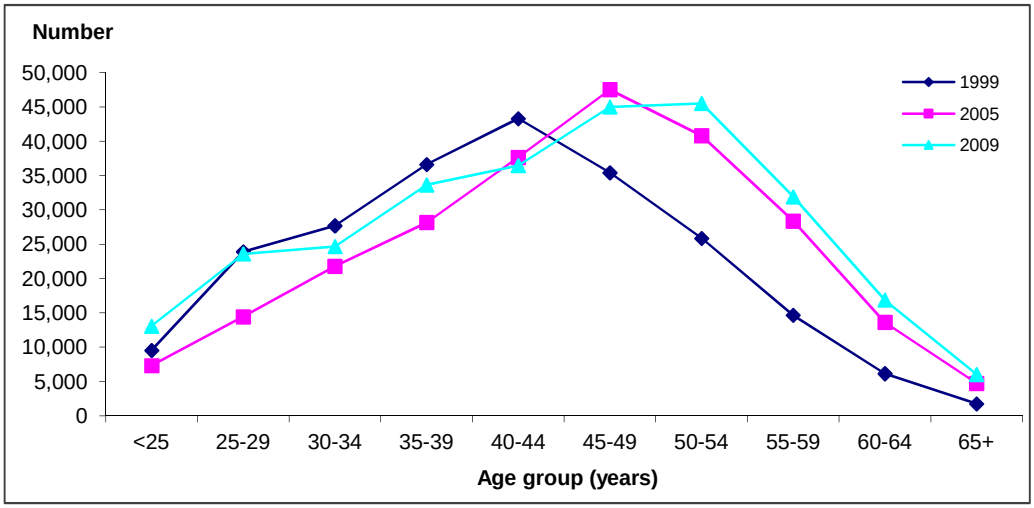

Figure 2.3. All Australian employed Registered and Enrolled Nurses by age group for 3-years of 1999, 2005 and 2009. Source: AIHW (2010b) Nursing and Midwifery Labour Force Survey.

These figures suggest that while older cohorts of nurses are caring for the ageing Western Australian population, they will also be dealing with health issues associated with their own ageing, which may impact on their ability to provide care to others. Compounding the issue, is that while the older generation of nurses begin their exodus from the workforce, without an equitable number of incoming nurses to replace them, the gap between demand and supply will continue to widen (AIHW, 2010a). However, despite an increase in student nurses graduating into the nursing workforce, and for reasons already discussed, the escalating need for additional health resources continues to widen the gap between supply and demand. Figures

2.4 and 2.5 (Access Economics, 2008) demonstrate the anticipated replacement requirements over the current period and the predicted supply of graduating nurses.

Figure 2.4. ***Replacement Requirements of RNs for Australia over 10-year period***

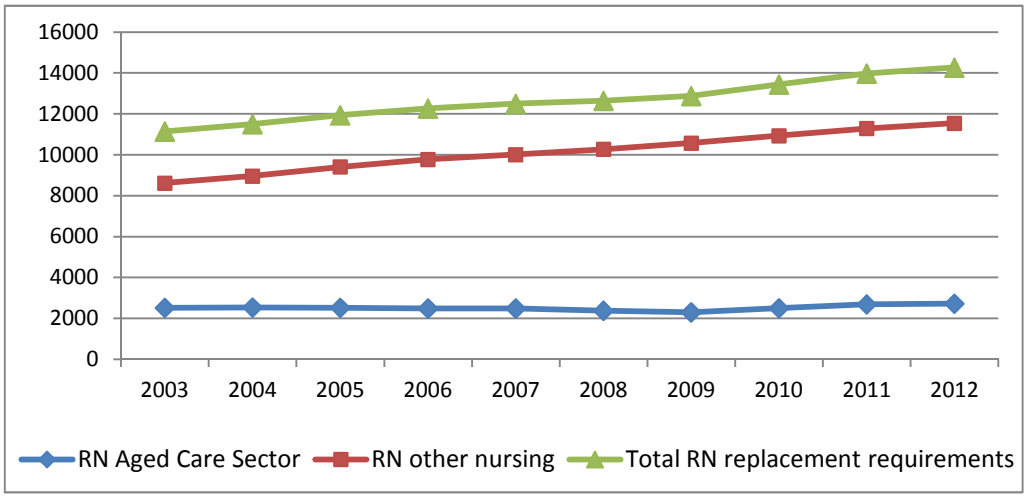

Figure 2.4. Aged care shows a steady rate which may not reflect the actual need. The total RN replacement requirements indicate the widening gap between supply and demand. From: Access Economics, 2008.

Figure 2.5. ***Employed Graduate Registered Nurse Requirements and Supply***

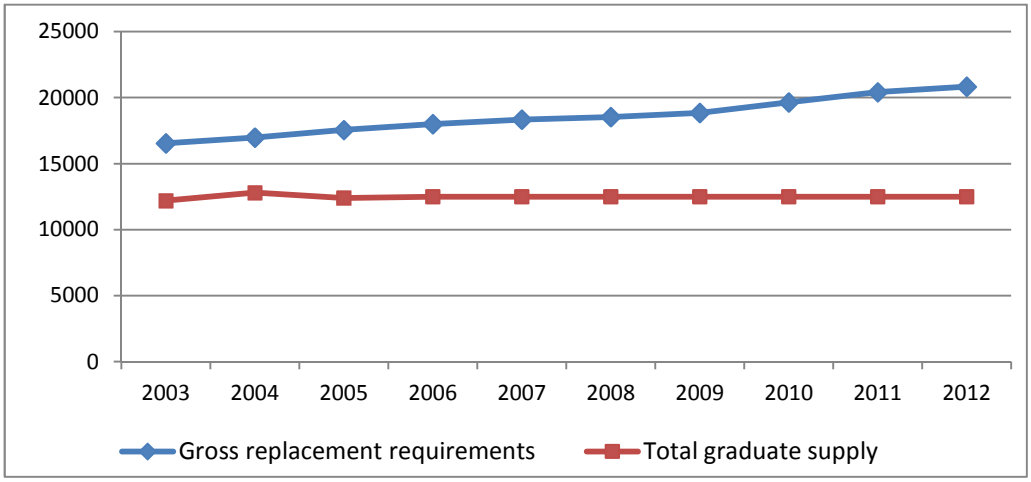

Figure 2.5. GRN replacement supply versus the requirement to replace outgoing RNs over a 10-year period. From: Access Economics, 2008.

Figure 2.6 indicates that while the number of enrolments into nursing degree programs is increasing, the number of nurses graduating to register with the Nurses and Midwives Board of Australia (NMBA) as a Registered Nurse does not appear to be following suit.

Figure 2.6. ***Australian RNs, University Program Commencements & Completions***

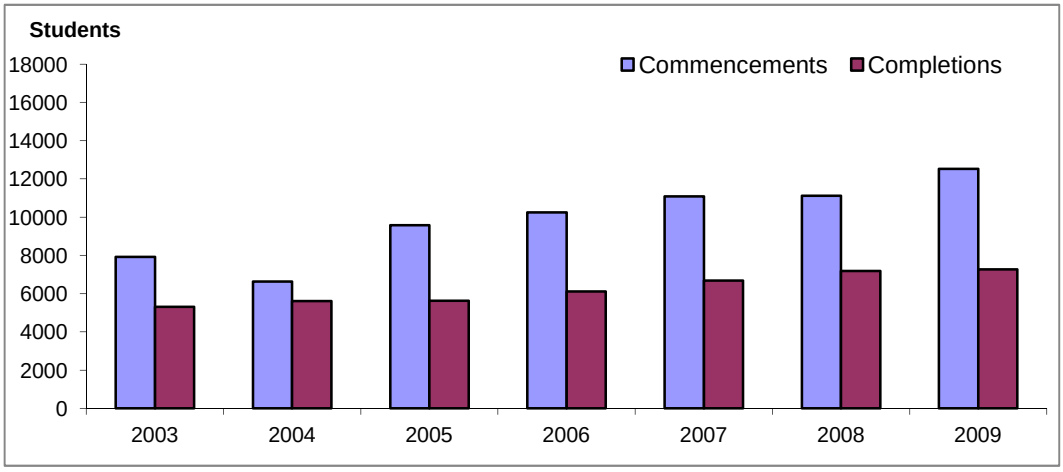

Figure 2.6. Commencements and completions of university undergraduate nursing degree program 2003 to 2009. From: AIHW, 2011. Source: Department of Education, Employment and Workplace Relations unpublished data.

Duffield, et al. (2009) suggested that within the next 15 years up to half of the current nursing workforce may retire. Reducing hours of work from full-time to part-time is one method of transitioning to retirement but can have a considerable effect upon the Full Time Equivalent (FTE) of nurses available to the workforce (ABS, 2011). Camerino, et al. (2006) postulated that nurses nearing retirement age were unlikely to consider extending their tenure due to the heavy and stressful nature of nursing work. In a study of European nurses, they found that older nurses perceived their ability to sustain current workloads would decrease with age and,

unless creative measures were taken to decrease the effort required at work, would not change their intention to retire.

2.2.3 Health Profiles

As well as the shift towards more age-related health issues, factors such as the steady increases in patient acuity and population obesity are also impacting upon service requirements.

2.2.3.1 Patient Acuity

Patient acuity is a term used to describe the complexity of care or intensity of illness. Traditionally patients provided a mix of generally being acutely ill and, at the beginning of an episode of care requiring more focused attention, to being moderately or minimally ill prior to discharge and needing less intensive attention. In order to maximise value for health care funding, policy makers have focused on efficiencies and reducing unnecessary servicing. Part of these efficiencies has been to reduce, as much as is safely possible, the amounts of time patients spend in hospital, with some care shifting to outpatient clinics or care in the home. The net result of reducing Length of Stay (LOS) is that the mix of acute and minimally ill patients no longer occurs, leaving only the acute and moderately ill patients to be cared for. This subsequently increases the intensity of the workload of health care providers and adds additional pressure on those available to deliver it, and is further compounded by the reduced ratio of nurses to patients. Brennan and Daly (2009) described nursing related acuity thus:

> *The concept of acuity can be considered a structure of care, in that it is a characteristic of the patient that, when measured, can be applied to nursing staffing decisions and thus be considered a process of care.*

> *Nurse staffing decisions based on patient acuity have the potential to balance the nursing workload among available nurses, thus improving patient safety and quality, and potentially reducing costs, which are outcomes of care* (p. 1115).

Johnson and Preston (2001) suggested that the emphasis on increasing the turnover of patients from hospital beds has resulted in an escalation in stress that is experienced by staff in trying to achieve this. This has reduced the nurse's satisfaction that was previously found in getting to understand the patient's needs more fully over a longer period of time; and thus, reducing the intrinsic rewards of nursing. Adding to this pressure is the perpetual reductions in budgets that result in cutbacks of support staff and an expectation that RNs take on non-nursing tasks such as transporting patients, answering phones and completing unrelated paperwork.

Health related indicators are those which demonstrate disease and illness rates within a community and utilisation of healthcare facilities. Data show WA to be above national figures on most health related indicators including LOS, which is lower than the Australian average LOS, (ABS, 2008; ABS, 2011) and number of patient separations, as can be seen from Table 2.1.

Table 2.1. ***Western Australian Comparison on National Health Indicators***

Indicator	Comment	Western Australia	Total Australia	Data Year
Average Length of Stay	Days per patient	2.9	3.1	09/10
Hospital Separations	Per 1,000 population	389	371	09/10
Morbidity & Disability	Percentage adults with one or more long-term condition	88.4	86.9	04/05
Males surviving to 85	Percentage of population	39.9	38.5	2006
Females surviving to 85	Percentage of population	57.3	55.5	2006
Nurses per 100,000 population	Includes Enrolled & Registered Nurses	1,134	1,250	2007

Source: Australian Bureau of Statistics 2008, 2011.

As well as being useful to determine funding allocations, standardised measures of patient acuity are also used to determine staffing levels, particularly in regards to nurse numbers and skill-mix. Nurse hours per patient day (NHPPD) is a concept introduced to Western Australian government hospitals in recent years, in conjunction with nurses' industrial Awards, in an effort to rationalise safe nurse staffing levels and workloads. This method categorises ward areas based on criteria such as patient mix, for example, surgical or medical; level of acuity; average LOS; and numbers of interventions, such as frequency of vital sign measurement, medication administration, and assistance with hygiene activities; as well as the complexity of treatments (Twigg & Duffield, 2009).

Brennan and Daly (2009) claim the most applicable measures for acuity are the severity of illness and the intensity of care required to manage it. Some of the concepts for consideration when assigning acuity described by these authors include:

- Intellectual repositioning, where a nurse's concentration may need to be shifted rapidly in response to changes in a patient's condition;

- Memory and understanding of disease and treatment modalities;
- Planning for long-term versus acute patient care, or for severe versus mild disease or injury;
- Including holistic patient and family centred care;
- Time taken to deliver care in a safe practice environment;
- Managing complex care and procedures;
- Assisting colleagues in their learning and care provision;
- Physical components of delivering care such as repositioning or moving patients.

Duffield, et al. (2009) described the term *churn* as being the movement of patients between admitting, ward areas and diagnostic units; and how this adds to the workload by requiring the nurse to perform tasks additional to the basic nursing care in preparing the patient, ensuring correct documentation, following up outcomes and re-orientating the patient at each stage. Increases in *churn* occur as a result of more applications of technology, measures to reduce patient LOS and implementing the four-hour rule (time to ward admission from the emergency department). Consequently, such factors add to the workload and decrease the time available for basic nursing care and, as a result, increase pressure and stress on the available nurses.

Compounding the above factors is the evidence of a steady increase over the years of admissions to public hospitals per 1,000 population; a growth from 209 in 1998-99 to 215 in 2008-09. This supports the view that nursing workloads have increased (DoHA, 2005), and has implications for improving nurse-to-patient ratios to ensure the levels are commensurate with the ability to deliver quality nursing care.

2.2.3.2 Obesity

In a comparative study of 11 countries within the Organisation for Economic Co-operation and Development (OECD) Australia rated third highest in the prevalence of both overweight and obese persons (Sassi, Devaux, Cecchini & Rusticelli, 2009). As obesity rates within Australia continue to remain high, so do associated chronic diseases, such as arthritis, chronic pain, vascular and respiratory diseases, and diabetes (National Health Workforce Taskforce, 2009). Obesity requires a change to the way health care is delivered and the types of care accessed, such as bariatric surgery, and may even limit or reverse the recently gained improvements to life expectancy (Byles, 2009). Kam and Taylor (2010) cite the treatment costs of obesity in Australia as $83 million annually and suggest that the increasing frequency of presentations to the healthcare facilities is placing an additional fiscal burden on both staffing and equipment resources. Mainstream equipment such as vital sign measuring devices, hospital beds and surgical equipment are designed for people of average height-to-weight ratio. Equipment especially designed for bariatric patients is more costly than standard equipment and generally requires increased floor space for storage. Management of bariatric patients and equipment also requires adaptation of, and sometimes new, protocols and policies (Kam & Taylor, 2010). The potential risk of staff injury, such as back or shoulder damage, is increased when managing the more obese patient, especially when moving or repositioning them.

In a study of the impact of obese patients on staff in an Emergency Department in Melbourne, Kam and Taylor (2010) found a positive correlation between an increase in Body Mass Index and the degree of difficulty in patient management. Some of the reported challenges included difficulty or delay in gaining intravenous

access and a potential for an increased rate of misdiagnosis due to difficulty in palpation of specific body areas, physical assessment, prolonged procedure time and consequent length of stay. Metabolic changes associated with obesity include increases in cholesterol and insulin resistance, leading to heart and vascular diseases and Type II Diabetes; while the increased weight adds to joint strain and exacerbates rates of osteoarthritis. Rates of breast and colon cancers are also reported to increase substantially when Body Mass Index is in the obese and morbidly obese ranges (Byles, 2009).

2.2.4 Technology

The rapid expansion in technological advances, and its consequent impact on the way health care is delivered, has long been recognised as having a major impact upon nursing. In her editorial in *Nursing Management*, Robinson (2003) described how the technology of nursing has advanced, from "a stethoscope and pair of bandage scissors" as being "basic tools of the trade," (p. 1) and of paper-based calculations and charts being the fundamentals of the way nurses planned and communicated the delivery of patient care only a few decades ago, to the current plethora of technical equipment and digital treatment devices.

Contemporary routine and advanced health care is predominately delivered, monitored and recorded using advanced systems of technology and computerisation (Robinson, 2003). The older cohort of nurses have not only needed to adjust from the manual systems of treatment and recording that was learned early in their career, to the digital era; but have also needed to learn how to troubleshoot the equipment should it fail. Current nursing practice incorporates a myriad of technology from vital signs recording devices with which to record temperature, pulse, blood pressure

and oxygenation, to fluid and drug delivery systems that incrementally measure and record infusions (Foster & Hawkins, 2005). There are also complex robotic surgical systems that are manipulated by surgeons but require nursing management, knowledge and skills to set up, assist with and maintain in an appropriate working order. Patient records, treatment schedules and plans are entered and stored electronically with the ability to share across sites and distance, report trends and activity and guide future modes of care (Foster & Hawkins, 2005). Health information guidance and evidence is located in global repositories of information and available to health care providers, recipients, trainees and students. This degree of access also enables the population to increase their awareness of disease processes and treatment options which has, at times, the effect of increasing patient demands for more expensive and more complex treatments albeit, not always the most optimal for their care (Watson, 2005).

The change in the way nurses are required to deliver their care has come about incrementally with little input into the introduction of the multiple changes and only minor, ad hoc education in how the technology is optimised (Foster & Bryce, 2009; Hegney, et al., 2007). With the greater cohort of nurses in an age bracket that wasn't raised with this technology, it should come as no surprise that many nurses struggle with its concept.

In *Digital Natives, Digital Immigrants*, Prensky (2001) likens the generational differences in approaches to technology as a language whereby younger generations have been *born into* digital information technology and their older counterparts are *immigrants* to it. He likens it to a dialect where those who are native to technology have no issue understanding and utilising it to its fullest extent. For those not born

into the age of digital technology it is a foreign language needing to be learned and never quite being fully absorbed (Prensky, 2001). He also discusses the difficulty that the older generations may have in learning, adapting and integrating current technology into their everyday work-life. In a study of a selection of adult acute care and psychiatric units in the United States, Kjerulff, et al. (1992) examined what factors, in relation to technology, might contribute to increasing the anxiety of hospital nurses. They found that raised anxiety levels, relating to the use of technology in the provision of health care, were more predominant in older nurses. Considering the average age of the nursing workforce has increased, and technical advances have permeated so many facets of delivering nursing care, the fact that older nurses experienced raised levels of anxiety when using technology is pertinent in terms of how the new technology is introduced into use, and how nurses are educated in its use.

Morris and Venkatesh (2000) conducted research into the relationship between age and technology uptake, and use amongst workers, and found a significant difference between the younger and the older groups in their initial attitudes and acceptance toward new technology, with the latter demonstrating greater difficulty with these. The study did find, however, that over time the older group was able to adapt their internalised apprehension and become more comfortable using the technology. As with Prensky (2001), Morris and Venkatesh (2000) theorised this initial apprehension was a product of discomfort in learning something not made familiar throughout childhood experiences. These authors also suggested training in new technology needed to be adapted to the generational differences in regards to learning pace and strategies. An important point made by Morris and Venkatesh (2000) was in relation to the provision of ongoing learning supports that enables the

older generations to more easily keep pace with new and innovative technologies, thus facilitating more effective utilisation of them, and reducing the associated anxiety in learning such foreign concepts. This is relevant to the current nursing workplace as contemporary equipment and information technology is continually updated, bringing new technical concepts and challenges each time a new product is introduced or upgraded.

The technological phenomenon has also impacted on the way our educators impart information to students. Prensky (2001) discussed how traditional and didactic methods of using staged learning objectives, with an out-dated language, fails to gain the attention of the *digital native* who is more receptive to interactive, vivid and multiple methods of information exchange. With the mix of age ranges of nursing students covering at least three generational groups, educators are faced with significant challenges in the provision of relevant diversity in the exchange of knowledge to ensure all recipients are optimally catered for in their learning experience, particularly as a number of educators tend to fall into the *digital immigrant* category. Prensky (2001) likens the educators' undertaking to that of a foreigner being tasked to teach the local dialect, a task that would undoubtedly be viewed with some scepticism by the *digital native*. Similar issues of disparity in comfort with the digital language may be faced by those in the health workforce when supervising and mentoring novice nurses, who may or may not be, more at ease with the different technologies.

There is a requirement for health care practitioners to maintain their education with regards to contemporary technology and its impacts. The *Australian Nursing Journal* (2010) announced that nursing informatics and information technology

competencies would form part of the new National Standards for registration with the NMBA. This move resulted from research which indicated that a majority of nurses rated their skills in using technology as “low to medium” (p. 7).

Foster and Bryce (2009) also reported a lack of nurse training and preparation in the use of information technology. Nurses working in aged care and remote areas were more likely to report low levels of use and confidence in information technology, and those working in acute areas, such as Intensive Care Units or Emergency Departments, reported greater levels of use and confidence (Hegney, et al., 2007). Based on the above comments, it is highly likely that this reported disparity between confidence and use of technology can be attributed to the fact that the average age of nurses in critical care areas is much younger than that of remote and aged care nurses (Hegney, et al., 2007). Further, in the environments of aged care and remote area health there is often much less access to technology to allow these nurses to develop their skills in this area.

As more and more information and communication systems become available, health care organisations are making a bigger commitment to adopting them. The push for this comes predominately from a quality improvement paradigm as many studies into medical error have shown human error to be the most treatable component of system issues that contribute to adverse events (Jamal, McKenzie & Clark, 2009). Systems to minimise human error include pharmacy systems where the initial order, the dispending and the administration of drugs are supported and guided by inbuilt alerts, advice and evidence-based information. Decision support systems enable screening for risks such as potential for embolus, diabetes and

adverse drug reactions (Jamal, et al., 2009); as well as provision of data for analysis and evaluation of trends and performance (Halley, Brokel & Sensmeier, 2009).

Contemporary health care is moving towards even greater use of technology with Personal Digital Assistants (PDAs) already in use in some organisations, electronically integrated patient notes and on-line learning and evidence-based healthcare access commonplace in most healthcare facilities; and others working toward full electronic medical record management. It is for these reasons that today's nurse must remain cognisant of, and be current with, technology related to patient care in order to maintain competence to practice (Foster & Bryce, 2009). The nurse who is proficient in using information technology will benefit patients by contributing to integrated and organised communication with colleagues and, when used correctly, improve care, and enhance efficiency and productivity (Schaper & Pervan, 2005).

Changes in the use of technology can also impact on health budgets, creating competition for health providers' salaries and other system costs (Eggert, 2005). Information systems in healthcare are aimed at removing the effort of manual calculations of many treatments; improving and streamlining record keeping; and assisting in the reduction of medical error by removing the human factor, thereby improving patient safety (Jamal, et al., 2009). As such, the argument in favour of adopting these technologies is persistent and consequently, the need to keep pace with the changes will remain a pertinent factor in nursing care delivery.

2.2.5 Workforce Composition

Skill mix is a term used when describing the proportion of experienced personnel to inexperienced, novice personnel. In the nursing workforce, to enable support of the new graduate nurse, a sufficient cohort of experienced nurses is required to enable supervision and mentoring to the newly qualified nurse. As the availability of experienced nurses decreases, the stress on the remaining nurses, including the novice, increases (Cowin & Hengstberger-Sims, 2006). The RN's time, knowledge and skill is also impinged upon in supporting colleagues, other grades of nurses (ENs, AINs), allied health personnel and junior doctors. This perpetuates a cycle of pressure and tension, which is likely to cause some to leave the profession.

The increase in work intensity discussed above is adding to the need to improve the ratio of skilled nurses to the workforce mix (Aiken, 2008). Due to the improvements in care modalities and technology, patients now survive and recover from diseases and injuries that 15 to 20 years ago would have seen a different outcome. Patients who would normally have been treated in critical care units are now common-place in regular ward areas, and the patients they are replacing in the ward areas are now often treated in the community, at home, or as outpatients (Johnson & Preston, 2001). These changes have required a significant shift in the focus of training and education of nurses and revision of workforce planning. In developing its framework for reducing the gap between education and practice, the International Council of Nurses (2009) highlighted the need to re-direct training models to account for the change in modes of care, in particular, the increased emphasis on community and home-based care.

Recent research has demonstrated that patient safety is improved considerably when sufficient ratios of RNs to other nursing levels (ENs and AINs) are available (Duffield, et al., 2009; Tourangeau, et al., 2006). Most industrialised countries use quality indicators to measure health system performance, with some linking outcomes to funding. Tourangeau, et al. (2006) disagreed with the medicalised view that these measures were not related to standards of nursing care, suggesting that such a view was based on a lack of appropriate, evidence-based research. She stated that "Little focus has been placed on studying nursing related structures and processes that might influence hospital mortality and readmission rates" (p. ii). In questioning why there was a great variability between quality indicator rates across Canadian hospitals, Tourangeau, et al. (2006) sought to determine what impact nursing care had on these indicators, and how system improvements would be able to reduce patient mortality and morbidity. In their study, they found that with a 10% increase in the ratio of RNs to other grades of nurses, there were "six fewer deaths for every 1,000 discharged patients". With a similar increase in RNs with a baccalaureate degree there were "nine fewer deaths for every 1,000 discharged patients"; and with a 10% increase in nurse reported adequacy of staffing, there were "17 fewer deaths for every 1,000 discharged patients" (Tourangeau, et al., 2006, p. iii). This is strong evidence suggesting that adequate levels of university educated RNs are paramount to providing safe, quality care.

Indicators of patient outcomes that are affected by nursing care include, but are not limited to, decubitus ulcers, thrombosis or embolism, sepsis, pneumonia, surgical site infections, shock or cardiac arrest and even mortality (Tourangeau, et al., 2006; Twigg, et al., 2011). *Failure to rescue* is a term describing the absence of appropriate recognition and treatment of the deterioration of a patient when

indicators, such as changes in vital signs to measures outside normal parameters, put the patient at risk of serious medical events such as those described above (Duffield, et al., 2009). Duffield, et al. (2009) found that an 11 to 45% reduction in adverse events occurred when RN hours were increased by 10%. Similar nurse led indicators of care and safety outcomes have been reflected in other studies (Holden, et al., 2011; Tervo-Heikkinen, et al., 2008).

To cite a case study, in 2007 a Northern Territory coroner linked the death of a 64 year-old woman in a Darwin hospital directly to unsafe nurse staffing levels ("Death caused by unsafe staffing levels", 2008). Despite senior nurses requesting additional staff over a period of time, the hospital executive had failed to act upon the requests in an endeavour to contain budgets. On delivering his findings, the coroner directed the organisation to immediately implement safe, evidence-based nurse staffing levels.

2.2.6 Retention

Nurses leave the nursing workforce for a variety of reasons, including family commitments with a lack of family-friendly provisions in the workplace, remuneration, lack of opportunities for career advancement and job recognition (Cowin & Jacobsson, 2003; Duffield, O'Brien-Pallas, Aiken, Roche & Merrick, 2006). Other factors cited as being a cause for dissatisfaction were staff shortages which, in turn, resulted in increased workloads for the remaining staff and consequent further absenteeism (Johnson & Preston, 2001). It is feasible that nurses who feel dissatisfied in their nursing work may project unfavourable impressions outside the workplace. Such projections may lead to negative connotations regarding nursing being a worthwhile career and, in turn, harm the perceptions of potential

nursing recruits (Preston, 2006). Similar reviews of nurse workplace dissatisfaction are cited throughout the literature pertaining to the nursing workforce and are reflected in international, national and local studies (Hayes, et al., 2006; Oulton, 2006; Pinch & Della, 2001).

Workloads that result in the nurse not having enough time to complete necessary tasks, such as the nursing indicators of patient care and safety, lead to job dissatisfaction and may prompt intentions to leave the workforce (Lawless, Wan & Zeng, 2010). In a study by Duffield, et al., (2009) uncompleted or delayed nursing tasks in Australian Capital Territory hospitals included measurement of vital signs, administration of medications and patient mobilisation which are all treatments which, if not adhered to, have been shown to result in adverse patient outcomes. In discussing the global nursing shortage, Oulton (2006) described how nurses are becoming less tolerant of workplaces where stress, lack of development opportunities and inappropriate workloads are typical and, as a result, are more likely to leave the profession. Research by O'Brien-Pallas, et al. (2004) found that improved nurse-to-patient ratios not only increased patient safety but also enhanced staff satisfaction and retention and reduced staff injury rates and absenteeism, indicators which all have significant quality and cost benefit implications. The authors reported an increase in patient LOS, uncompleted nursing interventions and a reduced perception of quality of care if the unit activity exceeded evidence-based, suitable nurse staffing levels by more than 5% (O'Brien-Pallas, et al., 2004).

In 2001, the Ministers for Education, Training and Youth Affairs and for Health and Aged Care announced a national review of Australian nursing education. This review acknowledged the shortages in the nursing workforce and the challenges

of preparing undergraduate nurses for the workplace (Heath, 2001). The Review found consistency in the theme that there is a high priority need for a focus on retention of nurses in the nursing workforce to bolster the supply of competent nurses in order to meet future population healthcare needs.

In 2001, Pinch and Della reported on a study of Western Australian nursing and midwifery. They indicated that a perception by nurses of not being valued within the health care system had contributed to their decline in the nursing workforce. The same report also identified the need to consider the important role of the preceptor (mentor) in the transition of Student Nurse to novice to proficient RN. The apparent lack of industry support for both the preceptor and the preceptee was believed to influence retention in the nursing workforce of this group of nurses (Pinch & Della, 2001). In an evaluation of the GNP in public sector hospitals in WA in 2000, 21% of respondents were dissatisfied with their programs and 18% dissatisfied with the provision of support (Pinch & Della, 2001). The report suggested that the nursing fraternity needed to recognise that the undergraduate curriculum is unable to provide sufficient clinical preparation to allow the new graduand "to be industry ready" (p. 40).

In a comparative study of professional wellbeing amongst Western Australian police, teachers and nurses between 2005 and 2007, nurses reported a decrease over the two survey periods in the degree of favourable perceptions of personal health, work-life balance and workplace pressure (English, 2008). Well-being factors included autonomy, support, work culture, organisational culture, motivating factors, personal wellbeing, commitment to the profession and perceptions of the image the profession. The category recording the greatest number of negative perceptions was

'work pressure' and even more so for respondents with five or less years of experience, with almost 80% of this group indicating unfavourable levels. Between the two study periods (2005 and 2007) the level of unfavourable findings in the 'work pressure' category for nurses increased from 59% to 78%. These results suggest that the impact of the increasing intensity of the nursing workload and the ageing population is already being felt by members of the nursing workforce. A very positive rating was found in relation to job image with only 2% of respondents who did not consider nurses' image was perceived positively within the community. Conversely, only half the respondents believed nursing to have a favourable professional standing in relation to opportunities for career progression or in comparison to other professional opportunities (English, 2008).

In summary, to maintain a quality health service and to ensure optimal nurse led indicators of patient care and safety, experienced nurses need to be retained within the workforce. Experience can only be gained by longevity of practice and maintenance of skills. Data from the Australian Nursing Federation (2009) showed that of 285,619 nurses registered in Australia in 2005, 10.7% were not employed in the nursing workforce, a number which had increased from 8.9% since 1999. Wagner (2010) found that nurses with less than five years experience were more likely to leave the nursing workforce than those with more longevity in the profession. Such findings confirm the need to consider the novice nurse transition an important phase in ensuring career longevity.

2.3 Initiatives to Stabilise the Nursing Workforce

Heath (2002) authored the Final Report of the National Review of Nursing Education, which raised the issue of an ageing nursing workforce and a shift towards

nurses decreasing the hours they work. The consequent reduction in total hours worked puts further pressure on the declining numbers of nurses by reducing the full-time-equivalent levels of the overall nursing workforce. Recommendations from this report included:

- The establishment of a national taskforce to "action, monitor and report on the progress of implementation of the recommendations" (p. 108);
- The establishment of a National Nursing Council of Australia;
- Development of national frameworks for transition programs (from undergraduate nurse to graduate nurse); and,
- Improved funding to enable better systems of support for the preceptor and preceptee during the transition of undergraduate nurses into the nursing workforce.

Additionally, a recommendation for funding to increase undergraduate nursing places was made. The N^3ET was established in 2003 to instigate the majority of the recommendations. Funding for the undergraduate nursing places, and support for transition of nurses into the workforce has also been implemented (Bishop, 2006; DoHA, 2005).

Augmenting the number of student places in universities' Schools of Nursing may be one method for increasing the availability of future RNs. Whilst this strategy will nominally increase staffing levels in the short term, it will not improve the current low experience levels and skill-mix. As described earlier, skill-mix is a term used to describe the ratio of experienced staff to inexperienced staff. Without the experienced nurse, the health care organisation is more likely to find it difficult to provide guidance to the inexperienced nurse to assist in attaining the knowledge and skills required for proficient practice. In studies of the newly registered nurse's

transition into the nursing workforce, the role of the experienced nurse has been described as being of paramount importance to the positive experience and future tenure of the novice nurse (Clare, Edwards, Brown & White, 2003; Evans, 2005; Goh & Watt, 2003; Heath, 2002; Heslop, McIntyre & Ives, 2001; Levett-Jones & FitzGerald, 2005; Reeves, 2007; Reilly, 2005; UWA, 2000).

A report from the Commonwealth of Australia, Senate Community Affairs Committee (2002), recognised the negative impact on the delivery of health care attributed to an insufficient number of nurses available to the nursing workforce. The report discussed factors that compounded the nurse shortage including the ageing workforce, an increasing trend toward part-time work, insufficient remuneration, perceived lack of recognition for expertise required and a lack of system support. The Committee's Terms of Reference included making recommendations in regard to education, training, transition, retention, improving family friendliness of working environments and occupational safety and health of nurses in the workforce. As previously discussed, the N^3ET was established in 2003 to progress the education, training and retention of the Australian nursing and midwifery workforce (N^3ET, 2006). Funding for the undergraduate nursing places and support for transition of nurses into the workforce has been implemented (Bishop, 2006; DoHA, 2005). Further evidence of implementation of recommendations is seen in the WA Health Department's policies that uphold work-life balance initiatives and are in keeping with the Western Australian *Equal Opportunities Act, 1984;* and for the training of representatives and managers in occupational safety and health (Department of Health, 2005).

To ensure that efforts to recruit more nurses into the profession are of benefit, Duffield, et al. (2007) called for an understanding of the factors impacting upon the nurse workload and the effect these have on retaining the qualified nurse in the workforce. Bowles and Candela (2005) advocated that if novice nurses enter into unhelpful work environments at the inauguration of their career, they are more likely to leave, and consequently be a loss to the profession and to reflect an improvident use of scarce education and recruitment resources. These authors also found that most nurses reported the reason for them leaving a position was a heavy workload caused by high patient acuity with related low staffing levels. This often resulted in perceptions of reduced patient safety. In developing a framework for reducing the gap between education provision and workforce readiness, the International Council of Nurses suggested that by addressing transition issues retention of the novice nurse will improve; as will patient safety through more effective team work and continual acquisition of contemporaneous knowledge (International Council of Nurses [ICN], 2009).

2.4 Graduate Nurse Transition Programs

The Department of Education, Science and Training (Johnson & Preston, 2001), the Australian Bureau of Statistics (2006), and the Australian and New Zealand Council of Deans of Nursing and Midwifery, (Preston, 2006) have highlighted the deficit of RNs throughout Australia and predicted escalating shortfalls as the average age of the overall population continues to increase. In a review of the literature relating to nurses' intention to leave the profession, Flinkman, Leino-Kilpi and Salanterä (2010) found younger nurses to be among those most likely to consider leaving the nursing workforce. Research suggests the

transition from student to qualified nurse is an important stage in a nurse's career and often influences future retention in the workforce (Goh & Watt, 2003; Pinch & Della, 2001). It has also been suggested that the student nurse's experience during their clinical practicum is relevant to that ease of transition (Keller, Meekins & Summers, 2006).

Four of the five Western Australian universities offer bachelor degree nursing programs. During these programs, student nurses are required to undertake a prescribed amount of practical experience within various health care settings with a view to exposing them to the realities of the nursing profession and to assist in translating the nursing theory to nursing practice. Upon completion of the necessary theoretical and practical components, the student nurse is then able to apply to register with the Nurses and Midwives Board of Australia as a Registered Nurse. Successful registration then qualifies the nurse to be employed as an RN within Australian health care settings.

Transition has been described as a period of learning and consolidating theories into practice, and adjusting from a place of learning to one of experience and skills acquisition (Hayman-White, Happell & Charleston, 2007). Keller, et al. (2006) concluded that new nurse graduates were not industry ready, and still required further skills and education to gain confidence and competence in their nursing role. A recognised issue of the *theory-practice gap* related to graduate nurse transition has been widely reported in the literature and refers to the perception of the novice nurses' lack of preparation for their role responsibility, and a described *shock* of the realities of the workplace (Evans, Boxer & Sanber, 2008; Fox, Henderson & Malko-Nyhan, 2005: Kelly & Ahern, 2009). As this phenomenon still occurs in current

programs it is considered to be an issue of concern amongst nurse leaders, and one that requires further understanding and strategy development to ensure the novice nurse is encouraged to remain within the nursing workforce. Canadian novice nurses, for example, appear to face similar issues to Australian graduates with heavy workloads, limited support and colleagues' unrealistic expectations of their capabilities causing many to report job stress and mental exhaustion as a common and, at times, daily occurrence (Morrow, 2009). This study found that novice nurses were on occasion placed in unsafe positions, particularly when put into situations beyond their scope of practice. This risky practice appears to be a regular occurrence when staffing levels don't allow for appropriate supervision and support (Johnstone, Kanistaki & Currie, 2008).

Supportive transitional programs have been shown to improve retention rates of novice nurses (Hayman-White, et al., 2007). Formalising the transition from student to proficient practitioner has been one strategy adopted by the Australian nursing industry to improve nurse numbers and assist with retention within the nursing workforce. In the *Final Report of the Special Commission of Inquiry of Acute Care Services in New South Wales Public Hospitals*, Garling (2008) described proficient training of new clinicians as a "down payment on a safe, good quality system of health care" (p. 10). To assist in the ease of transitioning to the professional role of RN, the majority of Western Australian hospitals and health care settings offer a formal and structured program to enable the novice nurse to consolidate their undergraduate learning and enable ongoing development of nursing proficiencies in a supportive and safe environment.

2.4.1 Nursing Education

Prior to tertiary level education for RNs, clinical training was undertaken within the practice environment, and student nurses were expected to take on a full patient load within their level of training, meaning that they were responsible for provision of nursing care to those patients; unlike modern-day student nurses who are deemed totally supernumerary. Student nurses in the apprentice model were often seen to be pressured into serving the provision needs of the organisation when more senior levels of nursing staff were lacking, and at times, were required to work beyond their scope of practice and to the detriment of their education (Tyrrell, 1998). The belief among some older cohorts of nurses is that these nurses, after three years of training, were practice-ready once registration was gained and already socialised into the work culture. The reality was that, while the apprentice-style student nurse provided around two-thirds of direct patient care, the system experienced a high level of attrition, both during training and shortly following registration (Tyrrell, 1998). These older cohorts of nurses at times still express the belief that nurses graduating from universities are less well prepared for their RN role and, at times, view nursing academia as far removed from the realities of nursing practice (Levitt-Jones & Fitzgerald, 2005).

The impetus to transfer nursing education from its hospital-based training mode into the tertiary level sector was formed as a result of the impending changes in the population demographics, technological impacts on modes of healthcare delivery, and a perceived lack of professional status. Influenced by trends in the UK and the USA, there was a strongly held belief amongst nurse leaders that the higher education would enable nursing to be better perceived as a professional occupation, and to gain much needed respect amongst peer professions (Tyrrell, 1998). There

was concern also, that the apprentice style training lacked some aspects of a tertiary level education in that the latter would enable the RN to develop necessary critical thinking and be better able to reflect on their nursing practice (Tyrrell, 1998). The first tertiary level nursing programs in Australia commenced at a diploma level as early as 1967, but were few and far between. It was not until 1984 that Government support for transfer of nursing education to the tertiary sector was obtained, with a three-year applied science degree deemed the minimum educational requirement. A substantial increase in student numbers was an unexpected and affirmative outcome from the change to nurse education, and suggested that the move to tertiary education was seen more favourably by those considering nursing as a preferred career option. As Johnson and Preston (2001) succinctly stated: "Nurses of this calibre, with university degrees and the habits of mind which degree programs inculcate, are less likely to tolerate aspects of health care management which nurses of previous generations had to accept" (p. 6).

To achieve legitimate professional standing amongst health care colleagues, it is imperative that the undergraduate nursing education emphasises a more theoretical component. However, in doing so, the time factor taken in the edification impinges on the proportion of practical experience that is able to be gained throughout the undergraduate training. Senior nurses educated in the hospital based system sometimes find it difficult to reconcile this difference in outcome and have, at times, been less than welcoming to the new university educated graduate (Kelly & Ahern, 2009).

2.4.2 Western Australian Transition Programs

Western Australian nursing transition programs are generally of 12 to 24 months in duration and include at least two, and sometimes several rotations to various specialties, for example, surgical, medical, aged care, mental health, and occasionally, critical care and perioperative areas. There is generally formalised support in the guise of a Staff Development Nurse (SDN), clinical preceptor or mentor and organised study days and networking groups during the program. Regular performance evaluation and assessment throughout the program is aimed at guiding the novice nurse to becoming proficient within their scope of practice.

In 1998, in response to a critical shortage of nurses in WA, the WA Health Department began funding public hospitals to assist in the provision of formal transition programs for graduate nurses, with the intention to improve retention rates of these nurses in the nursing workforce. Currently, the Graduate Nurse Program (GNP) is offered in public hospitals through the Nursing and Midwifery Office (NMO) within the WA Health Department, to assist the transition phase from student to novice nurse. This program is managed through *Graduate Nurse Connect* (GNC), an online recruitment system that allows the pending graduate nurse to apply for their preferred program and hospital site, and for participating sites to select from these applications. A selection of not-for-profit hospitals commenced participation in the GNC system in 2012 (R. Newton, Marketing & Events, Nursing and Midwifery Office, Department of Health Western Australia, personal communication, May 18, 2011). Most private health care organisations also offer GNPs that are advertised through the general media. The Western Australian GNP in public hospitals is a fully paid program where the graduate nurse is contracted with the health care organisation for the term of the program. The recruiting organisation decides if a

temporary or permanent appointment will be offered at the commencement of the program, the latter often an incentive for the graduating nurse to preference that organisation. Government funding to organisations for transitional support originally consisted of approximately $1,800 per Graduate Registered Nurse (GRN) in 2008 and has since increased to $2,500 (B. Evans, Principal Nursing Advisor-Workforce, Nursing and Midwifery Office, Department of Health Western Australia, personal communication, May 18, 2011). With over 650 graduates employed in the public health system in 2009, in terms of accountability, this level of funding support becomes significant.

In 1999, at the request of the (then) WA Health Department's Chief Nursing Advisor, the University of Western Australia (UWA) conducted research to assess the effectiveness of the Graduate Nurse Program in public hospitals in Western Australia (UWA, 2000). Findings from this study found considerable dissatisfaction with collegial and organisational support received by the graduates and with the structure and administration of the programs (Pinch & Della, 2001). The outcomes of the present study are compared to those of the UWA (2000) study to determine whether perceptions of graduate satisfaction with the levels of support, and the program structure and administration, have improved.

2.5 Research into Benefits of Graduate Nurse Programs

In Australia, there have been a number of reviews of graduate nurse transition programs, predominately in Queensland, New South Wales and Victoria (Heslop, et al., 2001; Levett-Jones & FitzGerald, 2005; Reeves, 2007; Reilly, 2005).

In a national review of nursing education chaired by Heath (2002), it was found that Australian States differed in the number of programs offered to GRNs. Typically, the range was between 12 to 64% of the Australian public health sector organisations offering a program in 2001. This report discussed several factors impacting on the health care organisations' ability to provide supportive programs, with the primary concern emanating from staff shortages. The report also suggested that the decreasing pool of maturing younger nurses is affecting the ability to provide experienced support and guidance to the novice, often resulting in the GRNs being forced to take on greater responsibilities and workload before they are competent and confident to do so.

A significant disparity has been reported between the expectations of the soon to graduate student nurse and the actual experiences of the newly graduated RN. Reeves (2007) conducted an exploratory, descriptive survey questionnaire of GRNs in Victoria to determine their satisfaction levels with GNPs in that State. While the overall level of satisfaction was found to be acceptable, there were some areas of concern, mainly revolving around the theory-practice gap and the level of support provided by colleagues.

A more comprehensive, two-stage qualitative study in Queensland (Reilly, 2005) assessed third-year student nurses' perceptions of preparedness for practice prior to commencing in the workforce, and again with the same cohort four months after completion of their undergraduate program. Ninety-nine percent of the students surveyed believed they were practice-ready for the role of RN. At the second stage of the research at four-months following graduation, the common themes of theory-practice gap, lack of support and work overload became apparent. Comments were

made in relation to the relevance of some of the undergraduate theoretical content and the lack of emphasis on what, in hindsight, was felt to be more useful, such as the legal aspects of nursing. While the GRNs recognised that the other nursing staff were often too busy providing direct patient care, they still felt disappointed that their needs were not able to be considered (Reilly, 2005). This theme was discussed again by Evans (2005) in a study evaluating the value of GNPs in New South Wales. In this study, it was felt the chronic nursing staff shortage was the reason colleagues were unable to provide the desired support to the GRN. The unrealistic expectations of the neophyte was again cited, this time attributed to attitudes being "formed far from the workplace" (Evans, 2005, p. 18). The criticism of disparity between academia and industry is not new, and has been referred to in other studies which suggest that some topics of nursing education are not necessarily relevant, or in keeping with the requirements of what the contemporary nurse will need to know in the workplace (N^3ET, 2006; Wolff, Regan, Pesut & Black, 2010).

Evans' (2005) study was the only one to provide a set of aims to justify government funding for the GNPs. Objectives to measure program success are important as the program incurs additional costs in terms of program advertising, recruiting and administrative personnel; plus the cost of supernumerary wages while the GRN is developing university-based orientation and skills. As discussed by Evans (2005), however, measures of program effectiveness are difficult to achieve when program objectives are individually devised by the organisations offering them. Apart from the business rules guiding use of GNC, Western Australian sites participating in transitional programs are autonomous in the recruiting process of graduate nurses to their programs (Nursing & Midwifery Office, 2009). To date, in WA, there is no universal group of objectives requiring measurement for these

programs. There is, however, a requirement that health services accessing the GNC funding for graduate nurses to demonstrate evidence of program structure and utilisation of the funding received (Nursing & Midwifery Office, 2009).

In a review of graduate nurse programs across Australia, Levett-Jones & FitzGerald (2005) found differences in most areas in terms of duration, funding and structure. Unfortunately, Western Australia was the only State / Territory not included in this assessment so it is difficult to directly compare Western Australian programs with what is available nationally. In that review, it was suggested there was a lack of evidence demonstrating the efficacy of Australian programs on the retention of GRNs in the nursing workforce, with the reviewers stating, "Certainly there has been little research focused on the Australian context, or on graduates' perception of either the value of transition programs or the interventions utilised" (Levett-Jones & FitzGerald, 2005, p. 43). This statement supports the intent of the current study and the value of finding answers to the research questions posed, in that the survey questionnaire has sought the respondents' perceptions regarding the value of their transitional experiences. Other questions posed to the study cohort have allowed components such as length and diversity of rotations, degree and source of support given, and the graduate nurse's intentions in relation to future career plans, to be explored. The second, smaller survey of the graduate nurse coordinators was aimed at corroborating some of the GRN information, and collecting data in relation to what guidelines govern the individual organisation's programs, as well as changes and innovations that have been made in recent years.

In WA, only one comprehensive review of graduate nurse programs, conducted by the UWA at the request of the WA Health Department's Chief Nursing Advisor,

could be located (UWA, 2000). The purpose of the study was to assess the effectiveness of the recently formalised GNP and to demonstrate accountability for the government funding of the program. The UWA (2000) study was based on similar research conducted by Queensland Health (1999) and resulted in comparable findings. Both studies showed that the majority of GRNs (33 to 59%) appreciated the structure of the program, the support provided, and the actual clinical experience encountered. However, a small group (9 to 21%) did not believe the program structure or support to be of any benefit. Reported complaints included the lack of relevance of some study day topics and either poor, or a complete lack of, preceptoring by experienced nurses. In the UWA (2000) study, some GRNs felt that they were limited in achieving their full learning potential due to low staffing levels in their area of work. The resultant increased workload meant assigned preceptors were often too busy to provide guidance and direction. The format of the UWA (2000) study was a survey questionnaire that was posted to 375 GRNs who had enrolled in the Western Australian GNP in 1999, and had a 40% return rate. Questions were asked in the survey to elicit the nurse's current employment, previous employment, and types and lengths of specialty rotations. Open-ended questions were included regarding the GRNs' perceived benefits and problems experienced in the program; the levels of confidence and competence gained from the program; and the degrees of support that were available. Recommendations from the UWA (2000) study have been summarised in the previous chapter and will be expanded upon in the discussion of the results of the current study.

In a report produced by the WA Health Department's Steering Committee study of nursing and midwifery, Pinch and Della (2001) made several recommendations aimed at improving reported issues within the nursing workforce,

including some related to undergraduate education, transitional support to graduate nurses, and workplace issues impacting on their experience. The report also indicated areas of deficits in staffing and training, particularly within the specialty areas of Aged Care, Community and Mental Health that still appear to be ongoing in the current health environment. The degree of implementation of the recommendations and how they relate to this current study, together with the impact on future directions will be discussed in the relevant chapters.

2.6 Framework for Research Methodology

Creswell, Fetters and Ivankova (2004) explained how a mixed method design, infers that the researcher will, at some stage, integrate or mix the research data to contribute to a broader understanding of either, or both, the qualitative or quantitative dimensions of the research. To facilitate an understanding of the mixed method approach, the traditional paradigms of qualitative and quantitative research require explanation.

Quantitative methods are sometimes seen to be the more dominant approach to research in the natural and behavioural sciences. Numerical information is utilised to test hypotheses with statistical data being generated and results interpreted (Teddlie & Tashakkori, 2009). Quantitative research provides descriptions of cause and effect, interrelatedness and measures of observations (Creswell & Plano Clark, 2007). Generalisability of results to the larger population is something for which most quantitative researchers strive.

Qualitative researchers use more socially mediated strategies to gather information, theorising that meaning is *constructed* rather than being the outcome of

direct observation. The research questions generally evolve out of the inquiry and are shaped by what the researcher observes and discovers in the field (Teddlie & Tashakkori, 2009). The theories of the constructivist approach are the product of individual inquiry theming into broader, upward patterns. Literature in qualitative research is used to support the rigour and intention of the research but need not play a major role in its direction (Creswell & Plano Clark, 2007).

2.6.1 Mixed Methods

The mixed methods approach to research is a relatively recent orientation in the social and behavioural sciences (Creswell, et al., 2004). The philosophical approach of mixed methods is generally viewed as pragmatic in that it utilises to the greatest advantage what works from both of the more traditional paradigms of post-positivism and constructivism, to gather data and answer the question being explored (Teddlie & Tashakkori, 2009). In mixed methods research, it is the question that guides the choice of method, allowing the researcher to employ both numerical and narrative data gathering techniques in order to gain as comprehensive a view as is possible of the matter under consideration (Teddlie & Tashakkori, 2009). As suggested by Johnson and Onwuegbuzie (2011), in a mixed method design, the intention is to maximise the strengths, while minimising the limitations of both quantitative and qualitative components. Supporters of mixed methods research see it as a diverse methodology that allows a more comprehensive and rich repository of data for analysis and discovery. In the words of Black and Ricardo, (in Creswell & Plano Clark, 2007), "By using a combination of qualitative and quantitative data gathering techniques, investigators can clarify subtleties, cross-validate findings, and inform efforts to plan, implement and evaluate intervention strategies" (p. 33).

As the name implies, mixed methods uses aspects of both, the quantitative and qualitative designs, and consolidates the data to pursue answers to research problems. This is done by either integrating at the point of analysis and/or interpretation; embedding one data type into the other; or using one data type to support the other. As Creswell and Plano Clark (2007) succinctly state, the central premise of mixed methods "is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone" (p. 5). The use of qualitative data within the mixed methods approach provides contextual information to enrich quantitative findings, and conversely, utilisation of quantitative data enhances the subjective interpretation of qualitative information. Mixed method research has been employed as a framework for this study to take advantage of the strengths of both quantitative and qualitative methods.

In discussing the different approaches to conducting research, O'Leary (2005) states "there is no 'best type' of research. There are only good questions matched with appropriate procedures of inquiry" (p. 9). In the current study, and following Crotty (1998), the objective and empirical perspective of quantitative research is applied to corroborate, enhance and inform the more subjective meanings construed from participants' experiences and perceptions. Combining the two traditional research paradigms is likely to lead to discovering the connectivity of variables and show how these interrelate and inform each other. As such, mixed methods research is able to build upon the best of both paradigms to provide a more holistic and comprehensive approach to the proposed research.

Table 2.2 demonstrates how the logic of mixed methodology research (Johnson & Onwuegbuzie, 2011) is used to underpin the current study. It also shows the

strengths and limitations of each paradigm and how the strengths have been incorporated into the current research and limitations minimised, in order to create a robust overall approach.

Table 2.2. ***Quantitative and Qualitative Aspects Applicable to Current Mixed Method Research***

Qualitative, Quantitative – Strengths, Limitations	Applicability to Current Research
Quantitative – Strengths	
"Useful for obtaining data that allow quantitative predictions to be made" "Data collection using some quantitative methods is relatively quick" "Provides precise, quantitative numerical data" "Research results are relatively independent of the researcher" "Useful for studying large numbers of people" (p. 19).	Quantified demographic data are used to determine what influences specific ranges may have on perceptions of transitional experience, for example, age groups on career forecasts. Numerical data are easier to analyse and report, particularly when a larger sample is preferred. Use of the whole research population as the study cohort enables improved generalisability.
Quantitative – Limitations	
"Knowledge produced may be too abstract and general for direct application to specific local situations, contexts and individuals" (p. 19).	To be able to apply findings to a local context required some qualitative focus to overcome this limitation.
Qualitative – Strengths	
"Data are based on the participants' own categories of meaning" "Provides understanding and description of peoples' personal experience or phenomena" "The researcher can study dynamic processes, i.e., documenting sequential patterns and change" "Responsive to local situations, conditions and stakeholders' needs" (p. 20).	To gain truthful insights into graduate nurses' transitional experience, required contextual data to better explain their perceptions. Able to adjust research plan in response to perceived deficits in some of the initial data, for example, added short survey of graduate nurse coordinators.
Qualitative – Limitations	
"Data analysis is time consuming" "It generally takes more time to collect data when compared to quantitative research" "It is difficult to make quantitative predictions" (p. 20).	Resource limitations have excluded expanding the research further, for example, focus groups to further explore transitional experiences. Mixing with quantitative methods allows for quantification of qualitative data.

Source: Johnson & Onwuegbuzie, (2011).

The original survey questionnaire used in the UWA (2000) study, upon which the present research is based, employed both closed (measured quantitatively), as well as open-ended questions (evaluated qualitatively). As such, and to provide meaningful comparative data between the two studies, similar data collection and interpretation were required for the present study. To explore the contemporary graduate nurses' transitional perceptions and their future intentions in greater depth, a broader range of qualitative data was incorporated into the current primary study instrument. This included additional open-ended questions that resulted in an improved balance of quantitative and qualitative data being collected. While the quantitative element of the survey questionnaire enabled generalisation of the findings to a broader population, the qualitative components provided meaningful context to the local experience.

Johnson and Onwuegbuzie (2011) described mixed methods research as a midway point along a continuum, with quantitative research firmly entrenched on one end of the continuum and qualitative research at the other end. Mixed methods research saddles midway across the two points, in varying degrees, according to the researcher's needs as depicted in Figure 2.7.

Figure 2.7. ***Three Major Research Paradigms, Including Subtypes of Mixed Methods Research***

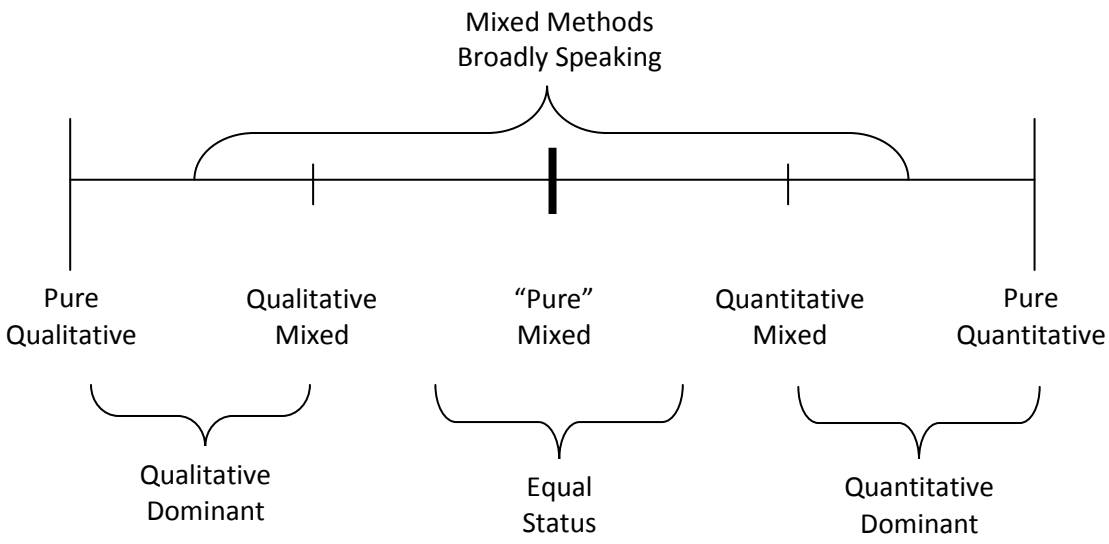

Figure 2.7. Reproduced from Johnson, et al., 2007, p. 124.

The integration stages of data collection, analysis and reporting for mixed methods research is similarly viewed as pragmatic, and can occur in a number of ways according to the emphasis of qualitative or quantitative elements in the mixed method design, and the sequence or concurrence of data collection (Creswell, et al., 2004). The current study proportions the elements equally in an attempt to extract as much 'richness' from the data as possible.

Although mixed methods research can be more resource consuming than a single method, it does help avoid assumptions being made that may be based upon a singular point of view (Teddlie & Tashakkori, 2009). The method is similar to the constructive element of qualitative research in that it retains the option of additional exploration should preliminary data require further clarification, thus allowing triangulation. *Triangulation*, or confirmation of findings, occurs when data from different methods or components of a study are converged, generally to corroborate

findings (Creswell & Plano Clark, 2007; Johnson & Onwuegbuzie, 2011; Teddlie & Tashakkori, 2009). By the use of the survey questionnaire, obtaining perspectives from multiple sources, and engaging in measurement of responses, this study primarily involved concurrent collection of data, and analysis and convergence of the results through the various stages of the research. The use of a triangulation design allows the research to be strengthened.

2.7 Context of the Current Research

Studies into graduate nurse transition from undergraduate to novice nurse in the Western Australian context are sparse. In the Levett-Jones & FitzGerald (2005) review of Australian graduate nurse programs, WA was the only State to be omitted. The only rationale evident for the omission was that the required data was not available. That report suggested there was a lack of evidence to demonstrate the effectiveness of Australian transition programs in the retention of novice nurses within the nursing workforce.

Supportive transitional programs are believed to assist retention rates of nurses (Hayman-White, et al., 2007), however, the UWA (2000) study demonstrated that many graduate nurses felt there was a considerable lack of collegial assistance in their initial tenure following their graduation and upon their induction into the nursing workforce. Recommendations from the UWA (2000) study, in particular those pertaining to appropriate amounts of initial supernumerary time; workloads; and preceptor suitability, have yet to be followed up. In addition, there are no overarching guidelines within WA health to establish how transitional programs should be structured, managed or assessed. The utilisation of a mixed methods

approach has facilitated expanding the qualitative component of the UWA (2000) survey and so permitted investigation into precisely these areas.

This is relevant given that many reviews of the Australian nursing workforce suggest that the transitional stage is important in maturing the novice nurse into a proficient and valuable practitioner who will maintain tenure within the nursing workforce (Clare, et al., 2002; Council of Deans of Nursing & Midwifery, 2005; Goh & Watt, 2003; McKenna & Newton, 2008; Pinch & Della, 2001).

2.8 Summary

This chapter has described how the literature demonstrates the positive effect sufficient numbers of RNs, in a ward or unit, can have on the safety and quality of patient care. The ageing of the population and thereby, the nursing workforce, has been shown as one factor impacting upon the widening gap between the demand and supply of proficient nurses available to provide nursing care to the population of WA. Government policies to increase efficiencies, such as reducing LOS and the four-hour rule in Emergency Departments, have intensified the nursing work load; so too has the proliferation of health-associated technology that effects the way contemporary nursing care is delivered. A supportive transition to proficient nursing practice, aimed at improving retention of novice nurses and, ultimately, skilled nurse numbers, has been considered. The role of the nursing profession in ensuring that transition programs are effective, of benefit to both the graduate nurse and the organisation, and are fiscally accountable, has also been discussed.

Research into contemporary nursing transition processes requires a pragmatic approach to maximise the consolidation and presentation of available information,

and to enable best practice recommendations to be made. The research methodology for achieving this in the present study has been presented. The following chapter further describes the methods used to conduct this research into the transition of newly registered nurses into the Western Australian nursing workforce.