

A PROBLEM-BASED EDUCATION
PROGRAMME FOR REGISTERED NURSES IN
ADVANCED MIDWIFERY AND NEONATOLOGY

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**A PROBLEM-BASED EDUCATION
PROGRAMME FOR REGISTERED NURSES IN
ADVANCED MIDWIFERY AND
NEONATOLOGY**

by

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submitted in fulfilment of the requirements of the degree

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PROMOTER: Prof. M.J. Viljoen

I hereby declare that this thesis which is submitted by me for the degree Philosophiae Doctor in Nursing at the University of the Orange Free State, is my own work and has not been submitted previously for any degree to another University/Faculty

..... A. Fichardt

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TO YOU JOHN BARRY,
JOHN AND BARRY

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CHAPTER 1

Background, problem statement and orientation to the study

1.1 INTRODUCTION

For a long time authors have voiced concern about the education of health care workers (Neame, 1984:699). The need for change was certainly augmented by the powerful global movement towards **Health for All by the Year 2000** and the necessity to reorientate national health care delivery systems toward primary care to serve that goal (WHO Alma Ata, 1978). Almost simultaneously a concept of integrated health services and manpower development emerged, which indicated that the quantity and quality of health manpower had to be planned in response to specific needs of the national health system and through this, to the health needs of the population (WHO, 1978). The role of health professions education institutions in this process became clear. In an *"Agenda for Action"* the Universities are challenged to prepare health professionals for the prospective needs and demands of society (WHO Agenda for Action, 1991).

In South Africa, the new government emphasis the Primary Health Care Approach as the means to improve and maintain the health of the South African population (Official Policy Document issued by the Department of Health, 1996:5). The delivery of a comprehensive, high quality primary health care service is, however, restrained by substantial gaps in both the quality and quantity of suitably trained primary health care nurses, doctors, other paramedical staff and managers. A central component of the health care services is, therefore, the strengthening of the human resources capacity of primary health care facilities.

At the beginning of 1996 the National Commission on Higher Education made recommendations in a working document that health education institutions revise their curricula in order to equip health care students and health personnel educators with the knowledge, competency and attitudes comprehensively to respond to the health care needs of the population of South Africa. It also recommended that higher education should play specific roles in the fields of continuing education for professional health care personnel and should ensure the relevance of courses to the health needs of the population, in order to produce appropriately skilled and orientated persons for the national health care services (National Commission on Higher Education, 1996).

1.2 BACKGROUND AND PROBLEM STATEMENT

1.2.1 Maternal and infant health indicators

The results of health care are reflected in morbidity and mortality statistics. Maternal and perinatal mortality rates are sentinel markers of the overall health status of a geographical region. They reflect both the standard of primary health care available and the socio-economic status of the community that lives in that region. These statistics are also sensitive indicators of the quality, availability and utilisation of perinatal health care services, especially antenatal care services (Brummer, Cronje, Grobler & Visser, 1990:553; Coetzee, 1990:8; Louw, Khan, Woods, Power & Thompson, 1995:352).

1.2.1.1 Maternal mortality rates

Amidst the worldwide call of health care for all, are the concerns about mother, child and women's health. With fifty percent of the world's female population in the reproductive years (15-45 years), these concerns are not unfounded. About one woman a minute - or half a million women a year - die of complications of pregnancy (Tonks, 1994:390). These deaths are responsible for 50% of the mortality of women in their reproductive years.

The World Health Organisation (WHO) estimates that approximately 99% of these deaths occur in developing countries (Spies, Bam, Cronje, Schoon, Wiid & Niemand, 1995:753). Estimated maternal mortality rates in Africa, Asia and Latin America are 600, 400 and 240 deaths per 100 000 live births respectively compared with rates in some developed countries of less than 10 per 100 000 live births.

According to Spies *et al.* (1995:753) the published South African maternal mortality rates (per 100 000 deliveries) vary between 48 in 1980 to 1982, 192 in 1971 and 1982 and 550 in 1972 to 1982. It was stated that the last of these three studies was the only community-based study of maternal mortality in South Africa.

In Bloemfontein, the largest city in the Free State, one of South Africa's nine provinces, the mortality rate at the Pelonomi Hospital was reported to be 287 per 100 000 deliveries for the period 1980 to 1985 (Spies *et al.*, 1995:753). During 1986 to 1992 the maternal mortality rate for women delivering in the same hospital was 171 per 100 000. The study revealed that 35% of deaths could have been prevented.

The annual report of the Free State Department of Health and Welfare (1994:2) indicates that the maternal mortality rate of blacks is 26 times higher than that of whites or Coloureds (Table 1.1).

TABLE 1.1: Maternal mortality rate per 1 000 live births in the Free State (1994)

POPULATION	MATERNAL MORTALITY PER 1 000
White	1
Black	26
Coloured	1
Total	28

The health status of the mother has a specific influence on perinatal mortality (Coetzee, 1990:11). Perinatal health services are thus frequently associated with early identification of abnormalities in pregnancy and labour. Early identification and treatment of risk factors requires an effective service, equipped with staff with the necessary knowledge and skills, as well as educated patients to ensure co-operative health care.

Taking antenatal care from hospital to the local health centre, clinic or home results in earlier identification of pregnancies at risk and referral to hospital. Improved and better organized antenatal services are likely to contribute to a reduction in perinatal mortality. The improvement in these figures which have occurred in individual countries during this century are in line with their rate of socio-economic progress (Turner, Douglas & Cockburn, 1988:22). Better nutrition, improved hygiene and housing, better education and planned parenthood may reduce perinatal mortality. Further gains can be achieved by improving the services at the level of the maternity unit.

Within the health service of any country or region there are a number of variables responsible for success. These include efficiency of the organization of the services and their responsiveness to changing circumstances, the provision and maintenance of buildings and equipment, the supply of well-trained nurses and other staff, but above all the willingness of patients to use the facilities and their confidence in the staff and service. It is thus essential that the service must be acceptable to the local population (Turner *et al.*, 1988:22).

1.2.1.2 Teenage pregnancy rates

According to Dr. Olive Shisana, Director-General of Health, South Africa has the highest teenage pregnancy rate in the world (Bloemnuus, 1996:1). This concern was also voiced in a study by De Villiers (1991:231)

On this topic, Chapman (1990:5) reported the proportion of pregnant teenagers in rural areas to be 18% and 11% in urban areas of the Free State.

The figures are actually more alarming. In a more recent study done by Cronje, Joubert, Chapman, de Winnaar and Bam (1995:7634) 24% of the black women in the rural areas of the Free State who gave birth in the preceding year were teenage mothers. Results of the same study indicated that 14% of the black women in the urban areas of the Free State who gave birth were teenagers.

Schoon (Bloemnuus, 1996:1), however, reports that 17,7% of the deliveries in Pelonomi Hospital (urban area) involved teenagers aged 19 years and younger. In 8% of these teenage pregnancies it was the girl's second child, which indicates that education and family planning had failed. The teenage pregnancy rate of whites is 56.87, of blacks 173.13 and that of Coloureds 158.75 (Table 1.2). The young mean age of the black population, particularly in the Free State, which is about 15 years at present, can lead to a further increase in teenage pregnancies in the future as significantly more young females enter the 16-19 year interval (Cronje *et al.*, 1995:765).

TABLE 1.2: Total deliveries, birth rate, teenage pregnancy and teenage pregnancy rate in the Free State (1994)¹

POPULATION	Total deliveries	Birth rate	Teenage pregnancy	Teenage pregnancy rate
White	3 939	26.29	224	56.87
Black	21 961	28.28	3 802	173.13
Coloured	1 348	49.33	214	158.75

1.2.1.3 Perinatal mortality rates

Europe has the lowest perinatal mortality rate. In certain countries it has dropped to below 10 per 1 000 births (Brummer *et al.*, 1990:558). The rate in the United States of America is slightly higher than that of Europe, followed by Asia and Central and South America. Africa has the highest perinatal mortality rate. The

¹ Rates are indicated per 1 000, whereas the other statistics are the true frequencies.

perinatal mortality rate in developing countries usually exceeds 30. It is uncertain in many regions of South Africa. The higher socio-economic groups in South Africa, probably have a perinatal mortality rate of 10, while in certain rural areas it could be more than 40 (Louw *et al.*, 1995:352).

The annual report of the Free State Department of Health and Welfare (1994:2) indicates that the perinatal mortality rate in the Free State is 39.75. It is 31.90 among Coloureds, nearly five times higher than that of 6.35 among whites in the province. The blacks have an alarming perinatal mortality rate of 46.22 (Table 1.3).

Cronje, de Beer and Grobler (1989:18) reported a perinatal mortality rate of 180 for unbooked patients in Pelonomi Hospital, of whom many were from rural areas. This rate is five times higher than the rate of 33 for booked patients. The study further showed a perinatal mortality rate of 7.8/1000 for white patients and 46.9/1000 for black patients in the province. The high mortality rate for unbooked patients raises questions about the standard of perinatal services in the Free State, outside Bloemfontein.

Perinatal mortality can be lowered by the provision of antenatal health services to every pregnant woman and the education of the community and the health care team. Studies carried out in many countries have shown that perinatal mortality is lowest amongst those who attend antenatal care earliest and highest for those who do not attend until late in their pregnancy (Turner *et al.*, 1988:21). Distance of home from hospital also affects the number of attendances at antenatal clinics, those nearest attending more regularly. Taking antenatal care from hospital to the local health centre, clinic or home results in earlier identification of pregnancies at risk.

Improved and better organized antenatal services are likely to contribute to a reduction in perinatal mortality.

TABLE 1.3: Statistics of births and deaths of babies in the Free State (1994)²

POPULATION		Live births	Birth rate	Stillborn	Mortality rate	0-7 days deaths	Early neonatal mortality rate	0-28 days deaths	Neonatal mortality rate	0-1 year deaths	Infant mortality rate	Perinatal mortality rate
White	374 599	3 920	10.46	19	4.85	6	1.53	9	2.30	19	4.85	6.35
Black	1 941 313	21 368	11.01	593	27.75	422	19.75	590	27.61	1 262	59.06	46.22
Coloured	68 312	1 319	19.31	29	21.99	14	10.61	12	9.10	39	29.57	31.90
Total	2 384 224	26 607	11.16	641	24.09	442	16.61	611	22.96	1 320	49.61	39.75

² Rates are indicated per 1 000, whereas the other statistics are the true frequencies.

1.2.1.4 Other perinatal health care indicators

In a study by Cronje *et al.* (1995:7634) on the perinatal health care services in the Free State it was found that the crude birth rate was 41/1 000 and the fertility rate was 163/1 000 in the black rural population. The stillbirth rate was 74/1 000 deliveries. The median education level was Standard 2. The crude birth rate was 34/1 000 and the fertility rate 117/1 000 in the black urban population. The stillbirth rate was 67/1 000 deliveries. The median education level was Standard 5.

According to this study the crude birth rate of the Free State is higher than South Africa's national rate of 32/1 000. The stillbirth rate, in both rural and urban populations is extremely high. It is encouraging that more than 70% of the rural and almost 90% of urban women in this study received antenatal care, although the median number of attendances was low (Cronje *et al.*, 1995:765).

The point in her pregnancy at which the mother seeks prenatal care is directly related to the amount of schooling she has had (Dickason, Silverman & Schultz, 1994:16). The low median education level of the black population thus threatens the use of antenatal health care facilities.

Cronje *et al.* (1995:765) report that less than 10% of deliveries took place in clinics. The large proportion of home deliveries (60%) in rural areas is attributed to the vast distances patients have to travel to hospitals. Only a third of deliveries in urban areas take place in clinics. These findings demonstrate the need for more accessible clinics.

The stillbirth rate in both rural (74/1 000) and urban (67/1 000) areas was extremely high.

In conclusion the extent of the problem of maternal, child and women's health is confirmed by the international, national and regional initiatives. In 1987 the

World Health Organisation announced an initiative to halve the maternal mortality by the end of the century (Tonks, 1994:390). “... *this requires the development of a maternal health care team in which the midwife functions as the linchpin*” (Kwast & Bentley, 1991:359). This topic has assumed a new urgency in five international events: the International Conference on Population and Development (1994), the International Year of the Family (1994), the World Social Summit (1995), the Commonwealth Health Ministers' Meeting on Women and Health (1995) and the Fourth World Conference on Women (1995).

In South Africa free health care for pregnant women and children under six years of age was one of the first initiatives in the shift of the government health policy to the philosophy and practice of comprehensive primary health care at all levels of the health system in South Africa. An advisory committee on Mother, Child and Women's Health was appointed and the recommendations of this committee were discussed at the Workshop on the training of Advanced Midwives in South Africa (Durban, 1995). The Draft of the National Health Information Systems Committee (1995:5) states that priority should be given to maternal, child and women's health.

The figures from studies done in the Free State and elsewhere, as discussed in this chapter, underline the need for upgrading perinatal health services in the region. In response to this need a Perinatal Committee, with members from the health care services, the Departments of Obstetrics and Gynecology, Paediatrics and Nursing of the University of the Orange Free State and the community was formed in 1992, to initiate and co-ordinate the comprehensive Perinatal Health Care Strategy for the five regions of the Free State³ (Figure 1.1).

³ The Free State was still divided in five regions when the study was initiated, however, in 1995 it was divided into six regions.

1.2.2 The professional nurse's role in transition

Adequate maternal care is a basic right of every woman and in this regard the professional midwife is seen by many as the cornerstone in comprehensive primary, perinatal health care delivery, due to the maldistribution of doctors (Report of the Committee of Inquiry into a National Health Insurance System, 1995:58; Mzolo, Garde, Ross, Loening & Adhikari, 1992:14; Coetzee, 1990:47; Cronje *et al.*, 1995:765).

The perinatal health care indicators of the blacks are especially worrisome. It is thus significant that seventy-six percent of the female population of the Free State are black (Cronje *et al.*, 1989:19). Nurses accounted for more than 70% of the instances of antenatal attention to pregnant black women (Cronje *et al.*, 1995:765). A third of the deliveries in rural areas and two-thirds of the deliveries in urban areas are managed by nurses, while nurses are responsible for 80-90% of the deliveries in certain hospitals in the Free State (Coetzee, 1990:57).

There is thus an urgent need to upgrade the services provided by professional nurses.

The changing focus in the delivery of health care from curative to primary health care makes new demands on the nurse and the nursing profession to widen the scope of knowledge and to become more actively involved in the prevention of disease and the promotion of health in clinical and community settings. Specific expertise is required of midwives to measure up to the needs of the community. This requirement also challenges nursing education.

In this regard a number of researchers have expressed concern about the professional practice of midwives in South Africa and have made recommendations for the revision and improvement of the education and practice of midwives (Nolte, 1985:283-285; Coetzee, 1990:251; Koortz & Marais, 1990:29-32; Du Plessis, D.W. 1993:15). To be regarded as a competent and

excellent midwife, it is essential for knowledge and skills to be updated (Bester, 1991:10). Specific learning and updating is therefore vital for all practitioners if they are to continue to develop throughout their professional careers from the time they register (UKCC, 1991:10). Searle (1989:117) states that the nurse has a duty towards her employer to remain professionally competent.

The education of professional nurses is therefore a high priority. In 1992 the community of the Free State by means of the Perinatal Committee identified the need for an education programme for professional midwives in the Free State. This need was also expressed by practising midwives in the Free State.

An *“Agenda for Action”* states that education should be shaped to the specific requirements of the environment (WHO An Agenda for Action, 1991:6). Furthermore, a university can participate in the development of a community by directing education towards the priority issues and concerns identified by that community. To address these issues Du Plessis, D.W. (1993:260) recommends the development, based on a situational analysis to determine learning needs of registered midwives and health service and community needs, implementation and evaluation of educational programmes for professional midwives at the regional level.

This call for educational programmes for professional midwives at regional level was also echoed at the workshop on the training of Advanced Midwives in South Africa as, according to the recommendations of the Mother, Child and Women’s Health Advisory Committee, approximately 624 professional nurses with a registration in advanced midwifery per region are needed for the community health clinics and level one hospitals⁴ (Durban, 1995). This number excludes the needs of regional and tertiary hospitals. These education programmes have been available in other regions of South Africa since 1980. Up till 1995 no educational programme, based on an extended situational analysis and leading

⁴ It is assumed that a level one hospital, is a community hospital.

to registration in advanced midwifery by the South African Nursing Council existed in the Free State.

1.3 EDUCATIONAL REFORM

The health care scene changed dramatically with an emphasis on primary health care and worldwide health care educators reacted on the call towards revolutionary changes in the curriculum of professional practitioners. The call for change in the education of professional practitioners made nurse educators to reflect on their programmes (Allen, 1990:313; Bevis & Murray 1990:326; Diekelmann, 1990:301; Moccia, 1990:308; Tanner, 1990:295; Waters, 1990:322). Emphasis shifted from objectives to teaching/learning, which is the living curriculum (Bevis & Murray, 1990:327). When this study were in the planning three schools in South Africa in health care education implemented or was in the planning phase of implementing revolutionary curricula or teaching methods in their programmes.

The decision to develop and implement a new educational programme in 1992 inevitably questioned the appropriateness of traditional education methods in the Department of Nursing of the University of the Orange Free State. It gave the ideal opportunity to consider both the issues in the health care system and the dilemmas encountered in the educational setting.

The student culture of the University of the Orange Free State changed dramatically over the past five years, from a traditional white, Afrikaans speaking to a multiracial, multiculture student community. Table 1.4 demonstrates that in 1994 48,4% and in 1995 49,9% of the students were female. An increase thus in female students. The majority of the students are still Afrikaans speaking, but the number of English speaking students increased from 5% in 1994 to 30,9% in 1996⁵. The increasing numbers of students from other ethnic groups resulted in

⁵ Only number of Afrikaans and English speaking and total number of students currently available.

a complex change in higher education. The enrolment of large numbers of students from the black, Coloured and Asian populations that have been traditionally underrepresented, inevitably brought different educational backgrounds together. Universities have to respond with changes in the way they teach and in what they teach.

TABLE 1.4: Sex, language preference and total number of students at the University of the Orange Free State

	SEX		FIRST LANGUAGE				TOTAL NUMBER OF STUDENTS
	Male	Female	Afrikaans	English	Afrikaans and English	Other	
1994	4 735	4 451	7 565	463	258	900	9 186
1995	4 830	4 816	7 167	549	300	1 630	9 646
1996	-	-	6 284	2 820	-	-	9 104

The researcher⁶ of this education programme and other members of the Department of Nursing were dissatisfied with their students' lack of independent thinking, passive behaviour and inability to retain and integrate basic sciences in the clinical context. Heliker (1994:45) voiced the same concern regarding nursing students. The staff of the Department of Nursing were desirous of producing assertive graduates who were scientific thinkers and lifelong learners, appropriate for the demands of the changing health care needs of the community.

In order to function as a midwife with an advanced diploma in midwifery and neonatology, students must learn a vast amount of material in the 12-month duration of the program. They must become proficient at history taking, physical examination, counselling, diagnosis, treatment, management of services and patient care, as well as making an internal adjustment to the new role. Class time must thus be prudently and economically used.

⁶ The researcher of this study was also the co-ordinator of the Advanced University Diploma in Midwifery and Neonatology which was developed.

Lipkin (unknown:8) states that the method of instruction should be relevant, efficient and effective on the learning and intellectual traits inculcated in graduates. In the past mismatches between education and consumer needs have resulted in education programmes not appropriate for the health needs of the community.

Taking into account the above-mentioned facts, concerns and objectives, the following factors were considered;

- the Mission of the University of the Orange Free State (Annexure A);
- the philosophy of the Department of Nursing (Annexure B);
- the encouragement at national level for local educational reform initiatives (see 1.1);
- the emphasis on primary health care as explained in this chapter (see 1.1);
- the usefulness of problem-based learning as an educational approach for schools with a primary health care emphasize (Bligh, 1994:325);
- the educational objectives for this approach according to Barrows (1985:53-54); and
- the implementation of an innovative approach namely problem-based learning was adopted for the Advanced University Diploma in Midwifery and Neonatology⁷ of the University of the Free State.

Similar objectives and concerns motivated a change in the educational approach of traditional health care and other schools. Problem-based learning has been introduced into the curriculum of a growing number of health care schools in an effort to overcome student passivity, integrate basic science with clinical courses and emphasize lifelong principles of self education (Eisenstaedt, 1990:511).

In this educational programme some lectures were retained. These provided a framework for specific “core” subjects. The main learning modality, however, was problem-based learning. The fresh ideas of the problem-based philosophy were

⁷ The official name for the education programme is the Advanced University Diploma in Clinical Nursing: Midwifery and Neonatal Nursing. For the purpose of this study the name Advanced University Diploma in Midwifery and Neonatology will be used.

thus integrated in part on the programme. This “*hybrid*” curriculum was felt would meet the needs of the Department of Nursing better because staff were not convinced, were uninformed and considered problem-based learning as too radical. The University of Ottawa School of Medicine also adopted a “*hybrid*” curriculum (Pelausa & Marsan, 1993:424).

The Head of the Department of Nursing initially became interested in problem-based learning after encountering this methodology in the literature and personal contact with Prof. Robertson of the Department of Nursing at the University of the Witwatersrand, during 1992.

After the decision to consider problem-based learning as a teaching methodology for the Advanced University Diploma in Midwifery and Neonatology, the researcher did an extensive literature review on problem-based learning, and joined by the Head of the Department of Nursing attended national and international workshops and conferences with problem-based learning as a theme, incorporating visits to problem-based learning and other innovative schools in preparation for the development and implementation of this education programme.

The following workshops and conferences were attended:

1. Workshop on orientation to problem-based learning by Professor Hugh Philpott in Bloemfontein, South Africa, January 1994;
2. 8th International Workshop on Community-Based Education, Incorporating Problem-based Learning at the Medical School of the Suez Canal University in Ismailia, Egypt, March 1994;
3. Workshop on A Practical Introduction to Problem-Based Learning by Professor Penny Little in Newcastle, Australia, July 1994;

4. Bi-annual conference on Reflections on Problem-Based Learning by the Australian Problem-Based Learning Network in Newcastle, Australia, July 1994;
5. Annual conference on Compatibility and Conflict - Directions in Health Professional Education by Australian and New Zealand Association for Medical Education in Newcastle, Australia, July 1994; and
6. At the end of 1995 the 9th General Network Meeting in Manila, The Phillipines was attended, where papers were presented by the researcher and Head of the Department.

Schools visited:

1. The School of Medical Education, University of New South Wales, Sydney, Australia, July 1994;
2. The School of Nursing of the University of Western Sydney, MacArthur, Australia, July 1994.
3. The Medical and Nursing School of the University of Kebangsaan, Kuala Lumpur, Malaysia, July 1994;
4. The Open University, Hong Kong, July 1994; and
5. The De La Salle Medical School, Manila, The Phillipines, December 1995.

Considering the impact of the above-mentioned issues on nursing education, the researcher came to the conclusion that strategies should be implemented to facilitate the process of change brought about by the development and implementation of this education programme.

1.4 AIM OF THE STUDY

The aims of the study are descriptive and developmental. An education programme for registered nurses in the Free State will be developed and implemented. This will lead to a professional registration in advanced midwifery and produce graduates who are competent to serve effectively in the national health care services.

To date (1993) no such programme exists in the Free State and a unique programme must be developed within the parameters of the South African Nursing Council regulations and directives, the perinatal health care needs of the Free State and the learning needs of the registered nurses of the Free State.

The objectives of the study are to:

- determine the educational resources of the University of the Orange Free State⁸, and four hospitals, Pelonomi, Universitas, Goldfields Regional and Maroko, with their respective clinics and community health care centres;
- explore the perinatal health care needs of the Free State population;
- determine the learning needs of registered nurses in the Free State regarding midwifery and neonatology; and
- design and implement an education programme for professional midwives in terms of the situational analysis and the directive of the South African Nursing Council.

⁸ The University of the Orange Free State was named after the region in which it is situated. However, the region's name has been changed to Free State. The name of the university has remained unchanged up to date of the study.

1.5 RESEARCH METHODOLOGY

A non-experimental research design, descriptive and developmental in character was used.

A literature survey, international, national and regional visits and a questionnaire were used to reach the objectives of the study.

The study was conducted in phases and followed the steps of a model for programme development. The course of the study is demonstrated in Figure 1.2.

1.6 CONCEPTS

Continuing education

Continuing education is formal, structural education which meets regional (specific geographical area) or national needs and which results in registration or listing by the South African Nursing Council (SARV, 1990:2).

Primary health care

In a Joint Report of the World Health Organization and the United Nations Children's Fund (1978c:2) on the Alma Ata conference held in September 1978, primary health care is defined as: Essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community by means acceptable to them, through their full participation and at a cost that the community and the country can afford. It forms an integral part, both of the country's health system of which it is the nucleus and of the overall social and economic development of the community.

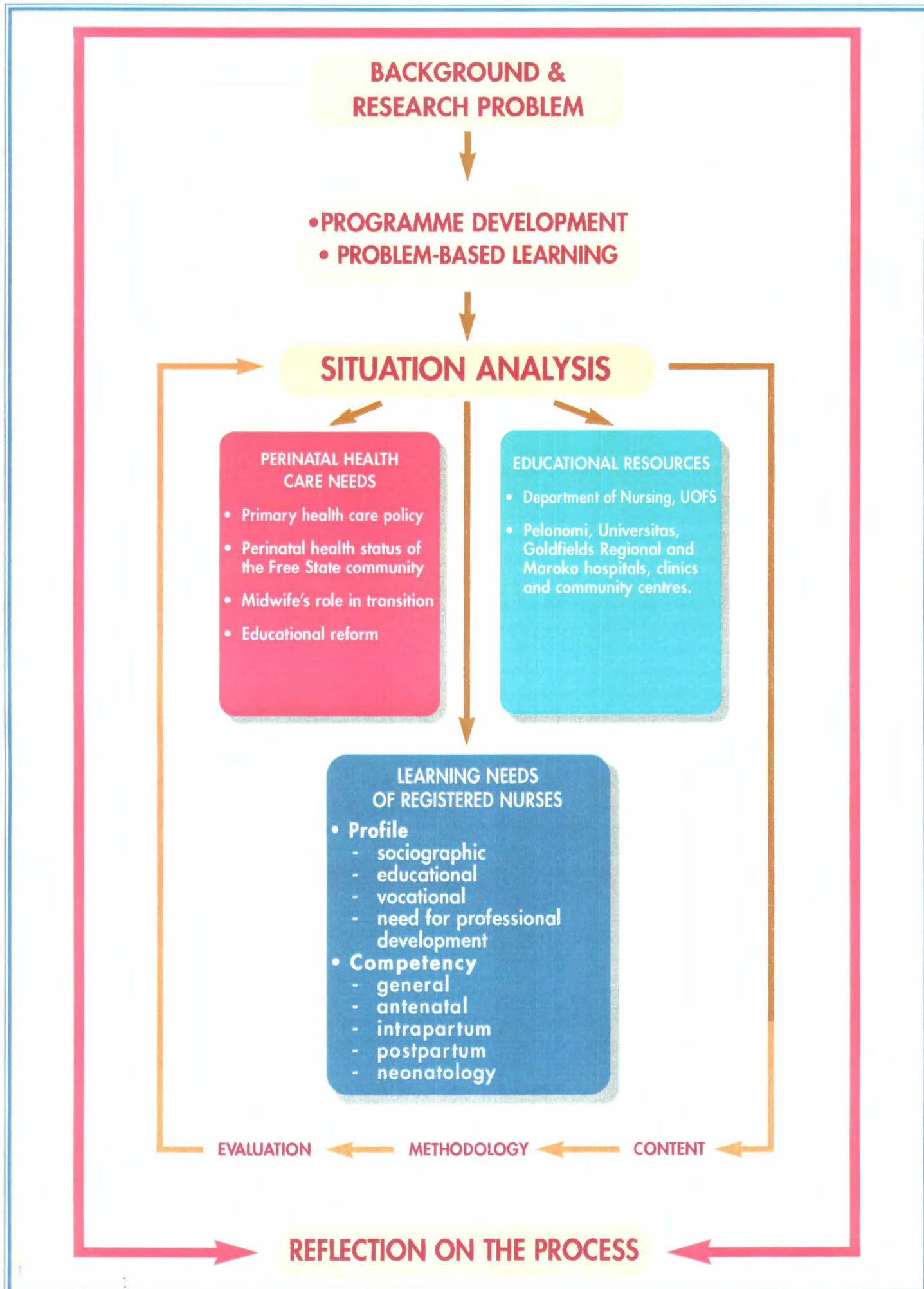


FIGURE 1.2: A schematic presentation of the course of the study

Maternal death

Arises from any cause while pregnant or within 42 days of the end of pregnancy (even abortion or ectopic pregnancy). For international comparisons, the World Health Organization divides the postbirth period into two periods: 1 to 7 days and 8 to 42 days.

Maternal mortality rate

The number of all maternal deaths per 100 000 pregnancies that ended within the specific year.

Infant mortality rate

The number of deaths in the first year of life, including the first 28 days, per 1 000 registered live births in the same year.

Neonatal mortality rate

The number of deaths from birth and the first 28 days of life per 1 000 registered live births in the same year.

Fetal mortality rate

The number of fetal deaths from 20 weeks of development to before birth per 1 000 live and stillbirths in the same year.

Perinatal mortality rate

The number of fetal and neonatal deaths (under 7 days) per 1 000 live and stillbirths in the same year.

Community

The World Health Organization's definition which is used in the context of community health nursing is applicable in this study viz.: a community is a social group determined by geographical boundaries and/or common values and interests (WHO, 1974a:7).

Perinatal care

Perinatal care is seen as the health care rendered to the woman and the fetus during pregnancy and labour and to the woman and baby up to six weeks after the delivery.

Midwife

The international definition is: A midwife is a person who has successfully completed a midwifery educational programme which is fully recognized in the country in which it was located, and who has obtained the qualifications to be registered and/or legally licensed to practise midwifery.

She must be able to give the necessary supervision, care and advice to women during pregnancy, labour and the postpartum period, to conduct deliveries on her own responsibility and to care for the newborn and the abnormal conditions in mother and child, the procurement of medical assistance and the execution of emergency measures in the absence of medical help. She has an important task in health counselling and education, not only for the patients but also within the family and the community. The work should involve antenatal education and preparation for parenthood and extends to certain areas of gynaecology, family

planning and child care. She may practise in hospitals, clinics, health units, domiciliary conditions or any other service (Dickason *et al.*, 1994:12)⁹.

Midwife with an advanced midwifery registration

The midwife who has an advanced midwifery registration with the statutory body is a professional midwife who has completed a master's degree or an advanced diploma in the speciality area of midwifery and neonatology and will usually be in a role to upgrade nursing practice in health care.

1.7 CHAPTER OUTLINE

The study consists of chapters set out as follows:

<i>Phase 1</i>	Literature review
Chapter 1	Background, problem statement and orientation to the study
Chapter 2	Programme development
Chapter 3	Problem-based learning
<i>Phase 2</i>	<u>Situation analysis</u>
Chapter 4	Research methodology
Chapter 5	Data analysis and conclusions

⁹ The South African Nursing Council does not have a specific definition of the midwife or midwife with an advanced midwifery registration.

Phase 3

Development and implementation

Chapter 6

Production, implementation and evaluation

Phase 4

Reflection on the process

Chapter 7

Reflection on the process, conclusions and recommendations

CHAPTER 2

Programme development

2.1 INTRODUCTION

The process of designing, implementing and evaluating a course or curriculum is notoriously a difficult one, due to its complexity (Harden, 1986:459). The process requires a sensitivity to the academic setting of the project, an awareness of the capabilities, interests and priorities of the students the programme is designed to serve, a knowledge and appreciation of the discipline, an understanding of the resources and options available to the academic staff involved and an understanding of those instructional goals required of all students (Diamond, 1989:5-6).

Curriculum models such as Nickholls and Nickholls (1978), Tyler and Taba (1962), Torres and Stanton (1982), Calitz, Du Plessis and Steyn (1982), Wheeler, Walker, Torres and Yura (1986) are frequently discussed in the literature (Joubert, 1990:44; Uys, 1982:14).

In this Chapter the programme development models of Bandaranayake and Irvine (1985:9), Diamond (1989:7), Du Plessis, D.W. (1992:142) and Du Plessis, S.J.P. (1993:59) which influenced the development of the Advanced University Diploma in Midwifery and Neonatology as well as the appropriate phases, elements and concepts will be discussed.

2.2 PROGRAMME DEVELOPMENT MODELS

Important concepts of the programme development process are the cyclical character and the interdependence of elements (Torres & Stanton, 1982:16; Du

Plessis, D.W., 1993:142; Du Plessis, S.J.P., 1993:59). The cyclical character indicates that the process is never completed and that evaluation is partially the situational analysis of the following round. These concepts and elements in the programme development process are demonstrated in Figure 2.1

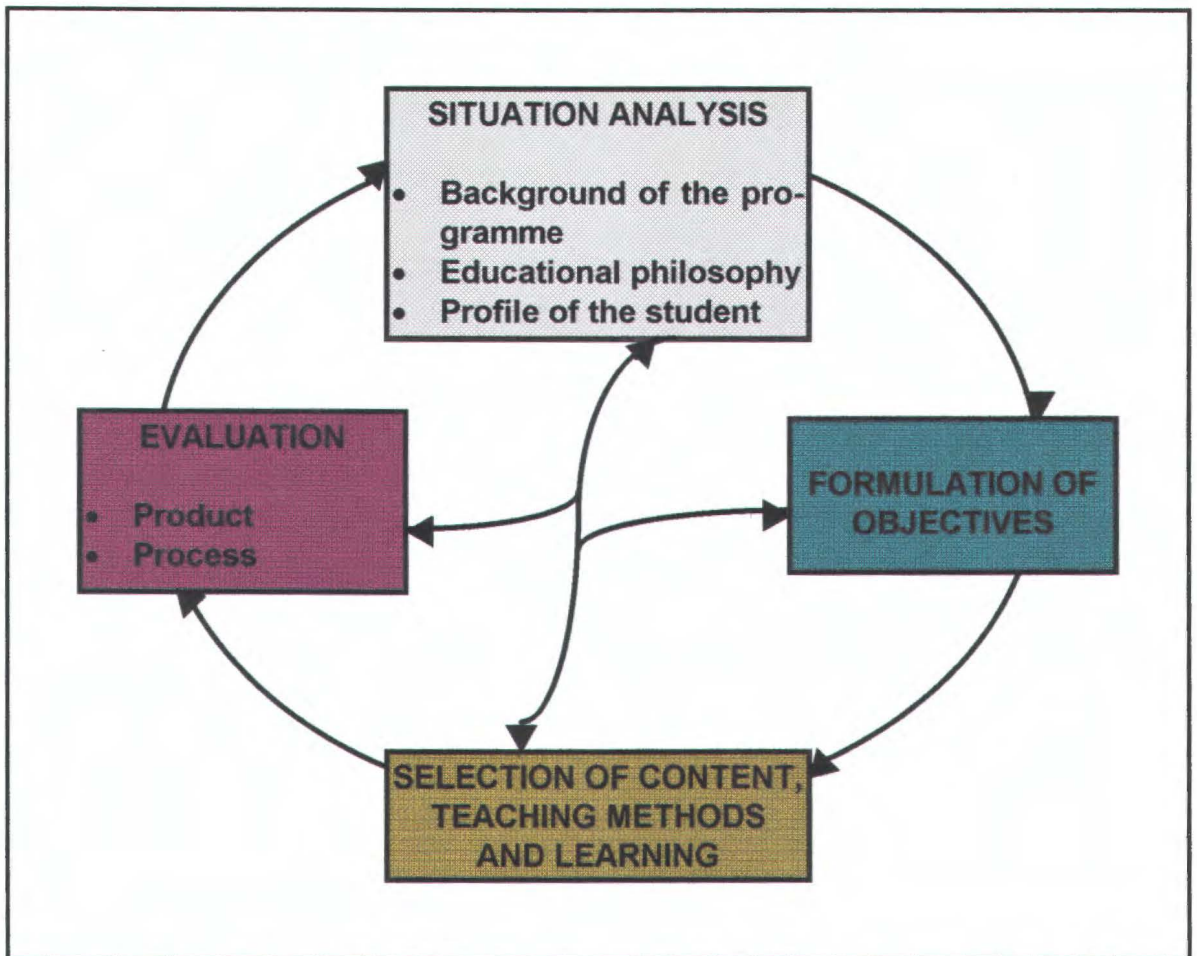


FIGURE 2.1: Generic steps in the programme development process (Du Plessis, D.W., 1993:142; Du Plessis, S.J.P., 1993:59)

However, Diamond (1989:7) developed an educational programme development model in much more detail over a period of two decades (Figure 2.2). Du Plessis, S.J.P. (1993:59) also refers to this model. This model is politically sensitive, encourages the use of diagrams to show structure and content, relies heavily on the use of data, forces those using it to think in ideal terms and encourages the team approach.

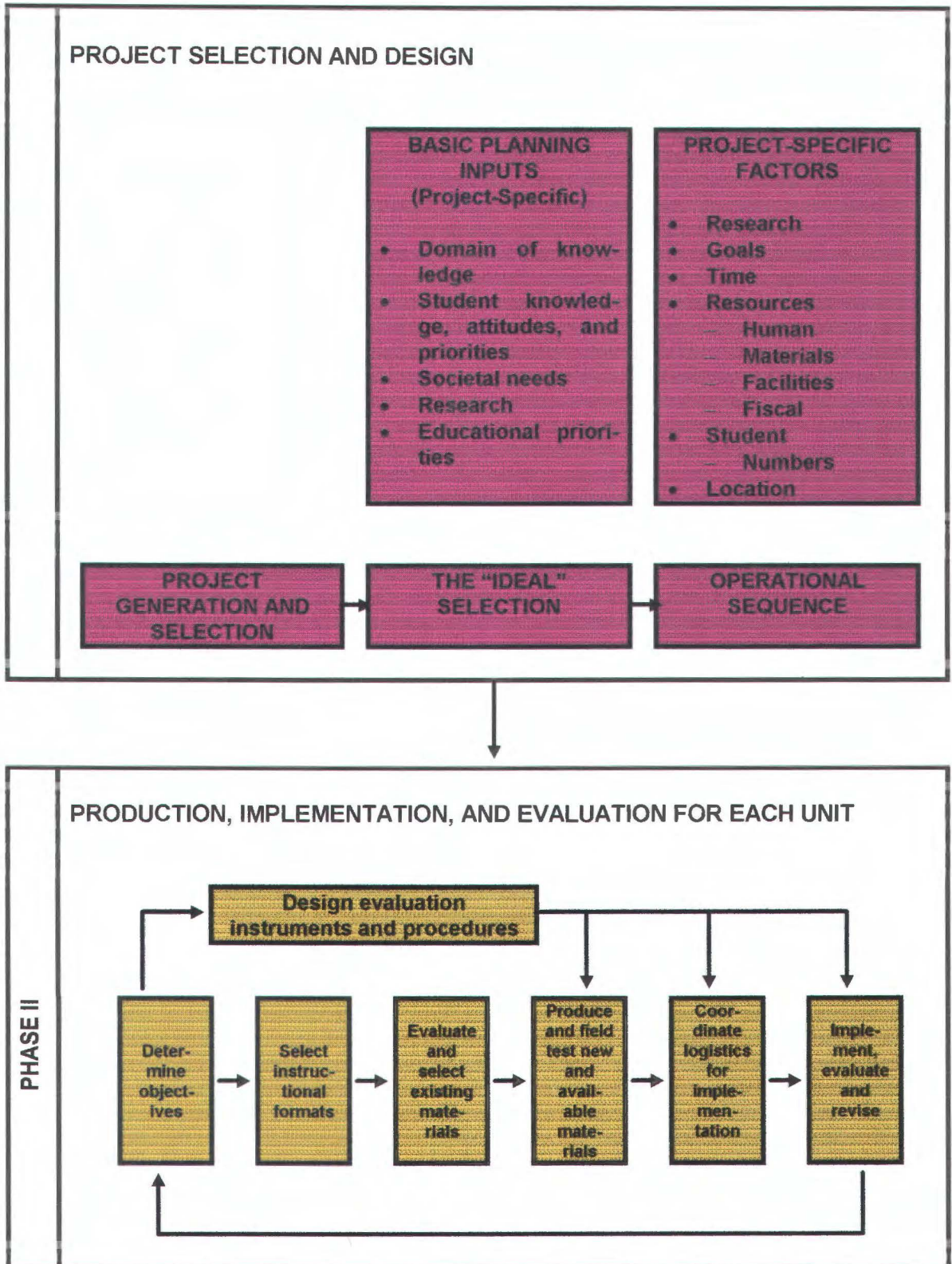


FIGURE 2.2: Diamond's (1989:7) process for Educational Programme Development

This model demonstrates two phases in the development process: the project selection and design and the production, implementation and evaluation of each unit. The initial goal of the design phase is to develop the ideal course or curriculum. When completed, the diagram that is developed represents the best possible instructional sequence for meeting the goals of the course or programme.

Bandaranayake and Irvine (1985:6) refer specifically to the development of a health education programme, and emphasize the design phase. They state that good programme design is an essential component of an effective education programme. Poor results can be the consequences if thorough programme planning is lacking. Every educational activity which is considered should be thoroughly planned to ensure systematic design of the total educational intervention. According to Bandaranayake and Irvine (1985:6) systematic planning involves the need to consider goals, strategies to achieve those goals and evaluation to determine if the goals are being or have been met, in this specific sequence. The same authors state that this sequence should be followed at various levels in health educational planning to ensure that the programme meets society's needs. These levels include health needs of the community, health manpower development to meet those needs, the contribution of the institution to meet those manpower needs and the contribution of each teacher in the institution towards its goals. Bandaranayake and Irvine (1985:6) summarize these relationships as demonstrated in Figure 2.3.

Programme development for health education thus involves the most effective use of structures, content, methods and human and material resources.

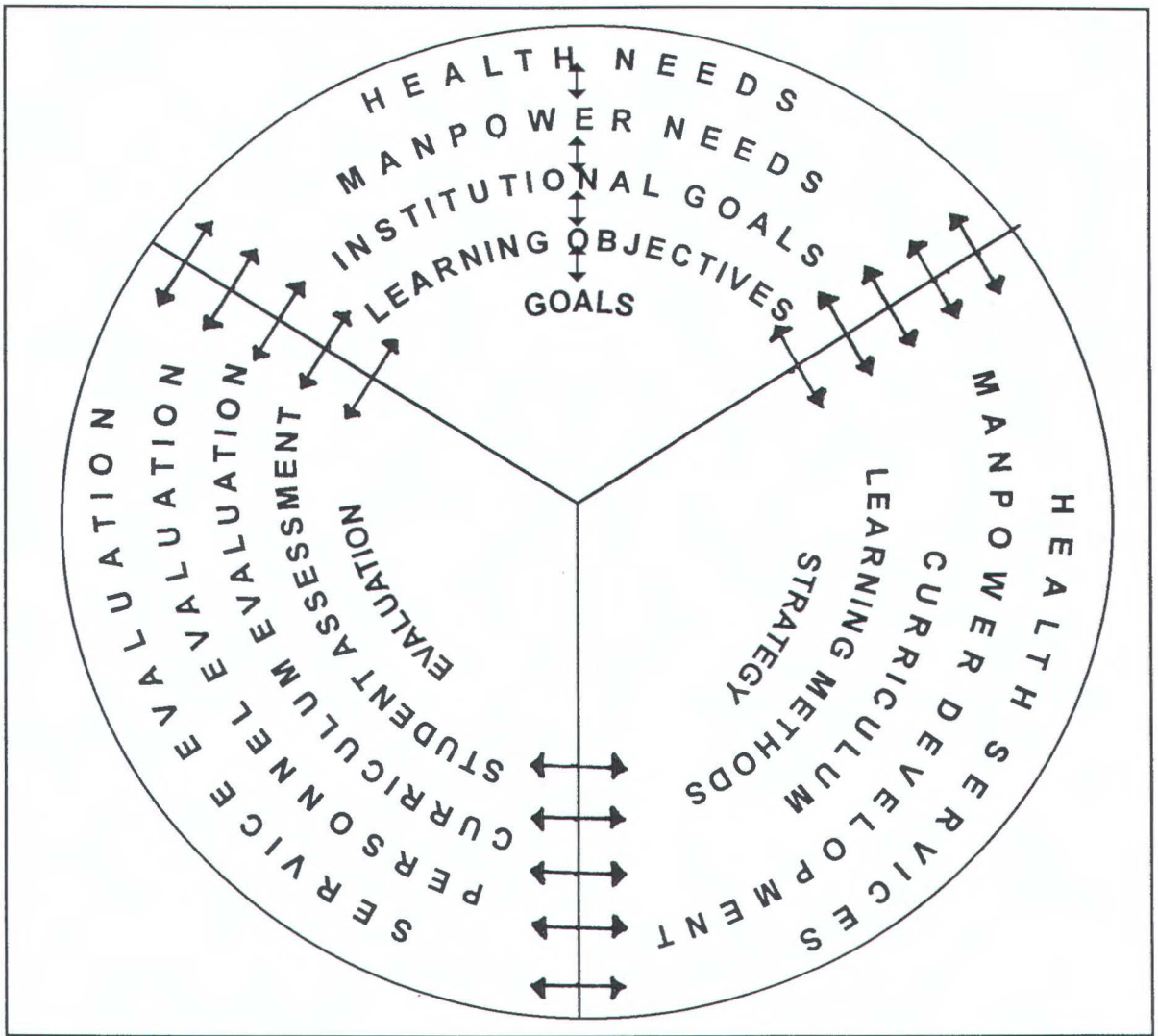


FIGURE 2.3: Systematic planning in health education (Bandaranayake & Irvine, 1985:6)

2.3 PROGRAMME BACKGROUND

While most models for course or curriculum design identify a formal needs assessment as their first step, this is actually not where projects usually begin (Diamond, 1989:21). A systematic needs assessment occurs only after some person or group has concluded that a problem exists. A formal needs assessment defines the problem in specific terms and generates specific information that will be required in the design phase of the project.

Projects begin for a variety of reasons (Diamond, 1989:21): Academic staff may be convinced that the content is outdated; graduates may not be prepared for their career choices; academic staff may become increasingly concerned with their students choices or perceive a lowering in the quality of their students; projects are undertaken as a direct reaction to external concerns or a project may begin when a academic staff member becomes intrigued with a new instructional approach. Whatever the reason for programme development, Diamond (1989:21) advises educational institutions to make sure that those involved are committed and the necessary support exists before a formal needs assessment or situation analysis is mounted.

2.4 THE SITUATION ANALYSIS

Once a decision has been made to begin a specific project, basic data must be collected. The data collected at this point are extremely important to define required and optional elements of the programme, determine if remedial units or exemptions are appropriate and form the basis for selecting basic content and determining instructional objectives (Diamond, 1989:47).

Different approaches can be used to collect data for a situation analysis, such as a written approach and a verbal approach.

O'Connor (1986:93) discusses a variety of methods contained within the written approach. These methods include:

- (1) checklists, which are structured questionnaires. The major disadvantages of this approach lie in the fact that the learner may not concentrate on the content, or important items might have been left out; and
- (2) written analysis of jobs and skills can be done by using existing job descriptions as a basis. This may not necessarily reflect learning needs.

The same author also describes certain verbal techniques, such as:

- (1) interviews, which can be used for groups and individuals, but the lack of anonymity may be distracting in group context; and
- (2) surveys, such as telephone surveys, which can be conducted in order to establish needs, the findings of which may be difficult to order and categorize.

Keogh (1992:152) mentions other approaches, such as the observation technique, which involves actual observation of the person at work, as well as performance appraisals and job analysis; the record analysis based on statistical and patient records; and a trend analysis, with an analysis of recent professional development and publications as a basis for establishing learner needs.

Skilback's situational analysis model recommends that an analysis of internal and external factors be conducted (Pendleton & Myles, 1991:61-62). Internal factors refer to the educational institution only, while external factors refer to three distinct populations, namely:

- (1) The students;
- (2) the community utilizing the services; and
- (3) the employing body.

Diamond (1989:47) specifies that data must be collected in five areas as one begins to work on the actual design of the programme:

- (1) The characteristics or profile of the students - their background, abilities and priorities;
- (2) the desires and the needs of the community or society;
- (3) the educational priorities of the institution, school or department;
- (4) the domain of knowledge that is appropriate to the scope of the project; and
- (5) related research.

It therefore seems that the main areas of data collection or needs assessment are the educational institution, the community or society and the students.

2.4.1 Educational institution

The researcher is of the opinion that data on the educational institution should be collected first. It is necessary to conduct a feasibility study in the educational institution, in order to determine whether the proposed programme can be presented by the institution (Raulf & Ayres, 1987:12-17; Winstead, 1987:30-35).

Institutional priorities provide useful information and should be identified, because the educational institution has priorities that directly affect the design of a curriculum and the courses within it (Diamond, 1989:61). For the same reason, it is also important to state clearly the mission of the institution, programme or department as well as the objectives of the institution.

Several kinds of resources may be needed and can be utilized. The first is human resources.

Data regarding the number of instructional staff and their strengths in subject matter and teaching should be gathered. This will determine whether courses will be taught by a single academic staff member or a team. The domain of knowledge is described by the same author as the most basic design input. It is therefore important to select instructional staff to ensure that the content and scope of the programme are as contemporary and academically sound as possible. If expertise is missing in a specific required area, pre-packaged self-contained instructional units, part-time staff, academic staff from other disciplines or experts from the community can be used (Diamond, 1989:111).

The second type of resource is material, from traditional instructional materials and techniques to museums and art galleries. All resources should be examined

for possible use. According to Diamond (1989:111) commercially available programmes or computer-based units, if effective and designed for the specific population involved, are ideal for remedial work. Material resources can be commercially bought or can be developed specifically for the education programme being planned.

Space and fiscal support capabilities may also force major changes in the design and content of a programme if it cannot meet its logistic needs (Diamond, 1989:111). The size of the lecture halls, their effectiveness for use of media, their appropriateness for specific teaching methods, for example group work and their availability should be taken into account.

Educational institutions have budgets. The amount of money available and the restriction on its use will affect the development, implementation and evaluation of a programme (Diamond, 1989:112). For example certain funds may only be available for the purchase of equipment and materials. According to Diamond (1989:112) the ideal is to have maximum flexibility, *“the fewer the constraints, the greater the freedom in developing the instructional design”*. In reality, however, most funding is specifically limited regarding how and where it may be spent. Despite the growth in the number of post-graduate programmes, the majority of university-based programmes are of a modest size. When budget cuts are made, adult education is often particularly vulnerable.

2.4.2 Community

A major area of data collection is outside the institution (Diamond, 1989:54). Community sources not only identify competencies required for success in a field, but they can also provide insight into whether or not these instructional goals are being met. It is important to identify *“specific”* communities (the consumer and the professional community) served by the programme (Joubert, 1990:52; Keogh, 1992:151; Du Plessis, D.W., 1993:144; Lyman, unknown:11).

In some instances it is the local area or a particular section of the state, in others it may be a national or international body of professionals. Diamond (1989:60) warns that projects have failed, because this source has been overlooked.

Health education is challenged to meet the changing expectations of society. Therefore, it is important to include the population that will utilize the health service in the situation analysis.

Communities are no longer merely consumers of health care services. They can and should play more prominent roles as resource persons for multiprofessional health education - especially for students drawn from, and learning in underserved communities (Feletti, 1994:1). Bandaranayake and Irvine (1985:8) support this statement by stating that the appropriate place to start designing a training programme for health personnel is to define and evaluate the health needs of the community in which the graduates will work.

Consumers are able to identify those aspects of health they value most. In the past mismatches between education and consumer needs have resulted in education programmes not appropriate for the health needs of the community.

The involvement of consumers in the education of health care personnel has the benefit of an additional member who can assist in the provision of effective, efficient health care; and an extension of their role in managing health care resources.

General needs can be assessed at the national level, while specific needs for health care services can be determined at a regional level (Du Plessis, D.W., 1993:144). A systematic approach to the assessment of the needs of the community is to study the indicators of the health status of the population in question. Frequently used indicators of health include: infant mortality rate, life expectancy, prevalence and incidence of given diseases, rate of supply of drugs, rates of use of health care facilities and days of work lost. By careful observation

and monitoring presenting complaints to health care personnel, and by analysing data collected by record keepers, a profile of the health status of the community can be developed. However, Bandaranayake and Irvine (1985:8) state that this is not identical to needs analysis, because it does not describe what is required in order to improve health status. Needs are determined by interpreting data about health status, and matching conditions with alleviating factors.

Once the health needs have been determined a value is placed on them. This is a necessary step in setting priorities, as it is not possible, for logistic and usually financial reasons to implement many programmes at once (Bandaranayake & Irvine, 1985:8).

According to these authors there are several factors to be taken into account when setting priorities for the provision of health services:

- (1) Is there a generally accepted intervention which will diminish the need, e.g. does a solution to the problem exist?;
- (2) Are some of the programmes requested desirable but not really needed as much as others? e.g. it is possible to distinguish among needs, wants and demands; and
- (3) Do the needs expressed fit with already determined priorities - e.g. National Health Plan?

According to Bandaranayake and Irvine (1985:10) the focus for training can only be determined by analysing the utilization of the manpower in service. They identify the next step in systematic educational planning as focusing on a programme in order to prescribe the work that needs to be performed and the interrelated roles of different health personnel who would perform this work. A task analysis evolves and from it, training needs can be described. After training needs have been defined, the focus can move to overall curriculum objectives

for the programme, with the emphasis on graduate competencies. Educational objectives that have been directly derived from the expected professional profile for the category of health worker considered, indicate the relevance of education to community health needs (Guilbert, 1984:134).

2.4.3 Students

An overview of the literature emphasizes the importance of including the student population in the situational analysis. Uys (1982:5), Nolte (1985:103-104), O'Connor (1986:79-82), Allen (1990:315), Keogh (1992:149) and Du Plessis, D.W. (1993:143) discuss the necessity for including the potential student population in the assessment.

Matiru *et al.* (1995:43) recommend that data to be gathered about students include:

- Academic background and experience;
- Motivation;
- Learning styles and habits;
- Demographic information; and
- Individual performance.

According to Du Plessis, D.W. (1993:143) a profile of students includes an estimate of the number and a description of the potential students and their specific learning needs.

Diamond (1989:42) also emphasizes assessing demographic data about students and, when appropriate, their professional field. The data collected about students is a major factor in the overall project design.

The actual knowledge of students on entering a programme is important. Academic staff commonly overestimate skills, prior knowledge and competencies of students. They assume that their students have the prerequisites that their

courses require. This gap between what is expected and what actually exists is significant in areas such as writing and specialized science vocabularies and is sometimes the cause of failure of students. Diamond (1989:47) refers to other studies and states that insensitivity to students' backgrounds, interests and needs is a primary reason that many students feel dissatisfied with or leave their institutions.

Attitudes of students towards a specific course or field of study influence what they learn. To produce the attitude necessary to improve students' performance, the content of the course can be related to the interest of the students. The students' priorities, expectations and long-range goals should thus be built into the programme. Indeed, mismatch between the learner and the content or approach to the teaching of a subject will not optimize learning (Matiru *et al.*, 1995:40).

Without any form of needs assessment, education becomes teacher-oriented and directed. Needs assessment is important to obtain information to determine the nature, extent and priority of educational needs to develop courses.

Murray (1982:18) supports these statements and adds that the teacher's primary function is to diagnose learning needs and problems and together with the student plan strategies that will result in success for the learner. When one is learning what one wants to learn, and can use any resources available and any method that one chooses, learning and growing are life.

Laidlaw, Harden and Morris (1995:80) state that a key step in the development of any educational programme is a needs assessment. It involves identifying the gaps between current knowledge and desired practice. Remedying these deficiencies is the aim of an educational programme (Figure 2.4). Only if these gaps are recognized is it possible to be confident that the aims and design of the educational programme are appropriate.

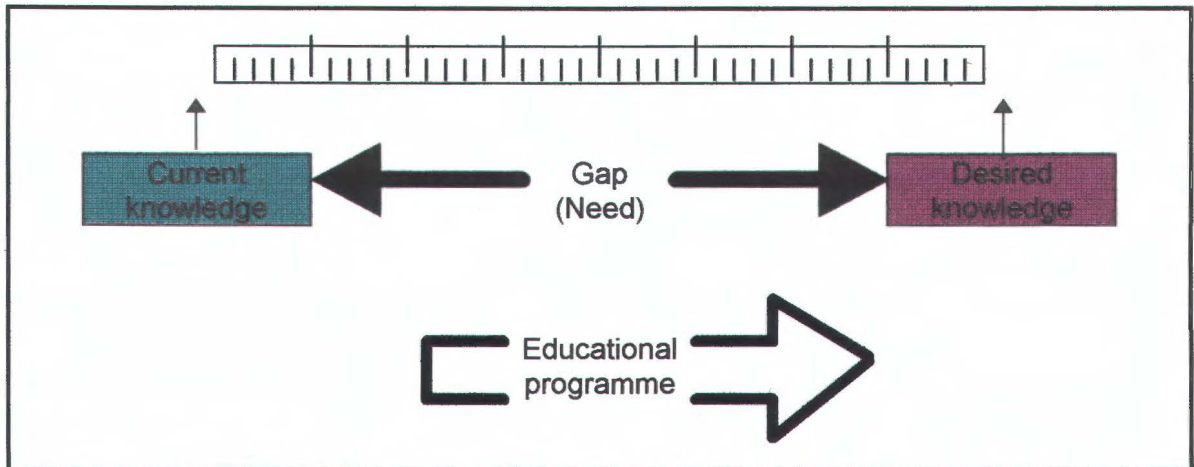


FIGURE 2.4: The gap between desired and actual knowledge
(Adapted from Laidlaw *et al.*, 1995:87)

Matiru *et al.* (1995:43) refer to an educational need as a discrepancy between an existing set of circumstances and some desired set of circumstances. These discrepancies can be described in terms of:

- knowledge
- attitude
- performance or
- setting

Needs assessment is not the responsibility only of the teachers. As many universities move towards open and self-learning programmes it becomes increasingly important for students to undertake needs assessments themselves.

Matiru *et al.* (1995:40) recommend that the lecturer should ask the following questions: who are my students; what do my students need to learn; what do they want to learn and how may they best learn, while the student should ask: what do I need to learn, what do I want to learn and how can I best learn?

The authors emphasize the importance of selecting the means, solutions and processes to close the gap between desired knowledge and actual knowledge only after first identifying the needs.

The summary of training needs should establish the main areas and priorities for training (Bandaranayake & Irvine, 1985:11). By doing this, the curriculum planner will ensure that the needs and interests of the learners are being met, thus creating an appropriate educational programme. A needs assessment is essential before consideration can be given to the content, or the educational strategies to be adopted in an educational programme (Laidlaw *et al.*, 1995:87). It is part of the first step in the development of an education programme.

A needs assessment is an integral part in the planning of educational activities and in reviewing and evaluating their effectiveness. It is just as important when preparing lectures or seminars as when designing an entire programme. If at the outset you do not understand the educational needs of students or those of the society from which they come, you may address them wrongly (Matiru *et al.*, 1995:40).

Needs assessment can be used to identify relevant problems and to focus on areas of maximum benefit to individual students, lecturers, the community and in the long run, the university as a whole (Matiru *et al.*, 1995:40). It is a critical part of a systematic approach to developing educational projects (Laidlaw *et al.*, 1995:80).

Once the outline of the course is complete, the production, implementation and evaluation activities begin (Diamond, 1989:123). During this phase:

- Objectives are specified;
- Evaluation procedures and instruments are developed;
- Methods or strategies of instruction are chosen;
- Materials are selected and/or developed;
- New units/materials are field tested (when possible);
- The programme is implemented, evaluated and when necessary, revised.

2.5 EDUCATIONAL OBJECTIVES

Educational objectives are equivalent to learning objectives: that is, they should be learner-orientated (Guilbert, 1984:135). Learning objectives form the base on which curriculum planning will take place (Bandaranayake & Irvine, 1985:11).

Definitions of educational or learning objectives are numerous: intended change brought about in a learner, a statement of what students ought to be able to do as a consequence of instruction, explicit formulations of ways in which students are expected to be changed by the educative process, what students should be able to do at the end of a learning period that they could not do beforehand, and operationalisation of situation analysis and philosophy (Uys, 1982:33; Guilbert, 1984:134). Whatever the definition, there is little question that in determining whether or not academic programmes are successful, the goals of academic programmes, courses and curricula must initially be determined. What students must be able to do must be explicitly formulated. At completion of the instructional process mastery of the objectives is assessed (Diamond, 1989:125; Guilbert, 1984:134).

The choice of objectives for a programme is based on interaction between characteristics of the system and the values of the persons in the system (Uys, 1982:19). Objectives are also called "*operational*", "*behavioural*", "*general*", "*ultimate*", "*institutional*", "*intermediate*", "*specific*" and "*terminal*" depending on their level of specificity. They are also qualified as cognitive, psychomotor or affective depending on the domain concerned (Uys, 1982:33; Guilbert, 1984:135; Bandaranayake & Irvine, 1985:11; Keogh, 1992:153; Du Plessis, S.J.P., 1993:86). Bloom's work on the level of familiarity with the subject matter on the cognitive level is well-known (Van der Merwe, 1980:11; Du Plessis, S.J.P., 1993:86; Halpern, 1994:95; Bitzer, 1996:55). The aim of the taxonomy of Bloom is the hierarchical structure it provides on six levels, namely knowledge, comprehension, application, analysis, synthesis and evaluation. The taxonomies

on the affective (Kratwohl) and psychomotor domains which developed later are less well-known (Keogh, 1992:157; Du Plessis, S.J.P., 1993:86).

According to Uys (1982:38) an objective must contain three basic elements to be useful:

- a verb that describes performance or an observable action;
- a description of the specific condition under which this action will take place; and
- the level of acceptable performance or standard that must be achieved by the student.

Keogh (1992:159) refers to a fourth component of a good objective namely:

- it must deal with one learning outcome at a time.

Guilbert (1984:138) states that the quality of specific learning objectives is determined by relevancy, unequivocability, feasibility, logic, observability and measurability.

In order to ensure relevance of learning objectives to community health needs, they should be directly related to the professional profile of the health worker concerned (Guilbert, 1984:135): General objectives correspond to the professional functions, intermediate objectives are arrived at by breaking down professional functions into components which indicate the nature of the professional activities and specific objectives correspond to the precise tasks whose results are observable and measurable against given criteria.

Objectives must result from a collective effort between teachers of disciplines, practitioners, education specialists, consumers, administrators and students (Guilbert, 1984:139). The author states that objectives help planners to design a more relevant and efficient educational programme, they provide visibility and accountability regarding decisions made by teachers and learners, they allow

the teaching/learning process to become a more co-operative effort between teacher and student and they facilitate students' learning.

The educator developing a curriculum must be very clear on what must be achieved through offering a programme and when learning objectives are prepared for a training programme it is important that they be clear to students as well. This clarity will ensure acceptance by other educational institutions (Keogh, 1992:153).

Guilbert (1984:140), Diamond (1989:132-134) and Bitzer (1996:58) refer to limitations of objectives. Some objectives cannot be measured within the time and programme limitations, overused behavioural objectives can limit creativity and developing objectives should not become a substitute for improving the learning situation.

2.6 CONTENT SELECTION

The programme development process (Figure 2.1) indicates that the formulation of objectives directly influences the content of a programme or course.

Content selection is determined by the objectives and is influenced by the needs of the community, the ability, level of knowledge and needs of students and the domain of knowledge (Du Plessis, S.J.P., 1993:94). Content must be selected with a good scientific balance between the university's mission and aims and the expectations of the community, science and professions.

In most professions, formal studies are being conducted to determine what content is appropriate for the field (Diamond, 1989:63). Discipline journals that include articles on teaching and curriculum are often excellent sources of information on recent studies related to content. The future direction of the profession should not be overlooked. According to Diamond (1989:63) a new programme must be future orientated and based, if it is to be successful.

Only essential learning content should be selected, as Du Plessis, S.J.P. (1993:94) warns that content overload causes superficialization. Bitzer (1996:70) refers to specific criteria for content selection, for example amount of content in the course, the relevancy of the course, the level of difficulty of the content and the validity of the content. According to Uys (1982:42) the following are criteria for selection of content:

- valid and meaningful
- socially relevant
- balance between depth and width

Traditionally content is sequenced from:

- known to unknown
- simple to complex
- concrete to abstract
- basic to applied
- normal to abnormal
- example to principle
- theory to practice
- analysis to synthesis

The possibility exists, however, for each of these approaches to be reversed. An example of reversal is problem-based learning (Bandaranayake & Irvine, 1989:11; Bitzer, 1996:57).

In conclusion, Keogh (1992:159) refers to the knowledge explosion that has occurred since the beginning of the century. This necessitates a future direction when content for any curriculum is selected, as knowledge becomes obsolete within a short period of time. A future orientation will ensure that the lecturer will pay continuous attention to the selection of content based on recent developments in the field of study.

2.7 TEACHING METHODS AND TECHNIQUES

The evaluation of teaching strategies is important throughout education. It has assumed even greater importance within the past decade during which time continuing education for adults has become a necessary activity in response to the knowledge explosion. Teaching strategies must not only increase knowledge but also create within the students the desire to continue to expand their knowledge (Murray, 1982:17).

According to Harden (1986:20, 356) one of the questions one should ask of a new course or curriculum is whether the educational environment encourages scholarship, propriety, social awareness and co-operation between students.

2.7.1 Student characteristics

Another question one should ask one's self is what should characterize the graduates in a programme (Battersby, 1994:2). The desirable characteristics of quality that manifest in graduates should be a blend of generic skills, attributes and values and the acquisition of a body of knowledge and professional/technical or other job-related skills. The types of generic skills envisaged are critical thinking, intellectual curiosity, problem solving, effective communication and creativity. The body of knowledge relates to the acquisition of a theoretical base which can provide the context for the development and refinement of generic skills, attributes and values. The third characteristic, professional/technical skills, includes the ability to work with little supervision, applying learning to practical situations and certain occupation specific skills.

Crebbin (1994:28) nominated

- communication skills;
- capacity to learn new skills and procedures;
- capacity for co-operation and teamwork;
- ability to apply knowledge to workplace; and

- capacity to work with minimum supervision as the competencies which were expected of graduates.

In addressing the relationship between competencies and the characteristics of graduates in the context of higher education, the two issues are synonymous: the generic skills, attributes and values of graduates and their competencies, are the concerns which are the foundations of universities and touch all their key functions.

2.7.2 Vocational demands

Students will face changes in the workplace (Halpern, 1994:11). The changing nature of South African society and the world stresses this. It is thus important to move from emphasis on knowledge of content, which is quickly outdated, to an emphasis on the processes of thinking, learning and questioning. This switch from content to process is required by the massive changes in what university students need to know and need to be able to do when they leave the university if they are to succeed at a time when the only certainty is the rapidly accelerating rate of change.

2.7.3 Student profile

University students are also changing. Never before have teachers encountered the challenge of such diversity:

- age;
- students, who are parents;
- marital status difference;
- living at home; and
- commuters.

The greater variety of cultures, with different traditions and diverse viewpoints in classrooms make further demands on the universities. Changing technologies

and demographics require that the way teaching and learning are achieved must also change. A need to develop instructional strategies that are responsive to the voices of an increasingly diverse student population that brings to the classroom an ever broader range of learning styles and ways of perceiving information, challenges university staff (Waters, 1990:323; Halpern, 1994:12).

2.7.4 Active learning

Learning rarely, if ever, occurs passively. Halpern and Associates (1994:11) quotes that *“effective instruction focuses on the active involvement of students in their own learning, with opportunities for teacher and peer interactions that engage students’ natural curiosity”*.

Ideas about the need for students to be active learners are not new. They have been spelled out and argued for, since the beginning of the twentieth century by writers on pedagogy such as Dewey (1902, 1938, 1956) and supported by arguments for education for social justice (Freiere, 1970, 1985) to name but a few (Pelausa & Marsan, 1993:422; Battersby, 1994:2). Whilst there is a wide range of interpretation of what active learning means in practice, generally this approach to education does not depend on expert engineering of instruction, but on the creation of conditions which make it necessary for students to take an active share in building questions and in participating in means of resolving them.

The active and motivated nature of learning is not optimized in the traditional style of classrooms where students sit quietly, passively receiving words from the lecturer in front of the class. Bevis and Murray (1990:329) and Halpern (1994:15) refer to contemporary constructive models of learning and state that knowledge cannot be transmitted from one person to another in such a passive way.

Information is passed from one to another in books, journals, computer disks or from one person to another. Knowledge on the other hand is a state of understanding and can exist only in the mind of the individual learner. It must be constructed by each individual through a process of making sense of new information in terms of existing knowledge and previous experiences (Halpern, 1994:15).

Research examines how students think, learn and can effectively be taught. Knowles (1990:43-44) compared pedagogy, the education and teaching of children, with andragogy, the science of education of adults. In pedagogy the learner is dependant on the person providing the education. What is distinctive in andragogy is that the learner is self-directed, independent and has accumulated many and varied experiences as a base for a new level of learning readiness. The learning is thus a voluntary, purposeful effort at self-development.

These findings about teaching and learning are useful in the production and implementation stage, but they can also significantly affect the overall structure of the programme. They therefore have a strong influence on the teaching methodology.

According to Bandaranayake and Irvine (1985:12) the approach that seems to be most appropriate when teaching health professionals, is a comprehensive one which particularly builds on adult learning theory (e.g. Knowles), but acknowledges the work of theorists such as Kelly, Friere, Bandura and Giagne, who stress the interaction of the student with the learning environment both without and within the formal educational setting.

New ways of learning emphasize active questioning and co-operative group activities that keep students involved with the material they are learning. In order to optimize learning, the teaching method should help students in activating prior knowledge, provide a context that resembles the future professional context as

closely as possible and stimulates students to elaborate on their knowledge (Pelausa & Marsan, 1993:421). The main point is that students must play an active role in their education.

Battersby (1994:2) recommends a range of learning experiences, including problem posing and problem solving, all of which require students to be actively involved in a wide range of ways of thinking including data collection, inquiry, imagination, creative thinking, reflection, formulating solutions, social interaction and communication. Once again, these arguments are gaining momentum all-be-it for different reasons. Battersby (1994:2) states that perhaps the most visible influence in bringing active learning forward in higher education in the 1990's is the shifting discourses around 'life-long-learners' and 'competencies'.

Teaching students to critically analyze issues can enable them to take more control over both their own learning and their own destiny - they become self-directed rather than following the directions of others. This sense of personal control can be particularly lacking in disadvantaged and minority students and when such students reach the university level, many are at risk academically (Halpern, 1994:15). Learning how to think critically can improve their academic performance, can help them gain control over their learning, and may even make the difference between dropping out of university and staying in.

It is clear that one of the major functions of the tertiary educational system should be to teach students to think critically. This can promote empowerment and autonomy.

In the educational strategy of the U.S. Department of Education, 1990, one of the main objectives for higher education is to increase the proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively and solve problems substantially (Halpern, 1994:15).

2.8 EVALUATION

Evaluation is the process by which the persons involved in the education assess to what degree the aims and objectives of education and learning have been reached (Du Plessis, S.J.P., 1993:155).

The fundamental purpose of evaluation is to assess the effectiveness of the education programme so as to improve the teaching/learning process (the institutional quality). To do this, it is necessary to review the objectives, the content and organization, the methods and the media and the evaluation process (Matiru *et al.*, 1995:270). The real beneficiaries of evaluation are academic staff and students (Halpern, 1994:273). Evaluation is intended to be a means to institutional improvement, but all too often becomes an end in itself. Particularly when institutions attempt to respond to external audiences, the act of gathering data can be mistaken for real improvement in student learning or programmes.

2.8.1 Types of evaluation

Evaluation can and should take many different forms. The literature suggests (Matiru *et al.*, 1995:272) that evaluation should be conducted at the beginning of and during the programme. Formative evaluation is used to monitor progress, guide learners, provide feedback, prescribe remedial work, and to ensure readiness to proceed to the next section (Hull, 1994:vii; Matiru *et al.*, 1995:271). According to Seefeldt (1996:1) properly conducted formative evaluation is a programme's best friend. It can scrutinize ongoing processes, test the fit between practice and plan, uncover trouble spots early, suggest new opportunities for sense and direction and enhance overall communication. Summative evaluation takes place at the end of the learning process and can be used to ensure competence, for certification purposes or to revise the programme.

Norm-referenced evaluation compares one person's performance with that of everyone else being assessed. This type of evaluation is commonly used in formal evaluations of every kind, but it may also be used informally and often unconsciously (Hull, 1994:vii). Criterion-referenced evaluation, on the other hand, assesses a learner against predetermined criteria (Du Plessis, S.J.P., 1993:158).

Evaluation can also be qualitative or quantitative. Quantitative levels of evaluation can be measured while qualitative evaluation involves making a choice, often based on values and attitudes, about what constitutes success for particular learners in their own way (Hull, 1994:vii).

2.8.2 Evaluators

Du Plessis S.J.P. (1993:155) specifies in the definition of evaluation that everyone in education must evaluate. Hull (1994:iv) agrees that the learner (self-evaluation), peers, the facilitator or teacher, other staff and the learner's clients must be involved in evaluation.

According to Matiru *et al.* (1995:270) programme evaluation can be done by internal or external evaluators. Internal evaluators may be subjective, but they have a good knowledge of the programme context and students' characteristics, while external evaluators are professionally well trained for the job, have wide experience gained by evaluating other projects and have no interests or weaknesses to protect. They are more objective than internal evaluators, but they lack knowledge of the university environment and internal processes.

Matiru *et al.* (1995:271) suggests that evaluators should work closely with staff and students in a process known as participatory evaluation for best results. Course participants then decide what should be evaluated and how the evaluation should be carried out.

2.8.3 Evaluation models

Evaluation refers to both the process of gathering data and the product of the data collection, such as when we speak of evaluation data. According to Du Plessis, S.J.P. (1993:156) process evaluation refers to the evaluation of the design and implementation of the education programme. The situation analysis is evaluated for adequacy and if it presents correct information. The aim of the programme, the courses and the course objectives, the course content, the teaching methodology and product are also evaluated. Product evaluation is the evaluation of the learning of the student.

Matiru *et al.* (1995:272-276) identify design, outline, content, teaching materials and methods, course monitoring and quality control as the areas in process evaluation.

An example of programme evaluation is the evaluation of the Gezira University Medical School Innovation (Seefeldt, Ahmed, Mustafa, Ali & Ali, 1988:32). External evaluation consultants worked with the staff in the evaluation process. The extensive programme evaluation extended over one and a half years and seventeen instruments were used to assess questions and issues in nine content areas.

Seefeldt (1996:17) presents a model of evaluation with the focal points of evaluation on the horizontal axis and on the vertical axis the loci for observation, namely the students, the personnel, the programme components, the context and the consumer. According to this author the four types of outcome variables (progress variables, enabling outcome variables, immediate outcome variables and long-term outcome variables) should be considered in a comprehensive evaluation effort attuned to programme development.

Sudweeks and Diamond (unknown:116-121) designed a comprehensive checklist to assist academic staff and administrators in the evaluation of a course.

Daniel Stufflebeam's well-known CIPP model of evaluation offers a particularly useful layout in considering the total cycle of activities from background research to final evaluation of outcomes related to the establishment of innovative programmes (Seefeldt, 1990:3). CIPP refers to **C**ontext, **I**ntput, **P**rocess and **P**roduct.

According to Seefeldt (1990:5) context evaluation has as its objective to define the institutional context, to identify the target population and assess their needs, while input evaluation is used for selecting sources of support, solution strategies and procedural designs and to provide a basis for judging implementation. Once a programme is in place process evaluation assures that the programme is proceeding as intended or as is optimal given contextual conditions. Product evaluation or outcome data is presented in programme objectives or intentions.

Regardless of the model followed, evaluation can be helpful at all stages of a programme (Seefeldt, 1996:9).

2.8.4 Methods and techniques

The evaluation methodology elected for process evaluation should match the questions that are being asked (Sudweeks & Diamond, unknown:115). Different evaluation methods and instruments can and should be used. According to Matiru *et al.* (1995:272) methods and instruments used in course evaluation are:

- (1) **Expert judgement** - course design, objectives, learning methods, instructional materials and student evaluation are reviewed by specialists;

- (2) **Library search** - literature review is done in preparation for evaluation, course design, course outlines and content;
- (3) **Questionnaires** - information from former students and their employers;
- (4) **Interviews** - structured or free discussion;
- (5) **Observation schedules** - evaluator in class or observation schedule; and
- (6) **Tests** - evaluate course design, teaching process and student performance.

Different methods and techniques are used in product evaluation. Du Plessis, S.J.P. (1993:157) mentions well-known essay tests, objective structured tests, oral and practical examinations.

However, as university staff are challenged with what, how, whom and where they teach, they are striving to create a more appropriate match between instructional setting on the one hand and desired student outcomes on the other. Students are being challenged to become active partners in the learning process rather than passive recipients of information. They are being challenged to understand the unique perspectives voiced in a classroom populated by students from different backgrounds. They are being challenged to take responsibility for their own learning. They are being challenged to assess their own learning process and outcomes. In doing so they are being challenged to develop those attitudes and abilities that will enable them to become lifelong learners (Halpern, 1994:291).

As necessary as it may be to respond to these challenges by changing teaching strategies, it is not sufficient. For in the process of creating change, it is also necessary to assess the impact of these changes on the teaching and learning process.

Assessing student learning while that learning is in progress is referred to as classroom evaluation (Halpern, 1994:292). The purpose of classroom evaluation is to improve the effectiveness of higher education in the classroom and it is an instructional tool in its own right - it is a teaching tool. Students are asked to reflect on what they do and do not understand about the material under consideration. This requires the student to engage in the metacognitive processes of monitoring and assessing their own learning. When lecturers share the feedback obtained with their students, it helps students *"improve their learning strategies and study habits in order to become more independent, successful learners"* (Halpern, 1994:293).

It is precisely this quality of independent, successful learning that lies at the heart of educating students. Through the process of classroom evaluation, students can become partners in the teaching/learning process, sharing responsibility for it and reaping its benefits.

It is important to realize that classroom evaluation differs from other forms of in-class evaluation. It is not like the usual classroom assignments, papers, quizzes or examinations. It is not graded. It is a way to improve both the learning and the teaching processes as they take place.

Another interesting evaluation method is portfolio evaluation. It refers to a selection of assignments that a student has assembled over some period of time (Halpern, 1994:306).

It can be used to determine a final evaluation for a course or programme. Or, if the essays are placed in chronological order the portfolio can show student's development. Although a portfolio should be ordered and purposeful, it can also be flexible. Portfolio writing improves student writing, it requires some metacognitive work: composing processes and development as writers over time.

Evaluation data and information must be processed after collection. This can be done manually or using computers depending on the type and amount of data. An evaluation report is usually written as the last step of the evaluation process (Matiru *et al.*, 1995:272).

No two evaluation designs will be the same. In each instance the evaluation must be structured to serve the information needs of those involved in the decision-making process (Sudweeks & Diamond, unknown:115). Limitations in time, staff and money determine evaluation.

2.9 SUMMARY

There is simply no single all - purpose programme design that fits all cases (Diamond, 1989:100). As students, academic staff, institutions, resources and disciplines vary, so must the programme that is being developed.

The background of the Advanced University Diploma in Midwifery and Neonatology was described in Chapter 1, as was the motivation why problem-based learning was chosen as a teaching methodology. In Chapter 3 problem-based learning will be discussed.

CHAPTER 3

Problem-based learning

3.1 INTRODUCTION

The evaluation of teaching strategies is important throughout education. It has been historically important in the education of children and youth, as they proceed through the pattern of required and optional education programmes. It has assumed even greater importance within the past decade, when continuing education for adults has become a necessary activity in response to the knowledge explosion. It is vital that not only must teaching strategies produce an increase in knowledge, but also should create within the student the desire to continue to expand his own horizons (Murray, 1982:17).

Problem-based learning is such a strategy. Some of the highlights in the history of this teaching strategy will be discussed¹.

3.2 HISTORY OF PROBLEM-BASED LEARNING

In the 1960's and 1970's McMaster University in Ontario, Canada probably did the first work on problem-based learning. McMaster University wanted to provide learners with a more active role in the educational process. The university also wanted to create a less stressful educational experience for the students (McAuley & Woodward, 1984:842; Aspy, Aspy & Quinby, 1993:22). The problem-based learning programme they developed fundamentally altered student interaction in the classroom. Competitive arenas changed to co-operative ventures; a one-way flow of data became a free flow of information among colleagues. Lecture halls became discussion forums where everyone

¹ Most of the literature on problem-based learning in health care education is from medical schools.

actively engaged in learning. Classes shifted their focus from facts to an emphasis on meaningful information to help solve patients' problems. Teachers became resources for processes rather than sources of answers to be memorized in order to pass tests and examinations (Aspy *et al.*, 1993:22).

In the mid-1970's the University of New Mexico, with the help of representatives from McMaster University, implemented a problem-based curriculum that paralleled the traditional track. The data from this programme indicated that students in the problem-based approach mastered essential content equally as well as students in the traditional track even though they were not "*covering the material*" in the same way (Aspy *et al.*, 1993:22). This eased the concerns of educationalists who feared that students in a problem-based curriculum would miss crucial facts. It was also found that students in the new programme were less threatened by their environment and were more able to pursue learning independently, an indication that they were equipped to be lifelong learners. The University of Newcastle followed in 1978 (Maddison, unknown:39).

Problem-based learning again expanded in the 1980's when Harvard University's School of Medicine instituted this approach as "*The New Pathway*". Not only did it help students to become better self-directed learners, but it also created a schoolwide environment in which change became the vogue. It focused the school's educational programme on altering student's attitudes rather than filling them with facts (Maxwell & Wilkerson, 1990:513; Aspy *et al.*, 1993:23).

Problem-based learning rapidly spread throughout North America and other parts of the world (Maxwell & Wilkerson, 1990:513; Albanese & Mitchell, 1993:52; Aspy *et al.*, 1993:23). In America and Canada 71% of Medical Schools now use problem-based learning in varying degrees in their curricula, 74% use some degree of self-instruction and 85% use computer-assisted instruction (Pelausa & Marsan, 1993:426). Reflecting the shift to problem-based learning

are the changes made in the licensing examination of the United States of America and Canada.

3.3 WHAT IS PROBLEM-BASED LEARNING?

Problem-based learning as a teaching methodology has been extensively theorised and its application in a number of practice-based professions has been reported (Barrows & Tamblyn, 1980; Barrows, 1986, Townsend, 1990:61; Boud & Feletti, 1991). It is one of an increasingly large range of approaches to teaching and learning which challenge traditional “*educational*” assumptions about knowledge, knowledge ownership (expertise), and appropriate power relationships between teacher and learner.

Different interpretations of problem-based learning exist and the complexity of this kind of learning is reflected in the fact that Barrows (1986:481-486) developed a taxonomy of problem-based learning methods. Some of the definitions of problem-based learning follow.

Barrows (1985:15) writes that “*the basic outline of the problem-based learning process is: encountering the problem first, problem-solving with clinical reasoning skills and identifying learning needs in an interactive process, self-study, applying newly gained knowledge to the problem and summarizing what has been learned*”.

Neame (1981:94) states problem-based learning is a totally integrated curriculum based entirely on clinical problems, where students are introduced to a sequence of patients through an appropriate medium for example videotaped interviews or written hand-outs. The students are led to define essential learning topics by this trigger material.

Neufeld, Woodward and MacLeod (1989:424) define the problem-based curriculum of McMaster University as being “*the analysis of health care problems*

as the main method of acquiring and applying knowledge, the development of independent lifelong learning skills by students and the use of small tutorial groups, with five or six students and a tutor in each group as the central educational event”.

Albanese and Mitchell (1993:52) define problem-based learning as *“an instructional method characterized by the use of patient problems as a context for students to learn problem-solving skills and acquire knowledge about the basic and clinical sciences”.*

At McMaster University, problem-based learning focuses on two main processes: placing students in small tutorial groups and providing instruction so that students investigate real problems that might arise in the treatment of patients (Aspy *et al.*, 1993:22). The questions generated as students pursue diagnosis and treatment became guidelines for the course’s content.

In problem-based learning students thus focus their attention on a problem which may be clinical or community-based. While attempting to define, analyse and solve the problem through a process of sharing of experiences and work, students learn fundamental principles and facts, which can be transferred to different problems they may encounter in the future. Concurrently, they also learn the process of problem solving. Learning is thus both meaningful and relevant. When the entire curriculum is based on this approach to sequencing, the result is a problem-based curriculum.

3.4 OUTCOMES OF PROBLEM-BASED LEARNING

A major question that arises as the merits of problem-based learning are considered, is whether there are any documented differences in student outcomes with problem-based learning. Answering this question is unfortunately complicated as Albanese and Mitchell (1993:50) state, by *“a lack of a universally agreed upon gold standard to serve as a definite outcome measure”.* Instead

measures such as standardized achievement tests, clinical ratings of graduates during residency, self-ratings of their background preparation and rates at which graduates secure one of their top three desired residencies are used. Although these measures are important, they all have limitations that endanger their credibility, for example standardized examinations have been criticized for only measuring recognition and recall. Problem-based advocates argue that they do not assess the study approaches aimed at deep learning that problem-based learning promotes.

Many of the problem-based learning studies use a traditional track within the institution as a control. Over time, the two tracks tend to blend (Albanese & Mitchell, 1993:56). Comparisons are thus no longer reliable as the two tracks merge.

While there is no definite study to conclude either for or against the problem-based method, there is a solid base of studies that can be used to make an informed decision as to the merits of problem-based learning, as will be discussed.

3.4.1 Basic science examination performance

One of the most consistently mentioned outcomes has been lower basic science test scores of problem-based learning students. Albanese and Mitchell (1993:57) report that in six of ten studies, the overall basic science test scores of students in conventional curricula were higher than those of students in problem-based curricula. Only three of these scores were, however, statistically significant at the 0,05 level. While the assumption appears to be generally true, it is thus not always true.

Schmidt, Dauphinee and Patel (1987:308) reported that students from problem-based programmes performed slightly lower on traditional measures of medical knowledge than their peers in conventional curricula. Students in the "New

Pathway” performed better in behavioural sciences and just as well in the other disciplines (Pelausa & Marsan, 1993:423).

On the other hand Aspy *et al.* (1993:24) report that concerns about the appropriateness of problem-based learning in other than clinical subjects were put at rest with data that students in problem-based learning exceed their traditionally trained colleagues in their ability to integrate the basic sciences with clinical assignments. They are able to transfer knowledge from one situation to another, a critical test for most educational programmes. This teaching methodology was also proved successful in teaching interpersonal skills and problem-solving skills to students (Aspy *et al.* 1993:24).

3.4.2 Clinical science examination performance

A perception exists that problem-based learning students perform as well or better in clinical examinations than conventional students. However, problem-based learning students scored higher in five of seven clinical examinations, but the results were statistically significant for only one of the five (Albanese & Mitchell, 1993:58). According to Schmidt *et al.* (1987:309) there is weak evidence that students from problem-based programmes perform better at tasks related to clinical competence, but this evidence is limited in scope. McMaster University students have a mean pass rate of 92% on the Medical Council of Canada examination, a superior result to their peers (Lipkin, unknown:11). In clinical skills the “*New Pathway*” students were better in public health and just as good in the other areas tested (Pelausa & Marsan, 1993:423). In general, therefore there is a trend in favour of the problem-based learning students in the clinical examinations.

3.4.3 Thought processes promoted

Assessment of the thought processes used by students in the different curricula probably provides an answer to the adequacy of the cognitive adaptation of

problem-based learning students and to content exposure. Albanese and Mitchell (1993:61) reviewed different studies done on this topic and came to the conclusion that while some studies found no difference, others confirm concerns expressed that problem-based learning students may not develop an adequate cognitive orientation and indicate consistence with the concern that problem-based students are not exposed to an adequate range of content.

3.4.4 Study behaviours promoted

Supporters of problem-based learning argue that the conventional curriculum encourages students to study for the short-term goal of passing an examination at the expense of deeper levels of understanding and experiencing the joy of learning (Neufeldt *et al.*, 1989:424; Aspy *et al.*, 1993:24; Mulholland, 1994:38). The same authors refer to studies on study approaches of problem-based learning and conventional students. Although these two groups of students were initially similar in their use of approaches, it was found that at the end of their first year problem-based learning students were more likely to use versatile and meaning approaches and less likely to use reproduction. Problem-based learning students showed less orientation to word memorization, much more orientation toward studying by reflection on material and showed a trend toward conceptualization in their studies. Data also reflected a positive orientation toward learning. An increase in the use of the library, greater frequency in the use of textbooks, journals and other books and informal discussions with academic staff or peers are other study approaches used by problem-based learning students. They use less co-operative lecture notes, course syllabi and personal lecture notes. The texts read by problem-based learning students were substantially more likely to be student-selected than academic staff selected.

On the same topic, one of the first studies (Newble & Clark, 1986:267) to provide evidence between learning approaches of students in problem-based learning and traditional schools showed results with marked differences, with the problem-based school being higher on deep approach and lower on surface

approach than the traditional school. A deep approach is motivated by an interest in the subject matter and/or by its vocational relevance. The intention is to reach an understanding (Newble & Clark, 1986:267).

On the other hand students who adopt a surface approach are predominantly motivated by a concern to complete the course or fear of failure. They intend to fulfil assessment requirements by the reproduction of factual material. The outcome is a knowledge of factual information and a superficial level of understanding (Newble & Clarke, 1986:267).

These results suggest that problem-based learning students study differently from conventional students. They study for understanding or to analyze and not for short-term recall. They also control a substantially greater degree of their learning efforts than do conventional students. This is consistent with the reduced amount of scheduled class time and the more student-directed environment associated with a problem-based curriculum. These self-directed learning tendencies seem to accumulate even in more structured forms of problem-based learning (Albanese & Mitchell, 1993:67).

The way in which students approach their learning is dependent on a variety of factors including the characteristics of the departments and teaching to which they are exposed (Newble & Clark, 1986:267). Students in problem-based learning appear to have an approach to learning which more closely approximates the aims of most medical schools (Newble & Clark, 1986:267). The results provide support for the philosophies and strategies of the problem-based learning schools.

3.4.5 Students' satisfaction, selection and retention

Albanese and Mitchell (1993:62) report studies on the quality of the school environment for students in the problem-based and conventional tracks. The results show that problem-based learning students were substantially less

stressed at the end of two years, although they were all initially at the same stress level. The problem-based learning students rated their experience higher in terms of meaningfulness, flexibility, emotional climate, nurturance and student interactions.

Other studies showed similar results. Maastricht students indicated a higher level of satisfaction than did students at any Dutch medical school (Lipkin, unknown:12). Pelausa and Marsan (1993:423) report that *“the New Pathway was devastatingly more popular with students than the traditional curriculum”*. It is clear from these results that these students perceive their learning environment to be more hospitable than do students in the conventional tracks (McAuley & Woodward, 1984:843; Ryan, 1993:63; Marson & Murray, 1994:139). The most satisfying aspects identified by problem-based learning students were problem-solving, applicability, group discussions and clinical relevancy.

One of the stronger arguments in support of problem-based learning is that it is more enjoyable than sitting through hours of lectures (McAuley & Woodward, 1984:843; Ryan, 1993:63; Morrison & Murray, 1994:139). This argument is coupled with the joy of learning that will nurture students to become lifelong learners (Albanese & Mitchell, 1993:63; Aspy *et al.*, 1993:24). While problem-based learning students describe their pre-clinical years in medical school as being engaging, difficult and useful, conventional students describe their experience as irrelevant, passive and boring. Problem-based learning has been favourably received by students even if they participated in it against their wishes. It is, however, interesting to note that approximately 70% to 83% of students who initially do not wish to take part in problem-based learning will change their minds once experiencing it firsthand. However, Albanese and Mitchell (1994:64) indicated that 4% to 20% of the students will not thrive in a problem-based learning environment.

3.4.6 Graduates' perception of their preparation

Studies based on separate samples of graduates from both a problem-based learning and a conventional school showed that problem-based learning graduates viewed the quality of their training in humanistic areas, clinical reasoning and preventive care more positively than did the other students. Conventional students rated their training more positively in clinical medicine and biomedical science (Albanese & Mitchell, 1993:64). Problem-based students therefore do not feel disadvantaged because of their training.

3.4.7 First choice of residency

One significant measure of the success of a curriculum is the extent to which its graduates obtain their first choices of residencies. Albanese and Mitchell (1993:65) report that the rates at which problem-based learning graduates are selected for their first choice residency positions compare favourably with the rates of those who graduate from conventional schools.

3.4.8 Clinical ratings

Clinical ratings of medical school graduates by residency supervisors and others are often considered excellent indicators of the adequacy of undergraduate instruction. Study results show a clear trend toward higher ratings by clinical supervisors for problem-based learning graduates (Albanese & Mitchell, 1993:67).

These data are among the strongest evidence in support of problem-based learning. High clinical ratings would not be expected if problem-based learning graduates had deficits in their diagnostic skills.

3.4.9 Performance assessment of graduates

Performance assessment of graduates is a credible source of outcome criteria, as practice characteristics are a more direct reflection of the quality of patient care (Albanese and Mitchell, 1993:67). It is, however, difficult to draw conclusions about the effect of problem-based learning curricula on graduates' performance, based on the studies of Heale (1988) and Woodward, Ferrier, Cohen and Goldsmith (1990:88). Albanese and Mitchell (1993:67) therefore recommend research in this area, as clear results are needed.

3.4.10 Speciality choices and practice characteristics

Problem-based learning is often associated with primary care or community-orientated curricula. Problem-based learning has characteristics, particularly the early introduction to clinical experience and working in small groups, that make it especially useful for schools with a primary care emphasis. Studies indicate that problem-based learning graduates have a higher tendency to select primary care residencies than graduates from the conventional curricula (Albanese & Mitchell, 1993:67).

Other authors support this view. Lipkin (unknown:11) reports that 70% of graduates of Beer Sheva, Israel and 50% of McMaster University students have gone into primary care. Problem-based students in the review of Schmidt *et al.* (1987:310) retained their initial interest in family medicine, while peers in traditional tracks changed their career preference. These authors concluded that schools with a problem-based curriculum seem successful in their attempts to produce physicians with a community orientation.

Concerns are, however, expressed about the fact that problem-based learning graduates are less likely to practice solo and in rural areas (Albanese & Mitchell, 1993:67). These data may be attributed to the fact that students used to small

group interactions find a solo practice and low frequency contact with peers in a rural practice unappealing.

Skills learned in problem-based learning teams are not the same as those required for real world health care teams, where members have different roles, due to their expertise and responsibilities. In problem-based learning students from the same health profession with the same role, address health problems. The group dynamics are thus different and it cannot be just assumed that the skills learned in the problem-based learning group will be transferred to a health care team. This problem can be overcome by integrated undergraduate teaching, especially as exposure to learning in primary care increases. Problem-based learning is a good starting point for shared learning in multi-disciplinary student groups (Bligh, 1995:325).

3.4.11 Academic staff satisfaction

Academic staff satisfaction with any curriculum innovation is essential for its success. A positive view of problem-based learning was also identified by Neame (1981:94) and Maxwell and Wilkerson (1990:513). Albanese and Mitchell (1993:69) conclude that studies suggest academic staff find problem-based learning a satisfying way to teach. The personal contact with students, promoted by the small group format is one of the most commonly perceived benefits. Although problem-based learning requires a concentrated time commitment, the benefits of this method overcome any dissatisfaction.

3.5 IMPLEMENTATION ISSUES OF PROBLEM-BASED LEARNING

Before implementing any new innovation, the cost of changing the curriculum and maintaining the new programme in terms of learning effectiveness and efficiency should be evaluated. Factors such as time commitments of academic staff and students, requirements of academic staff and students, requirements of

support personnel, costs of instructional material and necessary physical supports should be considered.

3.5.1 Costs of problem-based learning

Albanese and Mitchell (1993:70) found that problem-based learning costs no more in terms of academic staff effort than in a conventional curriculum for class sizes of 40 and fewer and perhaps for those up to 100. The time commitment is comparable, but problem-based learning requires a much more focused commitment to direct student contact time than does the conventional curriculum (Mennin & Martinez-Burrola, 1986:187). There are serious concerns about the economic viability of problem-based learning for class sizes exceeding 100. Costs can, however, be reduced by increasing group sizes, decreasing the number of times the group meets per week or using outside tutors for some tutorial group meetings.

On the other hand, Shahabudin (1987:312) calculated that it takes approximately 22% more time to cover content in problem-based learning than with lectures. While problem-based learning students may cover less content per unit, they do, however, retain a greater portion of what they learn (Albanese & Mitchell, 1993:71; Pelausa & Marsan, 1993:422). Long-term retention after 15 weeks to two years tends to be equivalent for the two curricula.

The economic analyses performed in two studies are discussed by Albanese and Mitchell (1993:71). These studies expressed concern over the cost of problem-based learning. The physical and media resources required for problem-based learning and conventional curricula are the same. However, unexpected costs of problem-based learning such as rooms for small group meetings and adequate library resources to support small group investigations may slow the introduction of this type of curriculum in larger institutions, especially in developing countries.

3.5.2 Content coverage in problem-based learning

The issue of content coverage in problem-based learning remains a concern to many (see 3.2). There is evidence that students are uncomfortable with the fact that they may set their own study agenda. It places a tremendous amount of importance on identifying knowledge deficiencies and the search for and effective learning of new knowledge. Over half of the graduates of McMaster University over a five year period identified the lack of precise definition of core material as a deficiency of the curriculum (Albanese & Mitchell, 1993:72).

Objectives or learning issues that students identify were compared with the objectives that academic staff develop to determine the adequacy of content coverage in problem-based learning.

Medical schools in Mezer and New Mexico reported adequate consistency between students' and academic staff' objectives. Students in a pharmacology course at McMaster University raised the expected issues and even went beyond them. Another study found that 62% of academic staff generated objectives were definitely identified by tutorial groups, while another study found 61% of the essential learning objectives were identified by student groups (Albanese & Mitchell, 1993:71).

Dolmans, Gijsselders, Schmidt and van der Meer (1993:207) examined the degree of correspondence between student-generated objectives and present academic staff objectives in three independent studies. They found that students' objectives covered an average of 64% of the intended course content. In addition, the students generated objectives not expected by the academic staff, which were judged relevant to the course content. The conclusion was drawn that problem-based learning seems to permit students to adopt learning activities to meet their own needs and interests. This view was supported in a

study by Colby, Almy and Zubkoff (1986:413) in which it was found that learning objectives chosen by students closely match those targeted by course directors.

Problem-based learning curricula differ in the extent to which academic staff influence or direct learning (Albanese & Mitchell, 1993:73). The degree of academic staff directiveness might affect not only the breadth of content that students learn but also their attainment of clinical reasoning skills. Variables that influence content coverage are:

- 1) The problems academic staff select for students to use;
- 2) The availability of academic staff-generated objectives and whether students are encouraged to use those objectives;
- 3) The amount of guidance students are given in regard to learning resources;
- 4) How tutors influence small group discussions; and
- 5) The way in which students are tested.

Other authors also mention some of these factors and the influence they have on content coverage. Academic staff exercise control over the learning that occurs in problem-based learning by the problems they choose. The congruence between academic staff and student objectives in the study by Shahabudin (1987:312) was attributed to this factor. Problems that will lead students to the content academic staff most want them to master thoroughly and that are most important in the clinical years, should be used (Albanese & Mitchell, 1993:73). A group working harmoniously (time and energy-focused on learning activities) also contributes to content coverage.

There is an opinion that academic staff should take a directive role, especially in the case of younger students (Albanese & Mitchell, 1993:74). The potential for a 50% time saving by being directive may be difficult to resist and some tutors will be directive not only because of their own need for control or desire to share their knowledge, but they may feel it is an injustice to students not to direct them. On the other hand (Albanese & Mitchell, 1993:74) fear that directiveness may endanger the independent analytic process of problem-based learning.

Albanese and Mitchell, however, (1993:74) state that up to six months are needed for students to get used to the problem-based learning instructional method. A gradual progression toward total independence of learning by means of a graded reduction of imposed structure is required. At the beginning of the course the tutor provides more guidance, direction and emotional support. As the students' competence and knowledge increase the tutor's leadership style should change to be more "*participatory*" or "*delegative*", allowing the students to decide what and how they will learn.

3.6 PROBLEM-BASED LEARNING CASES

Authors (Barrows, 1986:1; Wilkerson & Felletti, 1989:53; Bligh, 1995:324) agree that the core of problem-based learning is the use of problems to focus learning. Albanese and Mitchell (1993:53) add to this and state that the essential characteristics of a problem-based curriculum are the use of problems as a focus for learning basic science and clinical knowledge along with clinical reasoning skills in an integrated, rather than separate fashion.

A goal of curriculum design should thus be to construct problems that are effective in reaching the intended learning outcomes. It will not only challenge the student to think critically, but will also initiate learning (Gist, 1992:8). Ineffective problems cause difficulties for students to generate the appropriate learning issues, which will lead to lack of content coverage (Dolmans *et al.*, 1993:208).

While the term "*problem*" is a common one, other terms such as "*situation improvement packages*" and "*problem-based learning cases*" are becoming preferred amongst nurse educators (Townsend, 1990:60; Van Niekerk & Van Aswegen, 1993:38; Camasco & McLaughlin, 1994:10). Scenario, trigger and case study are alternative concepts for the word problem (Prideaux & Farmer, 1994:127).

3.6.1 Problem format

The problem formats implemented are as different as are the problem-based learning curricula.

Problems vary from brief paragraphs, describing a symptom or results of investigations to lengthy case studies or even simulated or real patients (Barrows, 1985:84-85; Bligh, 1995:323). Problems can be presented by means of audiotapes, videotapes, slides, written notes, summaries, results or computers (Neame, 1981:97). Pallie and Carr (1987:64) report that at McMaster University novel means of problem presentation are the “*card deck*” or booklet, audio-visual, computer based presentation and “*simulated*” or “*surrogate*” patients trained for the purpose.

The small group is the most common format for the presentation of the problem. Bligh (1995:9) describes simulations, for example role playing, decision making, scenarios, systems modelling, “*doubling*” and “*to tell the truth*”, concept maps or cognitive maps and conceptual models as other types of format options for presentation of the problem. The situation improvement packages at the School of Nursing and Health Studies, University of Western Australia are drawn from reality and presented as if in the clinical context (Townsend, 1990:61).

Albanese and Mitchell (1993:72) refer to three varied problem designs, all suitable for problem-based learning. According to these authors the Problem-Based Learning Module of Barrows is a specialized written simulation in which students are allowed to follow any course of action they think appropriate as a patient case unfolds as it occurred in real life. Questions can be asked about history, physical examination and tests and this can be used to evaluate their actions with what really happened. These problems are relatively unorganized, unsynthesized and are open-ended. It better promotes the application of clinical

reasoning skills, structure knowledge in useful contexts, develops self-directed learning and will also be more motivating.

In contrast to this, the Focal Problem of Michigan State University is a more structured, written narrative of a clinical problem as it unfolds in a real life setting (Albanese & Mitchell, 1993:72). “*Stop-and-think*” questions are inserted in the patient case, while the Guided Design problems differ in that the post specific questions help the students focus on the steps used in problem-solving.

Novice students might benefit from more structured problems with cues about how to approach the problem while more experienced students might benefit from less structuring and cueing. However, authors agree that the goal of the problem should also be adapted to the student’s current level of theoretical and experiential knowledge (Albanese & Mitchell, 1993:71; Heliker, 1994:46; Horsono & Prabandari, 1994:2). Early in the course triggers should be more directive. Students should be encouraged to develop a chronological summary of events to help them in the problem-solving and final analysis (Neame, 1981:97). These problems are typically organized into basic science or clinical thematic blocks.

Barrows (1985:80), however, does not believe the sequence of problems to be important. Little evidence exists that there is a logical first problem in any discipline or area.

3.6.2 Approaches to case selection

In a review of literature different case selection criteria were revealed. Albanese and Mitchell (1993:71) refer to several authors such as Neame (1981), Sibley (1989); Majoor, Schmidt, Shellen-Balendong, Moust and Stalenhoef-Halling (1990) and Thomas (1992) and suggests that an appropriate problem-based learning problem should:

- 1) present a common problem that graduates would be expected to be able to handle;
- 2) be serious or potentially serious - where appropriate management might affect the outcome;
- 3) have implications for prevention;
- 4) provide interdisciplinary input and cover a broad content area;
- 5) lead to an encounter with academic staff objectives;
- 6) motivate (present an actual, concrete task); and
- 7) have a degree of complexity appropriate to the students' prior knowledge.

In addition to these, Gist (1992:8) advised that problems most often poorly handled by practitioners and problems emphasizing or underlining the important concepts in an area necessary to give students a sound foundation for new trends should be selected. Wilkerson and Feletti (1989:53) state that it is crucial to problem-based learning that:

“the problem raise compelling issues for new learning and that students have an opportunity to become actively involved in the discussion of these issues, with appropriate feedback and corrective assistance from academic staff.”

Dolmans *et al.* (1993:212) requires that problems used in a problem-based curriculum should:

- 1) match the students' levels of knowledge;
- 2) be concretely formulated;
- 3) refer to students' future professions;
- 4) be briefly formulated; and
- 5) in addition, the problems should be open enough to stimulate discussion.

Bordage added a new feature to case selection and stated that cases should also be prototypical (Albanese & Mitchell, 1993:71; Prideaux & Farmer, 1994:128). Prototypical cases are those that have the greatest number of

features (for example symptoms, signs and pathophysiology) in common with other members of a specific category. As an example pneumonia is given as more typical of respiratory diseases than hydrothorax. Students have greater recall and quicker, more accurate classification of prototypical cases. The prototypes serve as an anchor point in students' memories, thus related categories are learned more easily and more accurately.

The issue of motivation is important as can be seen from the criteria set for selection of cases. It links to the reality of the case (Prideaux & Farmer, 1994:127). Realism can be achieved by using cases which are based on real patients.

In contrast to the "*groomed*" problems used in most of the health-related education programmes, the need for some problem content to provide "*raw*" and previously unsolved problems was promoted in a programme for training mathematical students in industry (Prideaux & Farmer, 1994:127). In a section of the course students work with industrial and commercial employers in tackling and solving new problems.

The importance of the use of criteria related to some of the wider educational constructs of problem-based learning and the selection of cases on the basis of their representativeness of conditions in the community alone is not sufficient.

The School of Nursing and Health Studies, University of Western Australia uses criteria guidelines, as suggested by Anderson, in the selection and production of the situation improvement packages (Townsend, 1990:61). These criteria are:

- include situations that are representative of commonly and frequently encountered clinical situations;
- be multifocal, involving individuals, groups and communities;
- cover institutional and non-institutional contexts;
- vary across the age continuum;
- cover acute and chronic manifestations;

- deal with health, and health breakdown;
- cover the full range of relevant nursing roles and functions;
- relate to relevant practice areas;
- continually emphasize the central focus of nursing, including theoretical, philosophical and ethical issues, as well as technical and procedural activities; and
- incorporate the necessary stimuli into a range of learning issues from various applied and allied disciplines.

Other authors also emphasize the characteristics of problem-based scenarios in broader terms, in a manner which relates to the educational goals of the programme.

In a management and economic programme, Schmidt and Bouhuijs (1980) also emphasized the ethical or value aspects to be covered by cases, whereas Heycox and Bolzan (1991) argued that cases should enable specific social work skills, such as negotiation, communication, assertiveness, lobbying, conflict resolution and planning, to be developed (Prideaux & Farmer, 1994:127). Two main types of criteria: those that deal with the incidence in the population and those dealing with the educational constructs of problem-based learning, such as the development of reasoning skills and the generation and application of knowledge evolved from these case selection criteria. However, Prideaux and Farmer (1994:129) found that only Maastricht included criteria that aimed at selecting cases that would promote group learning in problem-based learning.

3.6.3 Development of cases for problem-based learning

The literature indicates that academic staff are responsible for the development of cases.

At the Suez Canal University a Problem Formulation Research Laboratory was established to prioritize, develop and update problems (Talaat, Hosny, Aod-

Allah, Makhoul & Makledy, 1994:4). A number of the members of the staff are allocated to this Research Laboratory.

The same principle is used at the Medical School of the Flinders University of South Australia where the Unit Design Group co-ordinate the development of cases (Prideaux & Farmer, 1994:135). Completed cases are subjected to peer review.

As an alternative to these methods, Bordage (1987) has suggested that cases should be selected by experienced clinicians to ensure prototypical value and Thomas (1992) advised that cases should be evaluated by a case editor to emphasize key concepts and reduce complexity (Prideaux & Farmer, 1994:728). He cited the call for simplicity as one of the most frequent request of tutors. Cases should contain one or at most two foci and distracting material or the so called "*red herrings*" should be restricted.

Gist (1992:8) describes two methods in the selection of problems for a programme. The easiest method for determining which problems are to be produced is to have the academic staff put together into one master chart all the information and skills they feel should be learned. Problems or case studies can either be developed or selected from records. Items from the master chart are checked off as problems are implemented. Secondly a set of criteria can be developed that allows a more focused approach to a given area. Criteria for case selection are developed and followed. According to Gist (1992:8) probably the most appropriate approach is a combination of these two methods.

Another method for developing problems for problem-based learning is concept maps as described by Edmondson (1994:108). A concept map is a tool for visualizing the interrelationship between concepts in an integrated, hierarchical manner. The academic staff of the College of Veterinary Medicine at Cornell University use them in curriculum planning and case development. By doing this

learning is promoted by making material conceptually coherent and thus easier for students to integrate.

Following the work of Tugwell *et al.* (1995) on the “*Iterative Loop*”, MacDonald, (1989) constructed a list of priority health problems to reflect the priority of the problems for curriculum planners (Prideaux & Farmer, 1994:126). The Suez Canal University also uses this prioritization process together with the objectives (Talaat *et al.*, 1994:5) and discipline content in a dynamic inter-relationship, to construct what is called the Circus Tent Curriculum. A computer programme was designed to help achieve this bi-polar approach.

Although it is time consuming, developing case studies or problems is relatively simple (Gist, 1992:8; Bligh, 1995:323). The problem-solving process should be kept in mind. Specific learning objectives should be developed for each case. Each case should have a bibliography or reference list that addresses the problem(s) contained in the case (Gist, 1992:9). References should be selected to provide information on the learning objectives. Learning resources to help the students gain information, experience or skills can be specifically developed for the programme.

Gist (1992:9) suggests that cases should begin in much the same way as a news story (Gist, 1992:9). It may be a fact sheet or written scenario telling who, what, where, when, why and how. According to Neame (1981:97) there should be a sequential and progressive unfolding of the story in a series of discrete packets of information, each of which should initiate particular areas of discussion. A flow chart can help in the planning of a problem (Neame, 1981:97).

3.7 TUTORS

The supportive environment in which learning takes place, however, is equally as important as the format for presentation of the problem (Bligh, 1995:10). The

tutor who respects natural, creative thinking and provides feedback can promote learning (Bligh, 1995:10).

3.7.1 Role and functions of the tutor

The role of the tutor in problem-based learning is a rather critical one (Pallie & Carr, 1987:65). It is thus not unexpected that the quality of tutorial skills is a common concern of schools that use problem-based approaches (Barrows, 1986:10).

The opinions of various authors concerning the role of the tutor will be discussed.

A great deal has been written about the role and function of the tutor. The small group process is the main vehicle for learning and tuition. The groups are organised around clinical problems and facilitated by tutors. The tutor is pivotal and actively co-ordinates the group, in the process of problem-based learning, asking for opinions, clarification, definitions, challenging knowledge and the need to know (Barrows, 1985:63). Househam (1993:21) writes that the role of the tutor is to guide the students through the clinical/reasoning process, to keep track of time, focus discussion on the clinical problem and ensure that the students adhere to the basic ground rules. They also direct students to the available resources. Another aspect of the tutor's role is to encourage the group to value difference and diversity ensuring that all take part. Aspy *et al.* (1993:22) explain the role of the tutor in the small group discussion as follows: to encourage student participation, provide appropriate information, refrain from harsh feedback and become fellow learners.

Congruent with these views the role of the tutor is generally seen as comprising two sets of functions: task functions and maintenance functions (Barrows, 1985:57; Eagle, Harasym & Mandin, 1992:465; Mulholland, 1994:39). Task functions aid the group in completing the task and include task selection,

avoiding time-wasting, and summarizing (Mulholland, 1994:39). The tutor's maintenance functions help the group to function as a group and ensure its survival. The maintenance involves establishing a "*climate*" for discussion, that is open, trustful and supportive.

According to Neame (1981:96) the tutor's primary role is to promote group interaction and facilitate discussion. A great deal has been written about group dynamics and according to these the maintenance function will be made easier if the facilitator has at least a basic knowledge of the stages of the group process (Hosny, 1994:2; Mulholland, 1994:42).

A successful group is one that can purposefully proceed without constant intervention by the tutor. Once teachers relinquish the lecturer's role, they are forced to develop and enhance their repertoire of teaching responses: listening to students, answering questions, formulating problems and making effective decisions, directing students to appropriate resource materials and being fellow learners (Aspy *et al.*, 1993:24).

The tutor has to learn to make an active contribution to facilitate learning. The middle path between too much interference by the tutor and none at all is an important judgement to make (Pallie & Carr, 1987:65). Two tutorial skills that both student and academic staff identified as important are guiding the work of the group and promoting interactions (Albanese & Mitchell, 1993:74).

In a more student-directed tutorial session, students were more likely to introduce a topic for discussion, tended to talk more to each other than to the tutor and asked more questions (Albanese & Mitchell, 1993:73). Tutors spoke briefly and infrequently, tended to clarify points or move the discussion along. Their questions guided group process rather than tested knowledge. Tutors rarely interrupted discussions and silences were used to encourage students to continue the discussion on their own and to allow time to think.

However, the role of facilitating discussion rather than directing it, is foreign and even “good” teachers have difficulty adopting this new approach (Albanese & Mitchell, 1993:74). New teachers feel the need to share the experience and may dominate up to 80% of the tutorial time. Academic staff has problems keeping knowledge to themselves, which can be especially a problem for tutors with subject matter experience.

3.7.2 Tutor training

Tutors vary from good to less than adequate. To obtain tutors of the type required for an ideal problem-based learning programme, academic staff responsive to the role should be recruited and should undergo careful, in-depth training (Albanese & Mitchell, 1993:74). Two and a half day tutor training workshops are run within the department at McMaster University to help improve tutorial skills (Pallie & Carr, 1987:65). Colby *et al.* (1986:413) report that principles developed at McMaster University also form the basis of tutor training used in the School of Medicine, Dartmouth Medical School, New Hampshire. To help train new and younger academic staff to tutorials, McMaster University’s introduced a co-tutor programme where an inexperienced tutor co-tutored a group with an experienced tutor (Pallie & Carr, 1987:66). Monitoring of the performance of tutors is necessary.

Evaluation of tutors by students, programme planners, department and chairmen are meant to be constructive criticisms. To assist tutors with the tasks they are provided with a guide to the problem which outlines the problem structure and flow (Neame, 1981:86).

3.7.3 Expert versus non-expert tutors

There has been considerable discussion about the “*expertise*” desired in a tutor. The tutors at McMaster University were originally labelled “*non-expert tutors*” and indeed nursing academic staff and Ph.D scientists were and still are tutors

in the system (Pallie & Carr, 1987:66). The Medical School of the University of the Suez Canal also uses non-expert tutors (Suez Canal University Workshop, 1994). Neame (1981:96) and Pallie and Carr (1987:66) legitimate the role of a non-expert tutor by stating it is not expected nor intended that a tutor purvey information. According to these authors tutors (experts or otherwise) will at one time or another encounter areas of unfamiliarity and must confess their ignorance as it has a very positive effect on the tutorial process and on future practice.

Traditionally in small-group learning, tutors are expected to be experts in the process of small-group facilitation but not necessarily in the content of the problem to which a solution is sought. According to Eagle *et al.* (1992:466) students need to take responsibility for determining what needs to be learned, how it is to be learned and at what pace. The tutor is an expert in the process and not necessarily the content. The tutor also may have expertise in the community and critical appraisal which are important aspects of learning. Tutors do not control the tutorial, but “*shepherd*” the students in their thinking, preventing straying (Pallie & Carr, 1987:64).

A tutor must understand the process of clinical reasoning and must be skilled in facilitating small-group learning. Throughout the problem-based learning process the tutor helps the students to identify their learning needs and assists them in setting the priorities of the programme objectives and personal learning issues. The ideal circumstance is for the tutor to be an expert both in the tutoring process and in the discipline being studied by students. Barrows (1985:146) sees the tutoring skill as the backbone of a small-group teaching process and goes on to state “*It is non acceptable to have a teacher who is an expert in the area of study, but a weak tutor*”.

A great deal of research on the expert versus the non-expert tutor has been conducted. Clinicians have been defined as experts, while other studies require

the clinician to have experience with a case as part of their usual practice to be considered an expert (Albanese & Mitchell, 1993:75).

It was found that tutors with content expertise tended to take a more directive role such as lecturing or giving directions that increase their influence over the group in the tutorials. Groups with expert tutors are less likely to engage in student-directed discussions and collaborative learning (Albanese & Mitchell, 1993:74). Students led by expert tutors tended to be slightly less likely to introduce their own ideas during interactions. The same authors report that tutors with subject-matter expertise were more likely to do things such as intervene when the discussion became incoherent and regularly asked questions that stimulated discussion.

Feletti, Doyle, Petroric and Sanson-Fisher (1982:323) found that a thorough, up to date knowledge of the particular problem being studied was the item that discriminated the best between tutors rated in the upper and lower half of the group according to their effectiveness. They also found that clinical experts were higher rated in their willingness to allow students to develop and explore problem-solving, but received lower ratings on the interest in students' personal or social adjustment. The effects of content expertise may endanger the most important goal of problem-based learning: the development of students' skills in active, self-directed learning. Eagle *et al.* (1992:466) suggested that there may be a need for tutors with content expertise to undergo departmental development programmes designed to alert them to the pitfalls and dangers of their knowledge and authority.

Groups who were tutored by experts, generated almost twice as many learning issues per case, which were nearly three times more congruent with case objectives, than they did when they were tutored by non-experts (Eagle *et al.*, 1992:468).

A competent tutor will stop students at critical points and ask them to elaborate on what they are thinking; to clarify why specific questions were asked, to probe the students' understanding of principles and concepts, to summarize what is known and not known about the patient's problem, to determine why specific hypotheses are listed, and to challenge the group on how the hypotheses will be refined. Content-expert tutors, being more aware of knowledge gaps within the group than were the non-expert tutors, behaved in this manner (Eagle *et al.*, 1992:468). As a consequence the expert tutors may have challenged the students when it became apparent that there were areas of learning deficiencies that the students were unable to perceive. The probing statements and inquiries of the tutors could have led students to identify those areas as learning issues for later pursuit.

Students rated expert tutors more helpful than non-expert tutors in balancing basic science and clinical applications, promoting critical appraisal and synthesizing multiple perspectives (Albanese and Mitchell, 1993:75).

Important benefits attained by the guidance of content-expert tutors (Eagle *et al.*, 1992:469; Albanese & Mitchell, 1993:75) include:

- 1) the increased number of learning issues identified;
- 2) the congruence of learning issues identified by groups led by expert tutors with case objectives;
- 3) the greater number of hours of study time spent by students;
- 4) the higher rating of problem-based learning experiences in terms of time well spent, enjoyable and an efficient instructional method;
- 5) higher ratings at being able to identify gaps in knowledge and applying relevant information to the problem; and
- 6) finally, higher scores in the relevant items on the course final examinations.

The higher error rate of problem-based learning students compared with that of conventional students on a clinical care problem may be due to non-expert tutors leaving errors uncorrected, that leads to misconceptions amongst students

(Albanese & Mitchell, 1993:15). While non-expert teachers may be more facilitative of student-centred, self-directed learning, it could be at the expense of overseeing misconceptions arising during self-directed learning.

The use of advanced students, who relatively recently learned the material being studied, as tutors has also been studied. They are unlikely to be perceived as expert tutors and there is a cost advantage involved.

Information theory would argue for the superiority of peer teaching, because of the greater congruence between the tutor's and student's semantic-network of the subject matter and in their cognitive networks, but role theory argues that peer teachers should be more effective because students will learn more from people their own age (Albanese & Mitchell, 1993:76).

Neither of these hypotheses could be supported by research. Academic staff tutored groups had higher ratings on essay questions. It was therefore concluded that these tutors were better able to stimulate higher order learning processes in students during small group discussions. Another study indicated that advanced-student tutors seemed able to facilitate students' learning as well as did tutors who were staff members (Eagle *et al.*, 1992:466). Student tutors were rated equal to staff tutors with respect to stimulating and directing discussion and monitoring the group's progress.

Albanese and Mitchell (1993:76) in their report on this topic conclude, that a combination of student led small groups and academic staff led discussions is effective and would also be cost-effective.

Pallie and Carr (1987:66) report that when tutors on occasion were unable to be present at a scheduled tutorial, the students at McMaster University were usually able to function by themselves and did quite adequately. A device that has arisen recently is to have students individually take turns at tutorials to "*monitor*" the progression at the tutorial, to keep the discussion under some control of time

guidelines and direction, help to encourage individual participation in the group and partly relieve the tutor of the “*shepherding*” functions. Pallie and Carr (1987:65) state that the tutor’s role itself is very much that of acting as an intellectual “*shepherd*”.

The ideal situation is to have tutors with expertise in both the problem and the tutorial process. If a tutor is not an expert in the case but possesses expertise in the tutorial process, then there are specific actions that can be undertaken to ensure a successful small-group outcome. The programme planners should provide varying amounts of information to assist tutors in understanding health care problems provided in groups (Pallie & Carr, 1987:66). These include problem guides or “*crib sheets*” on each problem, identifying issues to be addressed and resources that provide relevant information. The non-expert tutor should: be clear on the course goals and case objectives, receive a problem guide which outlines the process and provides guidance as to what topics should be handled in the tutorial, study the clinical problem represented by the case; talk to other tutors who are experienced with regard to the case and consult with academic staff who are experts in the case. This position is supported by the observation that the non-expert tutors who had repeatedly facilitated the same case over several years produced results that were comparable to those of the expert tutors (Eagle *et al.*, 1992:468). Students will develop the capacity for effective, continuous, lifelong learning through informed tutor guidance.

3.8 PROBLEM-BASED TUTORIAL GROUPS

The learning situation is considered a significant part of learning (Crebbin, 1994:29). The structure within which problem-based learning functions best is small groups. The main teaching method is thus the small group discussion which includes students and academic staff (Aspy *et al.*, 1993:22; Bligh, 1995:323).

According to Househam (1993:2) the optimum number of students is thought to be between six and eight per tutor. Barrows (1985:55) refers to a group of five to six students per group, while other authors mention group sizes of six to ten (Echt & Chan, 1977:682; Dolmans *et al.*, 1993:207). All members of a group must participate actively, which is why twelve is the absolute maximum (Mulholland, 1994:39).

Students have to realise that in the complex arenas of social action, answers cannot be dictated but must be constructed responsibly by individuals. The process of construction is fostered in small groups by dialogue that is questioning, critical, but essentially co-operative.

While academic staff fill the posts of the tutor, students fill interchangeable positions in the problem-based learning group. At MacMaster University (Pallie & Carr, 1987:66) and the University of the Suez Canal (Workshop, 1994) group leaders monitor the group, as previously described in this chapter. The other position is that of the scribe, who writes other people's contributions down, preferably on a blackboard (Barrows, 1985:60; Mulholland, 1994:42).

3.9 GROUP PROCESS

Barrows (1985:51) recommends that each student should have a copy of the course objectives in an orientation manual. An appropriate way for the group to begin is to review the course objectives. These objectives, agreed upon at the outset, serve as a learning contract. They focus learning and determine the direction of the problem-based learning process.

According to Mulholland (1994:42) certain activities aimed at allowing the group to know one another, to agree on how the group will work and to establish the working climate must be concluded in the first meeting. After a group has been formed it goes through a stage of norming in which members learn to accept certain roles and codes of conduct as normal and work out common procedures

that are acceptable to all (Mulholland, 1994:42). Barrows (1985:55) states that these activities set the stage for problem-based learning.

By introducing themselves to the group, members establish an individual and unique identity and this allows the tutor and the students to realize the variety of information resources and expertise the group has in its members (Barrows, 1985:55).

Establishing an open climate for learning within the group is essential for problem-based learning (Barrows, 1985:56). Students must feel free to say whatever comes to mind. This open climate facilitates group discussion and problem-solving but it also allows students to evaluate where their information or understanding is weak and study is needed. The students must be able to openly and constructively express their opinions about the comments or ideas of other group members or the quality of other students' performance in the group. Students must learn to give and accept constructive criticism.

The group will learn how to develop and maintain an open constructive climate (Barrows, 1985:57). Although the development and maintenance of this climate initially lies with the tutor, the group should take responsibility for it later.

The responsibility of the group members is to maintain the group process and not to leave it to the tutor (Barrows, 1985:57). Students must accept responsibility to speak up when they feel doubtful or uncomfortable with comments or ideas made by other group members. The last responsibilities of group members are self-evaluation and the evaluation of other group members.

Bligh (1995:9) extends the aim of the first group meeting as suggested by the previous two authors and states that the first step in the application of problem-based learning is to educate the students about the problem-solving process.

On this topic Sheldon and Naronha (1990:234) suggest the use of mystery stories. This unique method has the advantage of eliminating programme content. The students thus focus on the process, which allows the following skills to be emphasized: analysis of the situation, cue perception, hypothesis generation, searching the information for “*clues*” to test the hypotheses, attention to and analysis of details, process of developing learning issues, identification of appropriate resources, application of the knowledge back to the problem, problem synthesis and group dynamics.

Other stages described in the group process are storming when tension arises and reforming, when individuals may adopt different roles in the group (Mulholland, 1994:42).

The group should meet regularly enough to maintain a group feeling. Once a fortnight is the minimum, but once a week is more effective (Mulholland, 1994:42).

Barrows (1985:55) explains the process followed in the problem-based learning group as schematically presented in Figure 3.1.

Other authors often refer to the pattern of the analysis of the problem as the “*seven steps*” or the “*seven jumps*” (in Maastricht, medical school) (Schmidt, 1983:12; Pelausa & Marsan, 1993:421; Bligh, 1995:323).

Schmidt (1983:11-16) described these steps in problem-based learning as follows:

- clarify terms and concepts
- define the problem
- analyze the problem
- draw a systematic inventory of possible explanations
- formulate learning objectives
- collect additional information outside the group

- synthesize and test the newly acquired information

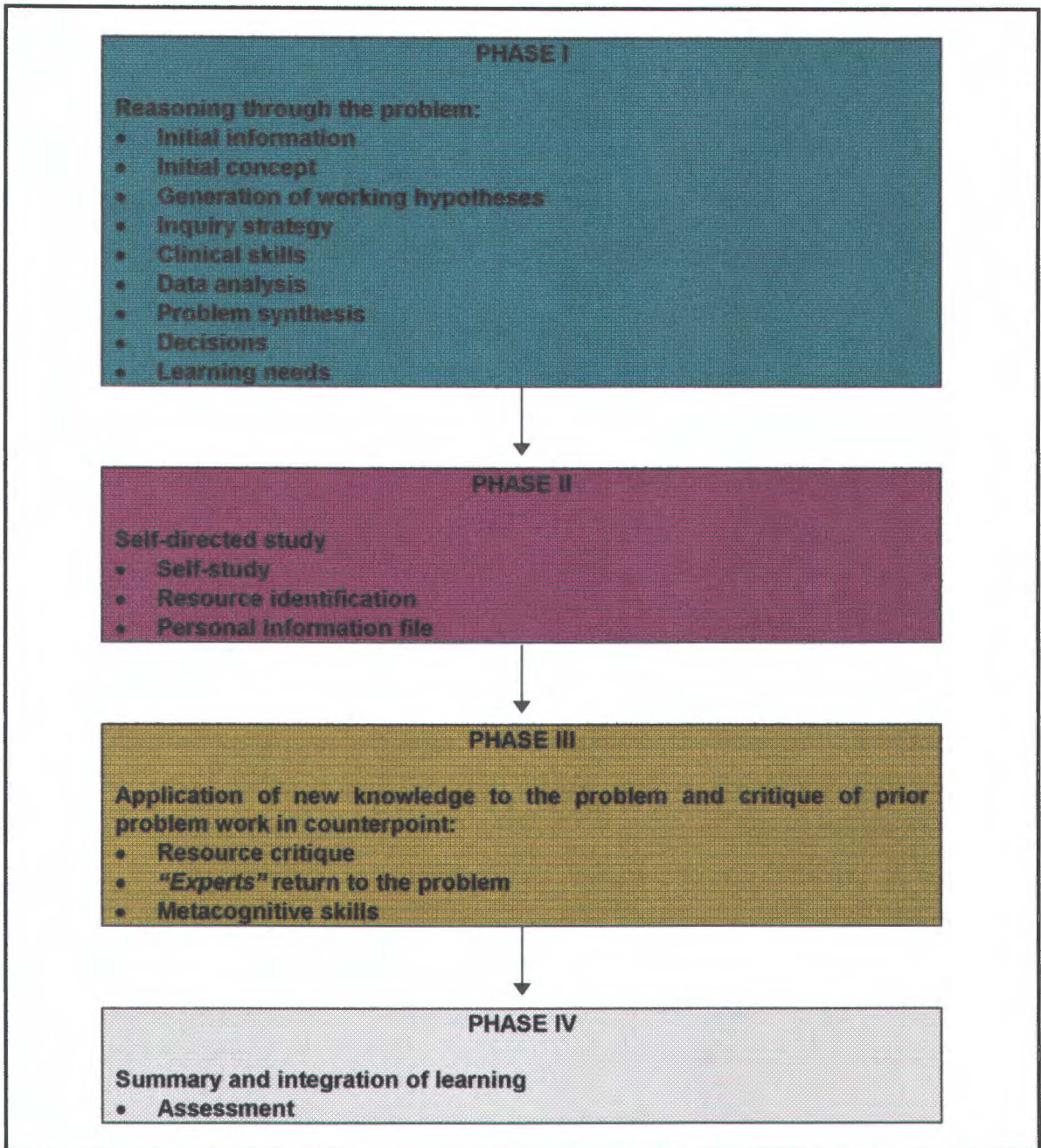


FIGURE 3.1: The problem-based learning group process

3.9.1 Phase 1: Reasoning through the problem

According to Albanese and Mitchell (1993:74) in many tutorial groups, students are encouraged to prepare ahead of the discussion rather than approaching the

problem “cold” as recommended in problem-based learning. Barrows (1985:58), however, states very clearly that *“the problem is always encountered, before any study”*. According to Pallie and Carr (1987:64) McMaster University supports the concept of addressing a problem “cold”. Other authors such as Pelausa and Marsan (1993:421) and Ryan (1994:56) also support this emphasis on the problem to be presented first. It allows students to identify how much knowledge they already have about possible mechanisms involved in the problem and how well they can problem-solve with their own collective information and skills. The facilitation of prior knowledge also facilitates the understanding, organization and retention of new knowledge. Students thus concentrate their studies on areas where they truly have educational needs. Motivation and relevance for learning lead to efficient and effective study. If students study before they encounter the problem or are given lectures or reading assignments in areas related to the problem, knowledge will be organized in a subset-based way and not organized by problem-based associations or cues for subsequent clinical use. In clinical practise the health care worker sees a patient without prior study. The ability to reason through a patient problem must be developed (Barrows, 1985:60).

This links with the vision of Bligh (1995:323) who states that the challenge of experiences, previous knowledge, skills and activities with new knowledge and using these to solve clinically related problems, is stimulating for many students and is most appropriate, especially in a community setting (Bligh, 1995:323).

It is the tutor’s job in the beginning to make certain each segment of the problem is brought out as the students problem-solve in a natural way (Barrows, 1985:82). Every student should be given the opportunity to share their knowledge or beliefs and to critique the comments of others. The tutor facilitates this activity by challenging students’ correct and incorrect statements in a non-directive, non-judicial way. This is part of being non-directive. It encourages students to be responsible for the direction and quality of learning. This active

discussion and critique should eventually become a natural process and be carried on by students among themselves.

The tutor should stimulate discussion on important data such as the initial information and initial concept in the problem. The chalkboard becomes a central record for the problem-based learning process, allowing students in Phase III to criticize their prior approach to the problem, based on new learning (Barrows, 1985:63). Barrows (1985:60) recommends that a medical dictionary and textbooks relevant to the subject of the course be kept nearby for easy reference in Phase I.

The following step in the process, namely hypothesis generation, is a creative part of the problem-solving process. As problem synthesis develops, hypotheses are revised and new ones added. Barrows (1985:63) makes an interesting remark that neat lists inhibit creative thinking. Tutors should thus refrain from directing students to list hypotheses in consistent categories.

Inquiry strategy, the next step in the problem-based learning process, is a narrow, vertical, logical and deductive process (Barrows, 1995:65). Students determine which actions are important in leading their scientific investigation toward the more likely hypothesis. Barrows (1985:67) feels that clinical skills are part of this level of learning. The author suggests that it is valuable to have the tutor or a student to simulate a patient.

Data analysis may change hypotheses (Barrows, 1993:67). The development of problem synthesis is crucial to good problem-solving and can be encouraged by challenging students with summarizing important facts of a problem. Throughout this problem-based learning process students are encouraged to make decisions, thus fostering decision-making skills.

The last step in the first phase of the problem-based learning process is the identification of learning objectives. The tutor bears initially responsibility for this,

but the students should eventually identify learning needs themselves (Barrows, 1985:71).

As students analyze their thinking, their ideas, their deductive logic and their analysis of data, they learn to think and to reason. Even more important to Barrows (1985:68), they learn to monitor and analyze their own thoughts.

3.9.2 Phase II: Self-directed study

After identifying the learning objectives the students determine which learning resources are going to be used. Resources can be textbooks, computer information, models, microscopic slides or an expert (Barrows, 1985:73). Students should make a reference list or a “*summary sheet*” of the valuable resources to share with other group members. Objectives can be divided amongst group members or students may sometimes decide they all need to know everything. The latter approach promotes individual activity which lessens cohesiveness and subsequently fosters independence, a characteristic which seems to be lacking in problem-based learning graduates (Albanese & Mitchell, 1993:78).

3.9.3 Phase III: Application of new knowledge to the problem and critique of prior problem work in counterpoint

In the third phase where students return to the problem as experts, care should be taken that the process does not degenerate into mini-lectures where students tell each other what they have learned (Barrows, 1985:75). Resources should be critiqued and then students should start all over again with the problem, revising their approach, enquiring into their previous problem-solving, revise their hypotheses, inquiry strategy, data analysis, problem synthesis and particularly their choice of appropriate mechanism, tests and treatment based on the new knowledge. This is a powerful education process. Students are not only learning

new information but they are actively using the information in the analysis and synthesis of a patient problem and critiquing their prior knowledge.

This education cycle of problem-solving, needs analysis, self study, reapplication of knowledge and critique of prior performance, develops students' metacognitive skills (Barrows, 1985:76). These are executive or self-monitoring skills that allow the students to reflect on their analysis of problems, reasoning skills and knowledge and their decisions and appropriate self study. Initially the tutor provides these skills as externally driven metacognitive skills. A cognitive psychologist once summarized the point of problem-based learning. He said "*problem-based learning allows all students to learn the way good students always learn*" (Barrows, 1985:76).

3.9.4 Phase IV: Summary and integration of learning

The last phase is an important part of problem-based learning. Summary and integration allows students to organise what they have learned in a discipline or subject-orientated sense (Barrows, 1985:78). Group evaluation is also included in this phase. Evaluation will be discussed later in this chapter.

3.10 RESOURCES

The range of resources available for problem-based learning is immense. The resources can be categorized as human, materials, space and fiscal. Added to these is time. Househam (1993:20) states that resources take time to develop, thus the time required is a necessary and vital resource.

The most important difference between the resourcing of problem-based learning and that of traditional programmes is the significant contribution of people (Van Niekerk & Van Aswegen, 1993:39). The human resources include educators, experts, students and patients.

Educators or guest lecturers are sometimes available by appointment to meet with tutorial groups in their specialised fields, adopting the role of resource person (Pallie & Carr, 1987:67; Ryan, 1993:38). In such a resource session issues are clarified and information is provided.

Students should have access to community information services, government departments and health agencies in order to gain current and appropriate information. Direct contact can be made with professional practitioners in health care and associated areas (Van Niekerk & Van Aswegen, 1993:39).

The group process supports the resourcing activities. Group learning and the development of group skills provide a rich resource both directly and indirectly (Van Niekerk & Van Aswegen, 1993:39). The sharing of learning tasks leads to a wide range of information and perspectives. The students are also encouraged to validate their own life experience and intuitive knowledge as a valid resource.

Van Niekerk and Van Aswegen (1993:39) feel that real patient experiences are essential to ensure that students gain full benefit from the course. Different techniques and skills, such as interviewing, physical examination and interpersonal skills can be discovered and developed.

On the topic of human resources Househam (1993:20) writes that motivated students and staff who are prepared to sacrifice time are essential resources for problem-based learning. The latter is particularly related to evaluation.

In terms of materials the library is usually the source of numerous learning resources from books to periodicals to other audiovisual resources, such as slide shows, video-cassettes and computer programmes (Pallie & Carr, 1987:67). The key factor is that it should be frequently updated (Van Niekerk & Van Aswegen, 1993:39). Other college-based materials and equipment used are science and nursing laboratories, with simulator models.

A classroom with facilities such as a table, chairs and a blackboard are space resources required for problem-based learning (8th International Workshop, Suez Canal University, 1994). All educational programmes need fiscal resources which are usually limited as was discussed in Chapter 2 (see 2.4.1).

Cray and Patt state that “*problem-based learning is a resource-intensive form of learning and the challenge for educators is to maintain a high level of resourcing at a low cost*” (Van Niekerk & Van Aswegen, 1993:39).

3.11 EVALUATION

One of the most difficult aspects of problem-based learning is the assessment of what students have learned, since problem-based learning is characterized by a high level of both freedom and accountability (Gist, 1992:10).

Traditionally, assessment of learning concentrated on factual information (Gist, 1992:10). Problem-based learning emphasizes scientific reasoning, acquisition and integration of knowledge, peer support, teaching and communication skills, group interaction and assessment of one’s self and one’s peers (Feletti, Saunders & Smith, 1983:7; Gist, 1992:10).

In the context of health care education, clinical skills, such as good patient communication, appropriate evaluation, including proper performance of a physical examination and logical clinical problem-solving are attributes desired in graduates (Feletti *et al.*, 1983:7). It is important that the process of student evaluation mirrors the learning objectives of the course (Sloan, Donnelly & Schwartz, 1994:23). These characteristics fostered by problem-based learning should thus be given equal consideration with respect to academic appraisals (Gist, 1992:10; Neame, 1994:706). Additionally, a proper evaluation process should give feedback to students concerning their strengths and weaknesses (Sloan *et al.*, 1994:22).

It has been demonstrated that a multidimensional multifactorial assessment programme more reliably assesses student performance than does the traditional evaluative process (Feletti *et al.*, 1983:9 ; Sloan *et al.*, 1994:23). Echt and Chan (1977:681) endorse the value of a comprehensive evaluation system in that it aids academic staff and students in monitoring and guiding students' progress and learning efforts. Various evaluation methods and instruments should thus be used for problem-based learning. Another demand made is that students should be evaluated by their peers as well as by academic staff (Neame, 1981:98 ;Gist, 1992:10).

Objective and subjective methods are used in formative and summative evaluation of problem-based learning.

A few evaluation methods will be discussed.

Neame (1981:98) reports on three levels of assessment used in the curriculum of the medical school of the University of Newcastle. Two were formative (for the students' benefit) and one summative (for feedback to academic staff and for certification purposes). Formative assessment's first level is related to specific learning units and the content they present while the second level covers one or more whole problems and checks that students are able to apply knowledge. Summative evaluation resembles the latter type of formative evaluation, but it carries implications for the students' progression and certification.

Feletti *et al.* (1983:8) give an account of the different evaluation instruments and their objectives used in the same medical school. Evaluation of own learning was a written exercise to measure a student's ability to investigate an unfamiliar aspect of a medical problem. Scientific method and critical thinking were assessed by an objective structured clinical evaluation. Students were asked to perform a variety of tasks to measure the understanding of relationships. At each station students were presented with a written or videotaped clinical encounter. A critical overview of a published paper measured the same skills.

Clinical diagnosis, investigation and management were evaluated using the modified essay question and case presentation. Professional attitudes and personal characteristics and relationships were assessed during an interview with a patient.

The University of Ottawa School of Medicine's evaluation is done on a continuous basis using multiple modalities (Pelausa & Marsan, 1993:425). These may take the form of multiple - choice examinations, essay questions and short answer tests. The students are continually evaluated in their small-group sessions and clinical rotations. These evaluations are formative with timely feedback to the students. The students also evaluate the performance of the academic staff. In order to promote co-operation in groups rather than competition, the grading is pass, fail or honours.

In the McMaster programme there are no formal examinations (Pallie & Carr, 1987:68). The only exam that does present itself as obligatory is the qualifying board examination to practice. This was first seen as a drastic step. However, the authors argue that an examination to prove what you already can estimate, is unnecessary. Tutors observe students in tutorial sessions for about six to eight hours a week for 10 to 12 weeks, by which time it is quite easy to score students accurately.

Self-evaluation tools, multiple choice questions and modified essay questions are available to McMaster University students (Pallie & Carr, 1987:69). There are also a few periodic test situations for individual students. One such is called the "*triple jump*" exercise. In step one, a student reads over a problem and verbally presents first impressions with some deductions to the tutor. Critical issues are then identified by the student for follow up in order to solve some of the problems that are recognised. Step two is a period of study, when the student uses any resource to accomplish the set tasks. In step three, the student returns to the tutor verbally to present the newly formed evaluations, deductions

and analysis of the problem. The tutor then gives feedback to the student directly with constructive criticism where necessary.

Taylor, Pels and Lawrence (1989:675) report that most curriculum evaluation during the first year of the "*New Pathway*" at Harvard Medical School consisted of subjective evaluations gathered from informal discussions with students and preceptors.

Sloan *et al.* (1994:18) report that a multi- assessment programme is used in the University of Kentucky's medical school. Subjective evaluation methods include tutor, preceptor and peer evaluation while objective evaluations include multiple-choice question quizzes, pre- and post-tests, computerized patient management problems, standardised patient examinations and objective structured clinical examinations. The tutor evaluated characteristics important for a problem-based learning participant, preceptors completed a questionnaire grading characteristics, while students identified fellow students who best demonstrate certain characteristics. Pre- and post-tests and multiple choice examinations primarily measured the clinical knowledge base, while computer simulations assessed clinical reasoning skills and the standardized patient examination evaluated students' ability to obtain a history, perform a physical examination, to order and interpret laboratory findings and diagnostic findings and to formulate a differential diagnosis and an initial treatment plan. Finally, the objective structured clinical examinations assessed technical skills (Sloan *et al.*, 1994:19-20).

Most of the problem-based learning schools use group process evaluation. It is usual briefly to evaluate the tutorial after each occasion (Pallie & Carr, 1987:66). This feedback may help to adjust an individual student attitude or that of the tutor for future occasions. According to Barrows (1985:79) students should evaluate their own performance in four different areas:

1. Reasoning or problem-solving skills
2. Knowledge brought to the problem

3. Self-study skills and subsequent knowledge gained
4. Contribution to the group

Initially this process might be artificial and superficial statements are made. The tutor should assist this process by asking opinions of other students and assessing the students. This process becomes automatic and natural in time. This is an important advantage of problem-based learning in that an educational, psychological, attitude or situational problem can be identified early and corrected (Barrows, 1985:80). The tutor should also be evaluated in this way. Lastly the members should evaluate how well they functioned as a group.

From the literature it is clear that various evaluation methods and instruments are used for problem-based learning. These include assessments of participation in sessions, written critiques of the problem, hypothesis generation, final analysis of the solution(s), oral presentations of the problem and solution(s), essays/assignments, field reports, classroom presentation, role play, journal writing, poster drawing, group projects and a limited use of structured examinations (Townsend, 1990:61; Gist, 1992:10; Kelly & Davey, 1994:96; Stockhausen & Creedy, 1994:73). Townsend (1990:61) believe that assessment must be criterion referenced.

It is interesting that Townsend (1990:62) reports that interactive performances of students with patients during the objective structured clinical assessment are video-taped and the last station is always an evaluative one in which students replay the video and reflect on their performance. In this way a significant element of self-evaluation is incorporated.

Developing and maintaining various evaluation modalities clearly requires different levels of resource investment. In general, the subjective evaluations require less academic staff time investment than do objective evaluations (Sloan *et al.*, 1994:23). Maintaining the more complicated assessment modalities such as standardised patient and OSCE examinations requires both academic staff

time commitments and a considerable financial investment. Sloan *et al.* (1994:23) ascribe the success of an assessment programme to the commitment of the chairman and the academic staff. It is these authors' contention that since it has been demonstrated that a multidimensional assessment programme more reliably assesses student performance than does the traditional evaluative process, the costs, both in academic staff time and in money, are well justified.

3.12 CONCLUSION

Problem-based learning can occur in clinical, community or in laboratory settings.

Essential requirements for problem-based learning are defined as:

- clearly stated objectives,
- a problem or situation as the starting point,
- resources (staff, students, materials and library), and
- evaluation with the ability to make changes if necessary.

In problem-based learning students are encouraged to define their own learning issues arising from the problem presented at the first tutorial of the week. Work is allocated in the group and the students undertake learning tasks on their own and report back at the second tutorial. The group then attempts to answer questions that have arisen from the problem that they have been given. The effect of this process is that not only does the student acquire knowledge and develop self-directed learning skills, but important social and communication skills are acquired. A high level of motivation and interest are maintained amongst the students (Prideaux, Farmer Rolfe, 1994:1).

Schmidt (1993:428) summarizes problem-based learning's cognitive effects on student learning as:

- Activation of prior knowledge;
- Elaboration on prior knowledge;

- Restructuring of knowledge;
- Ability to identify cause - effect relationship;
- Learning in context; and
- Emerging of epistemic curiosity.

Central to the process is that students while thinking, studying and talking about the particular problem, build a context-sensitive cognitive structure of the processes, principles or mechanisms underlying the visible phenomena, which may help them understand complex problems presented (Schmidt, 1993:428). In the final analysis this may support the management of these problems when encountered in professional practice. The construction of such semantic networks, tuned to the situation-at-hand is the goal of problem-based learning.

This constant supportive challenge of the level of metacognitive awareness, combined with application of knowledge, skills, and attitudes encourage “deep” rather than “surface” approaches to learning by students. Students end up being reflective practitioners - they examine their practice and come to terms with evaluating their own learning (Van Niekerk & Van Aswegen, 1993:37).

The underlying principles incorporated in this teaching methodology are:

- to shift learners toward independence - moving away from the narrow world of text and teacher;
- the development of analytical and creative thinking skills;
- the development of self-directed learning abilities;
- the encouragement of co-operative learning;
- the integrated application of skills and knowledge within the context of practice; and
- the encouragement of motivation for learning.

3.13 SUMMARY

Throughout the world the approach of problem-based learning, within tertiary education, is now well established.

Problem-based learning cannot offer an educational panacea. Along with other experiential forms of learning it is just one way in which curriculum concerns can be addressed. But it is particularly appropriate when curriculum aims emphasise the consistent integration of knowledge, skills and attitudes within the profession's practice and primary health care. Problem-based learning does not have to equate with poor content knowledge. Careful implementation and assessment can result in higher standards of content knowledge and skills (Van Niekerk & Van Aswegen, 1993:38).

Health care practitioners of the future must learn how to select and integrate appropriate information in order to address health care issues in the best possible manner. Although no singular curriculum format can satisfy all educational needs, it appears as if problem-based learning offers the best chance for optimum learning and intellectual challenge within the framework of health education programme needs (Gist, 1992:12).

In Chapters 5 and 6 the design phase of the Advanced University Diploma in Midwifery and Neonatology will be discussed.

CHAPTER 4

Research methodology

4.1 INTRODUCTION

A situation analysis is of primary importance in the development of an education programme. Part 1 of the research is therefore based on the situational analysis for this programme. The components of the situation analysis are set out in Figure 4.1.

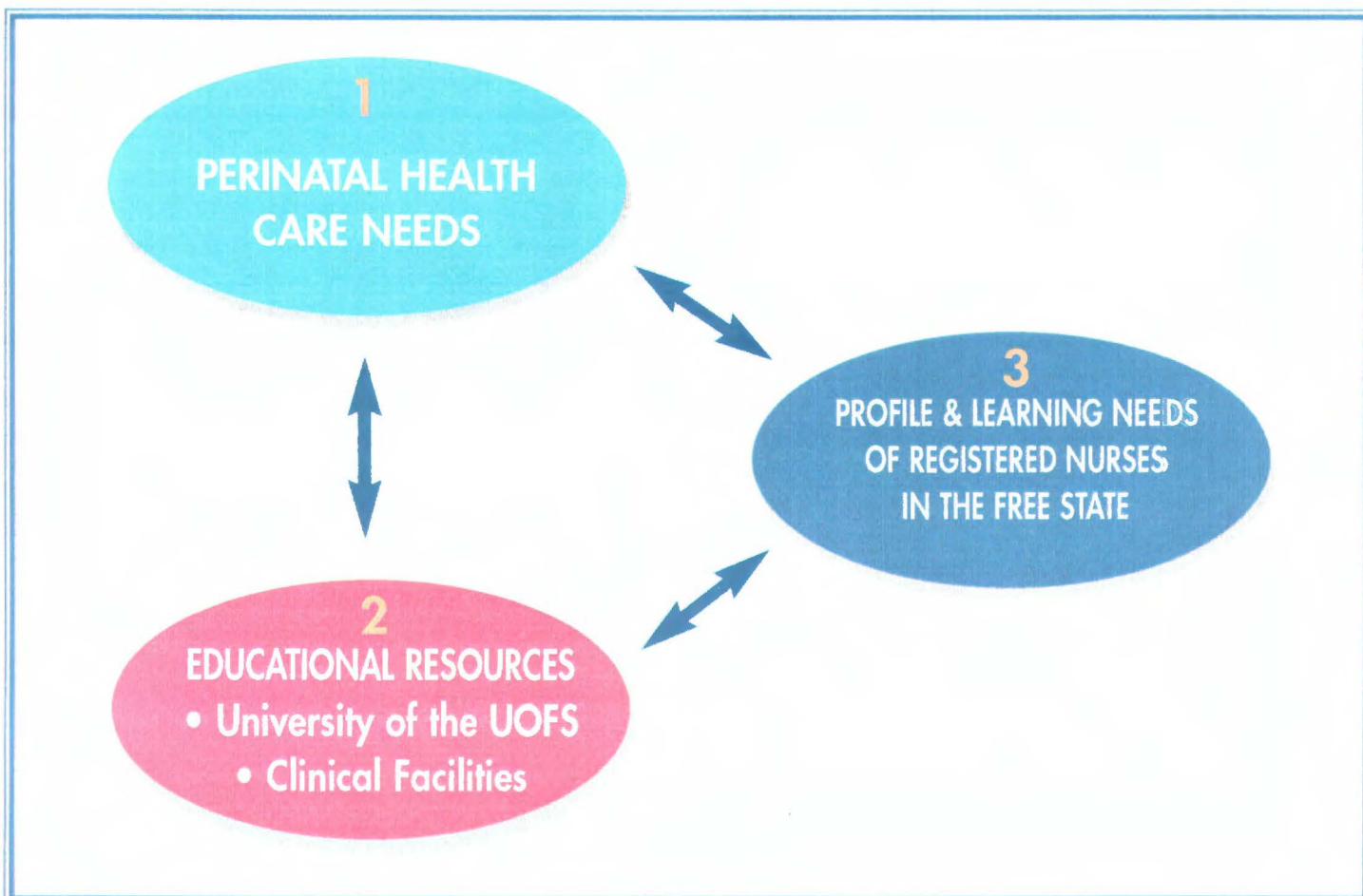


FIGURE 4.1: Components of the situation analysis

The objectives of Part 1 of the research were the description of the:

- (1) Perinatal health care needs of the Free State population;
- (2) Educational resources of the University of the Orange Free State and four hospitals with clinics and community health centres; and
- (3) Profile and learning needs of the registered nurses in the Free State regarding midwifery and perinatology (Figure 4.1).

Part 2 of the research involved the development of a curriculum, the production of materials and the implementation of the education programme. A literature overview of the process of change and the strategies implemented during the development and implementation of the Advanced University Diploma in Midwifery and Neonatology to facilitate change are also included.

4.2 PART 1

4.2.1 Research design and -methodology

The research design is non-experimental. The aims of the research were descriptive and developmental and were achieved through action research. The survey method which is seen as the ^{simple} broadest category of non-experimental research was used. Survey studies collect descriptions of existing phenomena and use the data to justify and assess current conditions and practices or to make intelligent plans for improving them (Lo Biondo-Wood & Haber, 1990:167). Data are often gathered using self-report methods, such as a questionnaire ^{simple} completed by the study subjects.

Advantages and disadvantages of survey designs exist. Two major advantages are that a great deal of information can be obtained from a large population in a fairly economical and timely manner and the survey research information can be surprisingly accurate (Seaman, 1987:85; Wilson, 1989:153). A disadvantage of the survey study is that the information obtained in a survey tends to be

superficial. The breadth rather than the depth of the information is emphasized (Lo Biondo-Wood & Haber, 1990:168).

4.2.2 Research techniques

4.2.2.1 Literature review

A literature review was carried out to collect data on the perinatal health care needs of the Free State population on programme development and problem-based learning. Data on the educational resources were collected by means of the literature review and observation.

4.2.2.2 Observation

Unstructured and structured observation, by means of a checklist, were conducted to collect data on educational resources (Burns & Grove, 1987:304). Observational notes were used by the researcher in the field, during unstructured observation (Wilson, 1989:434).

4.2.2.3 Questionnaire

The Department of Nursing of the University of the Orange Free State is of the opinion that grass roots involvement by clinical practitioners in the development of the curriculum of this course is essential. Newbury (1995:36) reports that practice nurses express specific learning needs, but generally appear to lack a systematic review of their learning needs. This research was conducted in order to develop an educational programme that will suit both the perinatal health care needs of the community, the learning needs of the potential student population, and the service objectives of the relevant health authorities using the available educational resources.

A questionnaire similar to the one mentioned by Diamond (1989:59) was developed to obtain the data on the learning needs of registered nurses regarding midwifery and perinatology. According to Diamond (1989:59) questionnaires are extremely effective tools for collecting discipline - specific information. The questionnaire was thus appropriate as a data collection technique. It was cost-effective in the sense of money and time and the data which were collected, did not require indepth interviewing. Questions were presented in a consistent manner, and there was less opportunity for bias than by interviews (Burns & Grove, 1987:311).

The questionnaire was accompanied by a covering letter, explaining the purpose of the study, the approximate amount of time required to complete the questionnaire and other instructions on the return of the completed questionnaire (see Annexure E).

The questionnaire (see Annexure E) was divided in to two parts (Checklist A and Checklist B). Table 4.1 indicates the topics covered in the questionnaire. In checklist A the possible responses were provided, but an open category was left, where appropriate, for answers other than those provided. Three open questions were included in this part of the questionnaire. The responses were coded for computer analysis, and the added responses were coded after completion of the questionnaire.

In Checklist B respondents were asked to rate their competency on a five point Likert-type scale:

- (1) poor,
- (2) reasonable,
- (3) good,
- (4) very good and
- (5) excellent.

The data were collected from April until July 1994.

Permission to undertake the research was requested (see Annexure C) and obtained (see Annexure D) from the Deputy Director of Nursing in the Free State.

The questionnaire was mailed to the respondents. A follow-up letter was mailed six weeks later to all the respondents to remind them about completing and returning the questionnaire (see Annexure F).

TABLE 4.1: Categories of data covered in the questionnaire

QUESTIONNAIRE			
Checklist A	Question	Checklist B	Question
Profile data		Self-perceived competency data	
• Sociographic	1-2	• General Nursing Care	1,2
• Educational	3-7	• Antenatal Nursing Care	3
• Vocational	8-15	• Intrapartum Nursing Care	4,5
• Opinion on services rendered	16,17	• Postnatal Nursing Care	6,7
• Professional development	18-23, 28	• Neonatal Nursing Care	8,9
• Need for an advanced diploma in midwifery and neonatology	24-27		

Nursing services managers were requested to motivate registered nurses to cooperate.

Over a 16-week period a total of 523 questionnaires were returned; a response rate of 26,2%. Nine questionnaires (0,45%) were returned as undelivered, thus 514 (25,7%) questionnaires were analyzed.

4.2.2.3.1 Validity

According to Lo Biondo-Wood and Haber (1990:250) content validity refers to whether the questionnaire and the items it contains are representative of the content domain the researcher intends to measure. Face validity is a very primitive type of validity that verifies basically that the instrument “looks” like or gives the appearance of measuring the content (Burns & Grove, 1987:295).

The researcher implemented the following steps to measure up to the demands of content and face validity:

- The scope of practice of the midwife was studied.
- The essential content to be covered by the questionnaire was identified.
- Dimensions (student profile and competency) were identified.
- Items were formulated according to the dimensions. A decision was made on how many items were to be included under each dimension in order to collect the information required. (Skills, for example assisted deliveries, not included in undergraduate courses but expected from nurses working in specific health care centres, were included in Checklist B.)
- For the sake of clarity the questionnaire was translated into English and Afrikaans. A linguist evaluated the questionnaires in both languages.
- Open and closed ended questions were used to obtain a variety of data.
- The questionnaires were submitted to six domain experts to be judged.

The experts were asked to evaluate:

- if the items were representative of the dimensions identified;
- the sequence of the items; and
- the face validity of the instrument.

Several items were modified in accordance with suggestions from the experts.

- A pilot test of the questionnaires was performed. Ten registered nurses with midwifery registrations and expertise were used for the test. Respondents of

the pilot study were asked to judge the questionnaire for ambiguity and clarity. The nurses were also asked to identify the time required to complete the questionnaire. The phraseology and/or construction of a few questions were modified after the pilot study.

- Because of the sensitive nature of the questionnaire - respondents were asked to evaluate their own knowledge and skills - anonymity was ensured.

The respondents were requested to telephone the researcher if they encountered any problems on completion of the questionnaire.

4.2.2.3.2 Reliability

Lo Biondo-Wood and Haber (1990:255) define the reliability of a research instrument as the extent to which the instrument yields the same results on repeated measures.

The reliability of the questionnaire was ensured by asking five respondents of the pilot study to complete a questionnaire two weeks after completion of the first one. The researcher checked both questionnaires of the five respondents for variation on specific questions and items which were unanswered. In this way ambiguous and unclear questions could be identified and modified. The responses to both questionnaires were nearly identical and the minimum number of questions were left unanswered. It was accepted that reliability was proven.

4.2.2.3.3 Sampling

The target population was identified as all the registered nurses in the geographical area of the Free State. In 1994 membership of the South African Nursing Association was compulsory. The Association established the total population of registered nurses and midwives in the Free State at 5 996.

Simple random sampling was used in this study. According to Burns and Grove (1986:48) random sampling provides a sample that is most representative of a population, because each member of the population has an equal probability of being included in the study.

Simple random sampling was done by the South African Nursing Association by means of a computer programme. A sample size of 2000 (40%) was used. The researcher wanted the sample as large as possible, because large samples are better approximations of the target population and the possibility of achieving statistical significance is greater with a larger sample (Burns & Grove, 1987:219).

Although strategies to increase the response rate, such as enclosing a stamped, addressed envelope and mailing a reminder were implemented, the response rate was 26,2%. The response rate for mailed questionnaires is usually small (25 to 30 percent) (Burns & Grove, 1987:314). Wilson (1989:149) reports a response rate as low as 15% to 20%, even if a stamped, self-addressed envelope and engaging cover letter are included.

The questionnaires were mailed in April 1994, at the same time as the first democratic elections in South Africa were being held. Strikes of postal workers accompanied the elections. Another factor that could have played a role in the response rate, was the fact that questionnaires were mailed to respondents' home addresses and respondents could have been working away from home. It could also be that addresses at the South African Nursing Association had not been changed when registered nurses moved.

4.2.2.3.4 Data-analysis

Descriptive and inferential statistics were used in the data-analysis. The SAS programme was used for the analysis¹. The chi-square non-parametric statistical and Fisher's exact tests were used to determine correlation. Two biostatisticians served as advisors during the analysis of the data.

4.3 SUMMARY

In Part 1 of the research a survey study was conducted using a literature review, observation and mailed questionnaire to determine perinatal health care needs, educational resources and learning needs of registered nurses in the Free State regarding perinatal health care. The analysis and discussion of the data follow in Chapter 5.

A non-experimental research design was also used in part 2 of the research. The aim of this part of the research was developmental. Research techniques included a literature overview on the process of change and structured and unstructured observation to assess students and the tutor.

¹ SAS-programme - Statistical Analysis System.

CHAPTER 5

Data-analysis and conclusions

5.1 INTRODUCTION

The research design of the empirical study was discussed in Chapter 4. A situation analysis, consisting of three parts, was carried out:

- (1) The perinatal needs of the community in which the graduates will work were assessed;
- (2) The educational resources of the University of the Orange Free State and four training hospitals were assessed; and
- (3) The learning needs of the potential student population were determined.

In this chapter the gathered data will be explored and interpreted under the three headings. Conclusions will be drawn from the data.

A biostatistician served as an adviser during the analytic process.

5.2 PERINATAL HEALTH NEEDS

The perinatal health needs of the Free State were analyzed, explored and discussed in Chapter 1 as part of the problem statement.

5.3 EDUCATIONAL RESOURCES

Establishing the human, physical and fiscal resources available for an education programme is an important step in the situation analysis. It has a direct influence on the objectives, content, methodology and evaluation of the programme.

5.3.1 Human resources

The educators and clinical facilitators available for the advanced university diploma in midwifery and neonatology will be analyzed. Students will be discussed elsewhere in this chapter.

The Department of Nursing is a department of the Faculty of Social Sciences of the University of the Orange Free State. The University of the Orange Free State is a residential university in the Free State Province, with a well functioning administrative structure. The university had 9 186 students in 1994 and 9 646 in 1995. Currently (1996) the student number is 9 104.

In 1995 the Department of Nursing had a staff of 37 of whom eight were part-time lecturers. The staff were divided into the following categories:

* Head	1
* Professor	1
* Senior lecturers	3
* Lecturers	19
* Clinical facilitators	8
* Administrative personnel	5

The University of the Orange Free State adopted a policy of addressing the language needs of the community it serves in 1994. Parallel medium and dual medium instruction were introduced in 1995 for all undergraduate and postgraduate courses respectively. Lecturers are therefore expected to be bilingual and to be able to conduct classes in Afrikaans and English.

The qualifications of the academic personnel of the Department of Nursing who are involved in the education programme in advanced midwifery and neonatal nursing are set out in Table 5.1.

TABLE 5.1: Qualifications of academic personnel of the Department of Nursing involved in the Advanced University Diploma in Midwifery and Neonatology

PERSONNEL	1	2	3	4	5	6	7	8
Current position	Head of department	Professor	Senior lecturer	Senior lecturer	Lecturer	Lecturer	Lecturer	Lecturer
Highest academic qualification	D.Soc.Sc	Ph.D.	D.Soc.Sc	D.Soc.Sc	M.Soc.Sc	D.Litt. et Phil.	M.Soc.Sc	M.Soc.Sc
Years of teaching experience	26	15	16	15	8	26	11	14
Professional registrations	<ul style="list-style-type: none"> • General Nursing • Midwifery • Psychiatric Nursing • Community health Nursing • Intensive care Nursing • Nursing Administration • Nursing Education 	<ul style="list-style-type: none"> • General Nursing • Midwifery • Psychiatric Nursing • Community health Nursing • Intensive care nursing • Nursing Education 	<ul style="list-style-type: none"> • General Nursing • Midwifery • Psychiatric Nursing • Community health Nursing • Intensive care nursing • Nursing Education 	<ul style="list-style-type: none"> • General Nursing • Midwifery • Psychiatric Nursing • Nursing Education 	<ul style="list-style-type: none"> • General Nursing • Midwifery • Psychiatric Nursing • Community health Nursing • Nursing Education 	<ul style="list-style-type: none"> • General Nursing • Midwifery • Psychiatric Nursing • Community health Nursing • Nursing Administration • Nursing Education 	<ul style="list-style-type: none"> • General Nursing • Midwifery • Psychiatric Nursing • Community health Nursing • Nursing Administration • Nursing Education 	<ul style="list-style-type: none"> • General Nursing • Midwifery • Psychiatric Nursing • Community health Nursing • Nursing Administration • Nursing Education

The South African Nursing Council does not specify the qualifications of lecturers in their Directive for the Advanced Diploma in Midwifery (see Annexure G). Table 5.1 indicates that the staff of the Department of Nursing involved in this education programme are well qualified. The lecturers have an average of 16.38 years of teaching experience. Five of them have doctorates and the other three have master's degrees, two of whom specialized in the field of midwifery. All the lecturers involved in this education programme have professional registrations in Nursing Education, General Nursing, Midwifery and Psychiatric Nursing with the South African Nursing Council.

Seven of the lecturers have a professional registration in Community Health Nursing, three in Nursing Administration and three in Intensive Care Nursing.

The lecturers take part in the education of undergraduate, postgraduate, postbasic diploma and advanced diploma students. They are also involved in research and community service activities. The lecturers of the Department of Nursing update their knowledge and skills by attending inservice training sessions weekly and attending conferences, symposia, courses and workshops at regional, national and international levels.

Specialists in anthropology, obstetrics and paediatrics assisted the lecturers in the design and implementation of the Advanced University Diploma in Midwifery and Neonatology.

Adequate human resources therefore exist for this education programme.

5.3.2 Physical resources

The physical resources available for the programme will be discussed. These include the University of the Orange Free State with emphasis on the Department of Nursing, and the four hospitals with their clinics and community

health centres, i.e. Pelonomi, Universitas, Goldfields Regional and Moroka, where the students receive their clinical training.

5.3.2.1 University of the Orange Free State - Department of Nursing

The space and materials available for education will be analyzed.

5.3.2.1.1 Audiovisual apparatus

The following equipment is kept in a storeroom:

- 3 slide projectors
- 1 caramate
- 5 carousels
- 1 collapsible overhead projector
- 1 extension lead
- 1 audioplayer

These items are available to all the lecturers. Every lecturer has a carousel and an extension lead is available in every section.

Every lecture hall in the University is equipped with specific audiovisual apparatus. The University of the Orange Free State also has a Bureau for Academic Support from which audiovisual apparatus can be borrowed and which manufactures videos, slides and overhead transparencies.

5.3.2.1.2 Multimedia resource centre

A multimedia resource centre, consisting of two simulation laboratories, a computer learner centre, a video production unit with closed circuit facilities and lecture rooms, is situated within the Department of Nursing.

5.3.2.1.2.1 Simulation laboratories

Clinical skills are an important objective of any nursing education programme. A variety of techniques and skills can be demonstrated and practised in the simulation laboratories on/with simulated models or patients or real patients, before students encounter these techniques or skills in the clinical situation. This experience enhances confidence and familiarity with clinical skills and results in more effective use of learning opportunities in the clinical situation.

Two spacious simulation laboratories (H19 and H28) are situated opposite each other in the Department of Nursing and because of their proximity all the equipment and supplies of the laboratories can be used in either of the two rooms. Both laboratories have wall-to-wall carpeting, central heating and fans. The fans are ineffective, air conditioning is not available and the laboratories are hot in summer and not well ventilated.

Laboratory (H19) has three basins and laboratory (H28) has one basin and one baby bath-type of basin. Hot and cold water are available, although problems are experienced with the supply of hot water.

Laboratory (H28) has white walls which can be used as a screen for the projector or slides. Laboratory (H19) has brown walls. Both laboratories have white horizontal blinds and curtains. Effective darkening is not possible.

The laboratories are divided into cubicles for practical demonstrations. Laboratory (H19) has six small and two large cubicles for groups of six and ten students respectively. Laboratory (H28) has three large cubicles and five wooden partitions. Sound is a problem during practical sessions, as the cubicles are open and adjacent to one another.

Every laboratory has a storeroom and cupboards which can be locked for the storage of apparatus and supplies. The laboratories are well equipped. Equipment which can be used specifically for the advanced diploma in midwifery and neonatal nursing are listed below:

- 7 Beds with mattresses
- 1 Incubator
- 1 Cradle
- 6 Adam Rouilly adult models
- 2 Linen trolleys
- 14 Surgical trolleys
- 2 Oxygen administration sets
- 1 Defibrillator
- 1 ECG machine
- 2 Emergency trolleys
- 2 Adult resuscitation bags (Ambu bag)
- 1 Paediatric resuscitation bag
- 2 Laryngoscopes with 4 adult and 3 neonatal blades
- 1 Pair intubation forceps
- 2 Intubation wires
- 5 Airways
- 15 Sphygmomanometers
- 14 Stethoscopes
- 4 Pairs artery forceps
- 3 Pairs stitch scissors
- 4 Pairs clip forceps
- 1 Swab holder
- 15 Thomas Walker needle holders
- 15 Bonney's forceps
- 2 Pairs Wrigley's forceps
- 2 Episiotomy scissors
- 1 Cusco speculum
- 7 Graves specula

- 7 Pederson specula
- 15 Fetoscopes
- 6 Protective goggles
- 2 Torsos
- 1 Arrhythmia resusci-Anne
- 1 Resuscitation model
- 1 Resusci-baby
- 1 Laerdal adult intubation model
- 1 Baby intubation model
- 2 Plastic open airway intubation models
- 5 Arms for obtaining intravenous blood or setting up intravenous lines
- 1 Breast examination model
- 2 Female urinary catheterization models
- 3 Pregnant abdomen models
- 10 Fetuses with umbilical cord and placenta
- 2 Sets of six dilated vaginal models
- 2 Vaginal assessment models
- 1 Birthing simulating station
- 1 Episiotomy repair simulator
- 1 Newborn doll
- 3 Dolls
- 1 Male pelvis
- 5 Female pelvises
- 1 Set of fetus-in-utero model
- 1 Ovulation and conception model
- 1 Paediatric injectable head model

Disposable supplies, for example needles, blood tubes and catheters are obtained from the Universitas Hospital. Pharmaceutical companies also donate supplies to the Department of Nursing for educational purposes. Most of the equipment of the laboratories is bought with private funding.

5.3.2.1.2.2 Computer learner centre

The computer learner centre was established to promote competency in computer skills and individual or group learning, using computer instruction methods. Students also have access to computer programmes to help them with their assignments. A production computer is used for the production of nursing educational computer programmes.

This centre was established by private funding. It is learner friendly with pale pastel walls, wall-to-wall carpeting, blinds before the windows and effective air conditioning.

The centre is equipped with 18 computers. Nine computer stations are partitioned off, while the other nine are open. Every computer has a colour screen, a mouse and a keyboard. All the computers are linked to the university's network for computer supported instruction. Six of the computers have hard discs with Word for Windows programmes.

The production computer has a CD rom, soundblaster, video blaster, scanner and printer. This computer is linked to the main frame of the University of the Orange Free State's computer network, which is linked to the international network. International nursing information can thus be acquired.

5.3.2.1.2.3 Video production unit with closed circuit television facilities

Videos on clinical skills and health care educational videos are produced in this unit. Some of these videos are used in nurse training programmes and schools of nursing outside the University of the Orange Free State.

This unit was also equipped with the help of private donations. It is housed in two rooms adjacent to laboratory H27. One room is equipped for recording with

two fixed video cameras, one free standing video camera on a tripod and a microphone. The room can be effectively darkened. Two reflector lights are used during filming.

The other room is used for production and editing. It is equipped with two small television screens, two sophisticated video machines, a sound and image mixer and a computer with an avert key. This can be used for writing titles on the screen. A big portable television screen, video machine and palmcorder video camera are also stored in this room.

The production rooms have central heating and wall-to-wall carpeting. They do not have air conditioning. Ventilation is inadequate and the rooms are hot in summer.

5.3.2.1.2.4 Lecture rooms

The University of the Orange Free State has numerous lecture halls which differ in size. Every lecture hall is equipped with an overhead projector, a screen and a chalkboard. One classroom, W111, located within the Department of Nursing, is also equipped with an overhead video projector. Most of the lecture rooms are equipped with fixed tables and chairs which hamper group work.

Two smaller lecture rooms, for the exclusive use of the Department of Nursing, are situated directly adjacent to laboratory H19. They have a high occupancy rate and are used for practical demonstrations, tutor sessions and small group discussions.

The rooms have central heating but no air conditioning. Ventilation is poor and the rooms are hot in summer, especially in the afternoons. They are well equipped, each having 40 loose chairs, an overhead projector, a screen and a blackboard.

Room H18 will be used mainly for the Advanced University Diploma in Midwifery and Neonatology. It is equipped with a close circuit television screen, which is operated from the production unit. It also contains a baby bath-type basin.

Some of the chairs have a small collapsible side table attached to one side, which is, however, inadequate for writing. A need for a large table for group work was identified during the planning of this education programme.

There is a seminar room elsewhere in the Department of Nursing, but it is used mainly for faculty meetings and was not available at key times.

Adequate apparatus is available in the Department of Nursing for the Advanced University Diploma in Midwifery and Neonatology. Ventilation and darkening seem to be a problem in certain rooms. A need for lecture rooms appropriate for small group discussions exists.

5.3.2.1.2.5 Library

There are two libraries on the campus of the University of the Orange Free State, both of which are within five minutes' walk of the Department of Nursing.

The libraries' loan system and catalogue are computerized, and computerized information systems with access to national and international information are available. The libraries have central air conditioning and good lighting that contribute to a positive working environment.

The SASOL library remains open until 22:00 on weekdays and 13:00 on Saturdays. It has eight levels and 1 100 study seats. The Frik Scott library closes at 17:30 on weekdays and has 44 study seats.

A total of approximately 2 680 books available in these libraries can be used for the Advanced University Diploma in Midwifery and Neonatology. Thirty six of the

available journals can be used for this education programme. The libraries both have audiovisual departments. One hundred and twelve videos, nine slide series, 20 computer programmes, three multimedia kits and 21 audiocassettes are relevant to this education programme.

Books or journals which are not available in the libraries can be obtained by means of an inter-library loan system.

The libraries are adequate for the Advanced University Diploma in Midwifery and Neonatology.

5.3.2.2 Hospitals

The students enrolled in this education programme receive their clinical experience in four hospitals, Pelonomi, Universitas, Goldfields Regional and Moroka, with their clinics and community health care centres. The educational and clinical facilities, relevant patient statistics and information about the health care staff of the maternity section are shown in Table 5.2.

Pelonomi Hospital is a tertiary hospital in the Free State province and is situated seven kilometers from the University of the Orange Free State. The situation analysis (Table 5.2) indicates that the hospital is well equipped. An average of 19.73 babies are delivered daily in this hospital. A labour ward is planned for the high risk unit, where patients from the unit will deliver. One thousand and forty caesarean sections (15,07% of the deliveries) are performed annually. There is only one caesarean section theatre in the maternity section of the hospital, but the hospital has 10 other theatres which can be used for caesarean sections if needed. Obstetricians, paediatricians, medical officers, registrars, other doctors and interns work in this hospital.

TABLE 5.2: Situation analysis of the midwifery sections of the four training hospitals (1994/1995) (to be continued)

NAME OF HOSPITAL	Pelonomi	Universitas	Goldfields Regional	Moroka
	f	f	f	f
EDUCATIONAL FACILITIES				
Seminar room	1	1		1
Office for tutor		1		1
Library				
• Midwifery related books		4		3
• Midwifery related journals				
Teaching aids				
• Overhead projector	1		2	1
• Film projector				1
• Slide projector	1		1	1
• Caramate		1		
• Carousel	1	1	1	1
• Slides (midwifery)		2 sets		3 sets
• TV screen	1	1	1	1
• Video machine	1	1	1	1
• Videos (midwifery)				5
• Anatomical models	4		2	4
• Anatomical charts	4			6
• Chalkboards	8	7	4	5
• Screen for projection	1		1	1
CLINICAL FACILITIES				
Antenatal clinic				
• Yearly number of patients	22 357	6 111	10 800	10 200
• Cubicles	12	4	3	11
• Examination couches per cubicle	1	1	1	1
• Equipment				
– ultrasound machine	3	2	1	
– doptone	3	1		
– fetoscope	12	4		11
Antenatal ward				
• Rooms	7	12	6	3
• Number of beds per room	4-6	1	2-16	2-8
• Total number of beds	36	12	41	14
• Equipment				
– foetal heart monitor	1	1	1	
– doptone	2	1	2	
– fetoscope	8	2	4	1
• Resuscitation trolley	1	1	1	1
• Admission room/s	1	1	1	
• Number of beds per room	4	1	4	
• Equipment				
– neonatal resuscitator with overhead warmer (Meko)	1			
First stage room/s				
• Number of beds	1	5	1	1
• Number of beds	5	5	4	4
Delivery room/s				
• Number of beds per room	4	5	5	2
• Number of beds per room	1	1	1	1
• Equipment				
– CTG machines	7	5	3	1
– doptone	8	1	3	1
– vacuum extraction sets	4	4	4	4
– delivery forceps sets	10	10	4	4

TABLE 5.2: Situation analysis of the midwifery sections of the four training hospitals (1994/1995) (to be continued)

NAME OF HOSPITAL	Pelonomi	Universitas	Goldfields Regional	Moroka
	f	f	f	f
- neonatal resuscitator with overhead warmer (Meko)	4	5	4	1
- resuscitation trolley	1	1	2	1
Nursery	1	1	1	2
• Basinettes per room	16	20	10	5
• Incubators	4	7	4	5
Special care unit nursery	1	1	1	
• Basinettes per room	14	8	2	
• Incubators	5	6	20	
Premature unit	1	1		
• Incubators	28	6		
• Equipment				
- fotherapy equipment	14	9	10	4
- infusion pump/s	35	14	8	
- exchange transfusion facilities	2	1	2	
Postnatal ward				
• Rooms	10	12	7	6
• Number of beds per room	2-8	1-4	2-16	1-8
• Total number of beds	56	36	41	23
• Equipment				
- resuscitation trolley	1	1	1	1
Postnatal clinic				
• Cubicles	4	5	3	3
• Examination couches per cubicle	1	1	1	1
• Annual number of patients	4 533	626	3 840	1 152
Caesarean section theatre/s	1 (1)	2	1	(1)
• Equipment				
- anaesthetic trolley	1 (10)	2	1	(1)
- Boyles machine	1 (10)	2	1	(1)
- cardiac monitor	1 (10)	2	1	(1)
- diathermy machine	1 (10)	2	1	(1)
High risk unit				
• Antenatal beds	5			
• Postnatal beds	10			
• Intensive care beds	2			
• Equipment				
- ECG machines	2			
- infusion pumps	5			
- fetal heart monitors	2			
- automatic bloodpressure machines	5			
- television set	1			
Total number of admissions	7 229	2 254		1 806
• Annual:				
- normal vaginal deliveries	5 503	1 016	4 392	1 308
- breech deliveries	151	14	360	42
- ventouse deliveries	108	62	48	24
- forceps deliveries	100	229	60	18
- caesarean sections	1 040	673	420	198
- premature births	507	271	240	114
- epidural anaesthesia	203	796	52	

TABLE 5.2: Situation analysis of the midwifery sections of the four training hospitals (1994/1995)

NAME OF HOSPITAL	Pelonomi	Universitas	Goldfields Regional	Moroka
	f	f	f	f
- birth injuries	6	2	5	3
- episiotomies	1 134	1 592	3 113	1046
- stillborn babies	301	28	120	156
- perinatal mortality	125	9	60	not available
- maternal mortality	26	1	12	not available
- deliveries performed by nursing staff	4 475	not available	4 338	1 258
STAFF INVOLVED IN MIDWIFERY				
• Medical staff				
- obstetrician/s	3	4		
- paediatricians	2	2		
- medical officer/s	2	2		
- registrar/s in obstetrics	6	4		
- registrar /s in paediatrics	4	3		
- intern/s	6-10	4		
- other doctor/s		8	4	4
• Nursing staff				
- advanced midwife/s		2	1	1
- registered nurse/s	111	71	35	23
- enrolled nurses	7	3	8	6
- assistant nurses	28	16	26	4
• Other staff				
- ultrasound technician	1	1	radiologist	
- secretaries	6	5	3	

Although more than 1700 complicated deliveries are performed annually, Pelonomi Hospital has no registered nurses with a professional qualification in advanced midwifery.

It is clear from the data in Table 5.2 that Pelonomi Hospital provides enough clinical learning opportunities for the students in the Advanced University Diploma in Midwifery and Neonatology. Registrars in obstetrics and interns however, also make use of these opportunities. The obstetricians and paediatricians will assist the Department of Nursing, in this education programme, by helping students to develop midwifery and neonatology related skills, for example to perform forceps deliveries.

Universitas Hospital is well equipped. Registrars in obstetrics, interns, eight private obstetricians, and several general practitioners do deliveries in this

hospital, while only a small percentage of the deliveries are performed by nurses. Two registered nurses in the hospital have an advanced midwifery registration. Learning opportunities for deliveries are limited, but are otherwise adequate. Obstetricians and paediatricians in this hospital also helped students to acquire clinical skills.

Goldfields Regional hospital is situated outside Welkom, 178 kilometers from the University of the Orange Free State. Table 5.2 shows that this regional hospital is well equipped. An average of 14.79 babies are delivered daily. One thousand and eight complicated deliveries are performed annually, only 7,95% of which are caesarean sections. More than 90% of the vaginal deliveries are performed by the nursing staff. The hospital has three medical officers, four other doctors and only one registered nurse with a professional registration in advanced midwifery. This hospital has adequate learning opportunities for this education programme.

Moroka Hospital is a community hospital in Thaba' Nchu, 60 kilometers from the University of the Orange Free State. The hospital has limited equipment. There are no ultrasound facilities and the hospital does not have a premature unit. Premature babies are transferred to Pelonomi or Universitas Hospital. Patients with high risk pregnancies are also transferred to these hospitals. Moroka Hospital does not have the facilities to treat these patients. The theatre in the general section of the hospital is used for caesarean sections. One registered nurse has a professional registration in advanced midwifery. Learning opportunities in certain areas are lacking.

Registered nurses with a professional registration in advanced midwifery and the doctors help the students to practise clinical skills in Goldfields Regional and Maroka hospitals.

Where limited learning opportunities were identified, students rotated to other hospitals, clinics and community health centres for opportunities to master the

acquired clinical skills. Students were responsible for providing their own transportation and accommodation and meals were provided on the premises at a nominal cost.

In the first year, 1995, of the implementation of the Advanced University Diploma in Midwifery and Neonatology, health care facilities, were paralysed countrywide. Nursing personnel went on strike in demand of better working conditions and salaries. However, the security of the students in this programme was never threatened during this time - they kept on working.

During the development and implementation of the Advanced University Diploma in Midwifery and Neonatology the major role-players, including the community were consulted and informed during the regional perinatal meetings. Strong links between the Department of Nursing, the service sector, the Departments of Obstetrics and Paediatrics and the consumers resulted. No major problems were experienced during the implementation of this educational program. The co-ordinator, who also acted as clinical facilitator, visited the nearby hospitals weekly and the other two hospitals twice during the year. Continuing, open communication by means of the telephone and letters took place throughout the year. Problems, such as rotation of students to obtain learning opportunities were smoothed out with the help of the positive attitude the nursing service manager of every hospital concerned.

5.4 PROFILE AND LEARNING NEEDS

The profile and learning needs of the registered nurses or the potential student population in the Free State were determined by means of questionnaires. The questionnaires consisted of two parts: Checklist A and Checklist B. The data-analysis will be discussed accordingly.

5.4.1 Profile of potential students (Checklist A)

Data was gathered by means of Checklist A to determine the profile of potential students. The concepts (themes) of the profile is schematically presented in Figure 5.1.

5.4.1.1 Sociographic background

■ Age distribution

The age distribution in Figure 5.2 demonstrates that the age group 40-49 was the largest group of respondents. The second largest group was 30-39. This implies a potentially older student population.

■ Gender distribution

There were significantly more female (96%) than male (4%) (see Figure 5.3).

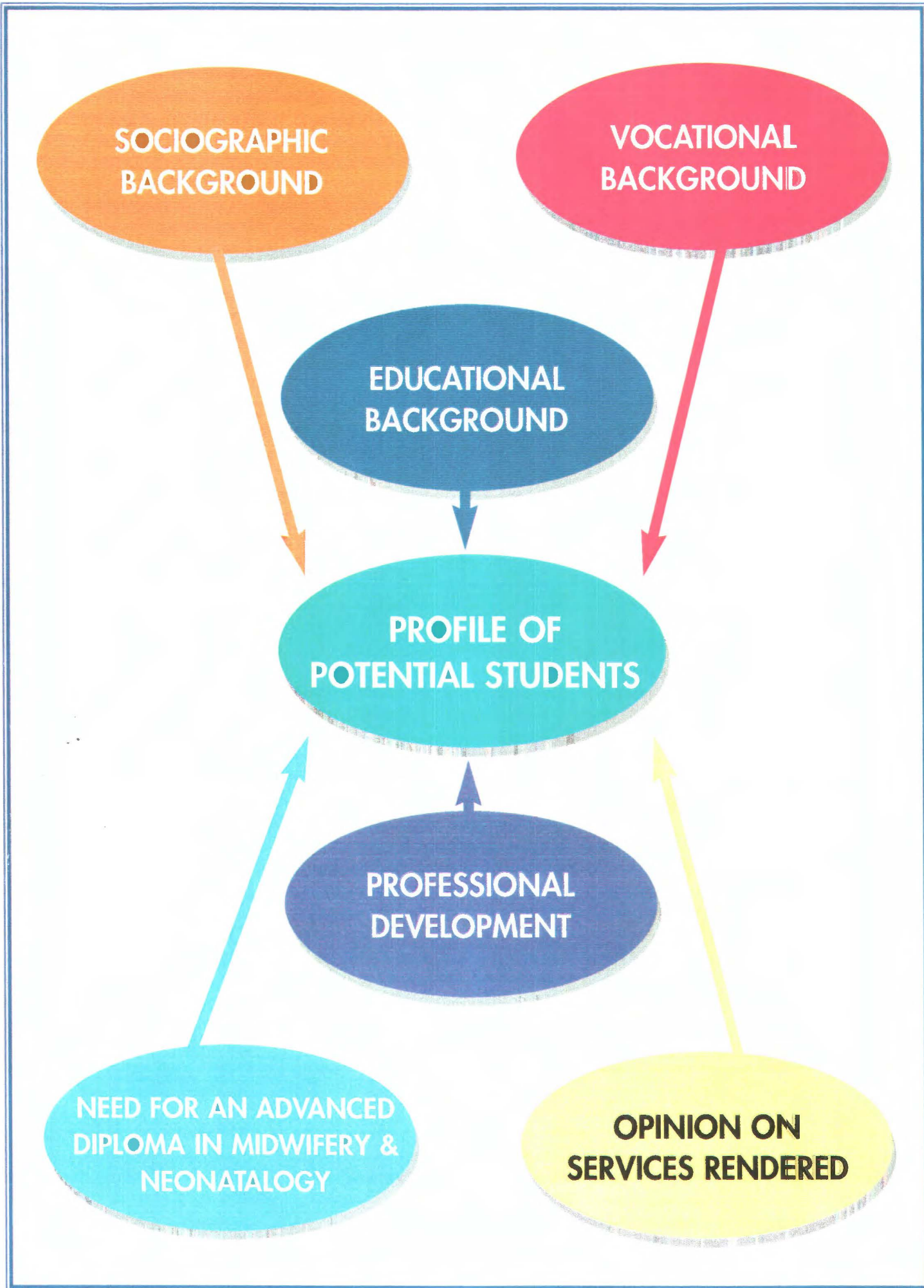


FIGURE 5.1: Profile of potential students

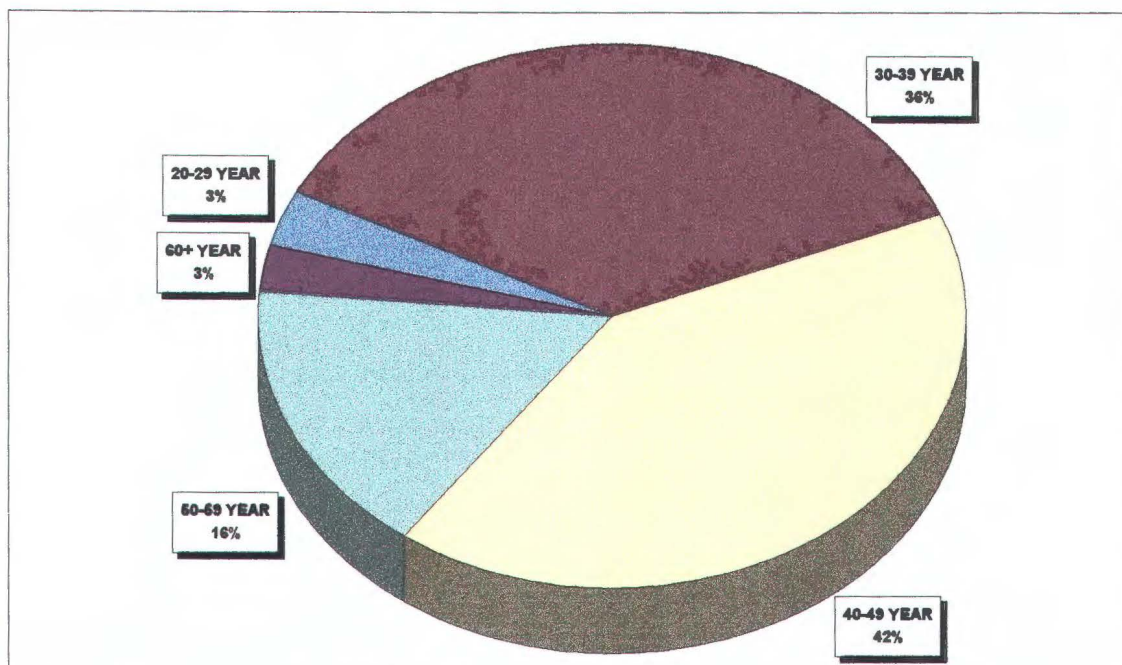


FIGURE 5.2: Age distribution of the respondents (N=513)

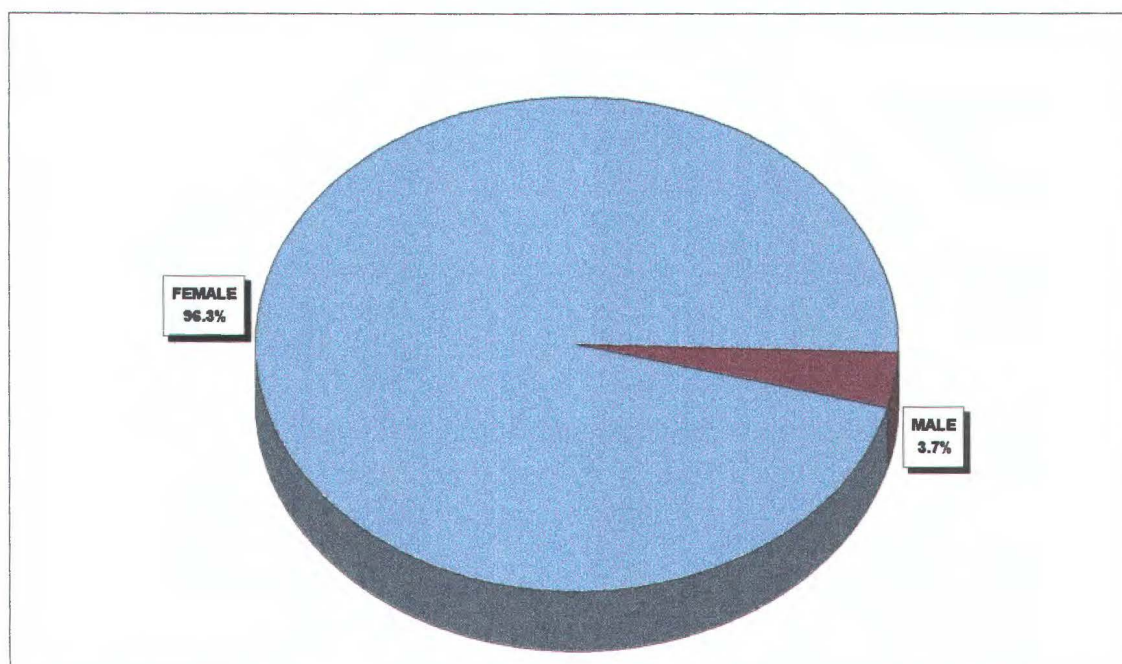


FIGURE 5.3: Gender distribution of the respondents (N=513)

5.4.1.2 Educational background

■ School level

Eighty-nine percent of the respondents were in possession of a Standard 10 certificate. The University of the Orange Free State requires a Standard 10 certificate as part of the admission requirements for an Advanced University Diploma in Midwifery and Neonatology (see Figure 5.4).

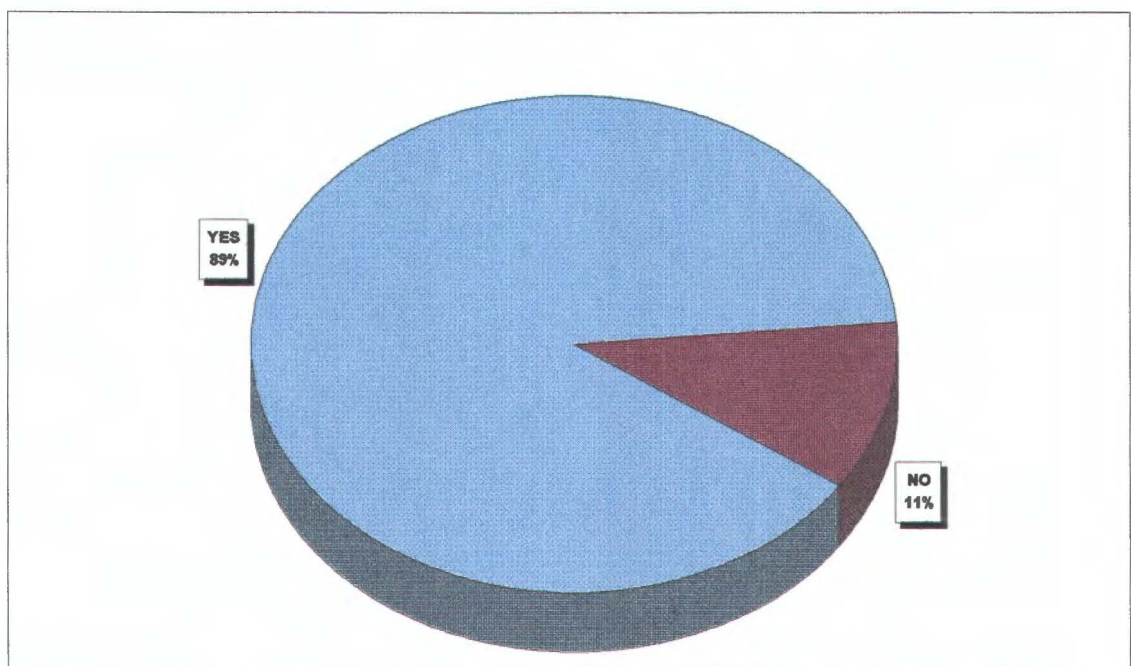


FIGURE 5.4: Standard 10 certificate (N=509)

■ Highest level of education in nursing

A profile of the respondents' highest level of nursing education is presented in Figure 5.5.

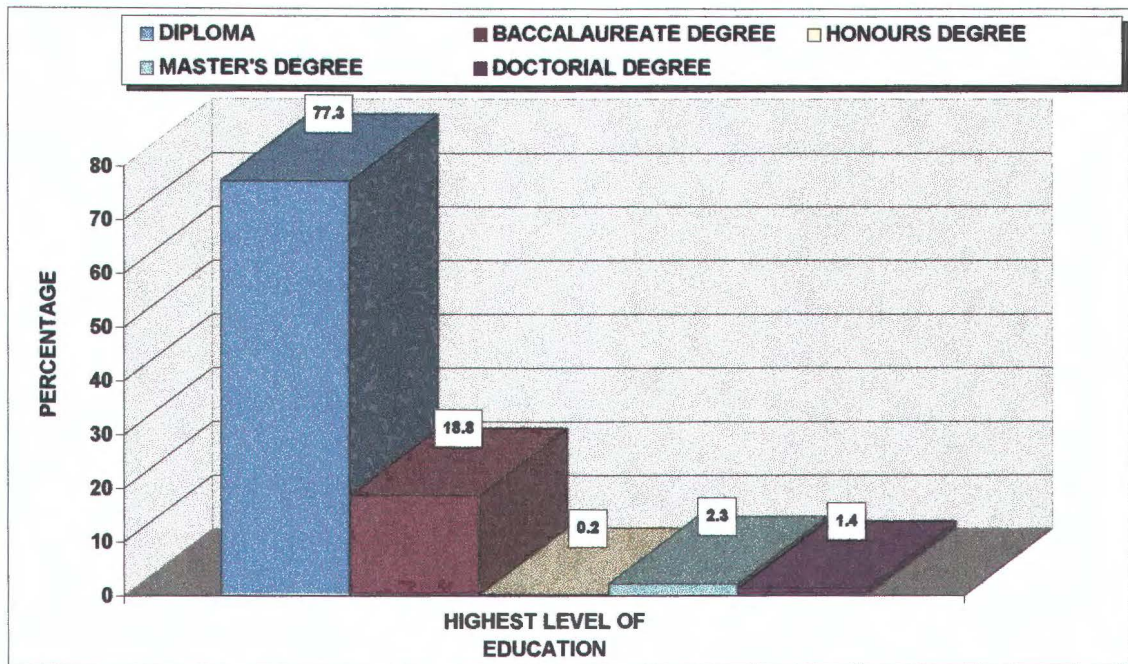


FIGURE 5.5: Highest level of education (N=512)

It demonstrates that a diploma in nursing was the highest level of education of 77,3% of the respondents. Only 3,9% of the respondents had a higher qualification than a baccalaureate degree. This implies the existence of a large potential postbasic student population in the Free State.

■ Professional registration(s) in Nursing

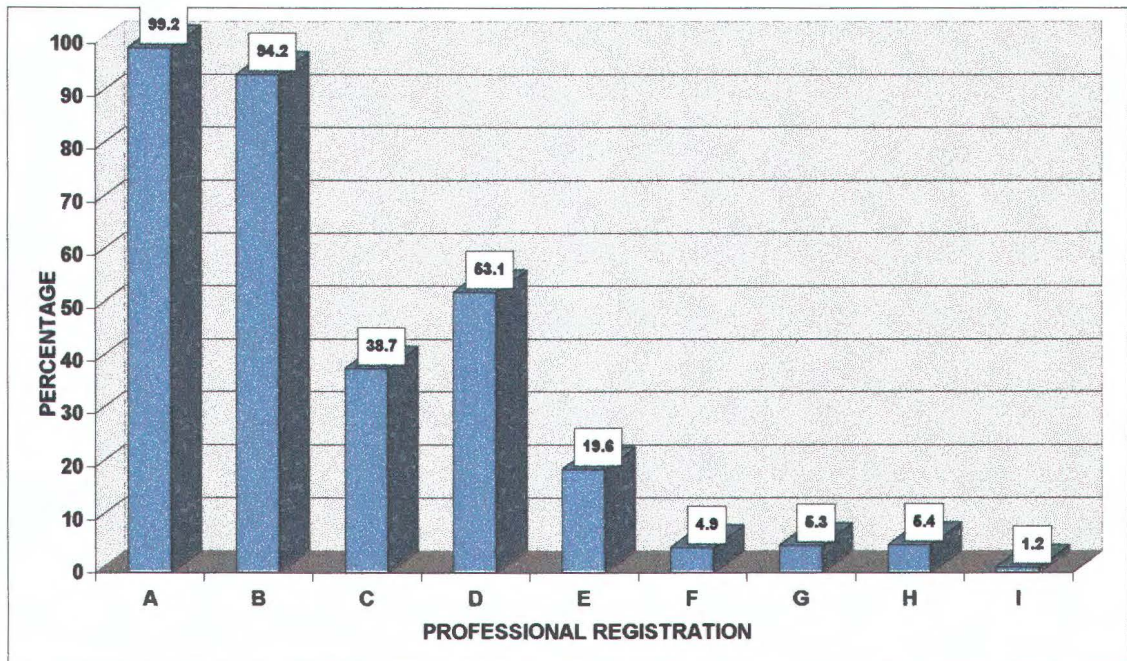
A registration in general nursing and midwifery is a prerequisite for the course in advanced midwifery and neonatology at the University of the Orange Free State.

An analysis of the percentages presented in Figure 5.6 indicates the following:

- 510 (99,2%) of the respondents had a professional qualification in general nursing
- 484 (94,2%) had a midwifery qualification
- 199 (38,7%) had a professional qualification in psychiatric nursing
- 273 (53,1%) had a professional qualification in community nursing

Only 6 (1,2%) of the respondents had a professional qualification in advanced midwifery and neonatology. It therefore seems that a large potential student

population for this qualification exists, although a high percentage (93,6%) of the respondents had the two qualifications (general nursing and midwifery) set as prerequisites for the course in advanced midwifery and neonatology.



A	=	GENERAL NURSING
B	=	MIDWIFERY
C	=	PSYCHIATRIC NURSING
D	=	COMMUNITY HEALTH NURSING
E	=	NURSING ADMINISTRATION AND/OR NURSING EDUCATION
F	=	PAEDIATRIC, ORTHOPAEDIC, OPHTHALMIC OR OCCUPATIONAL HEALTH NURSING
G	=	INTENSIVE CARE NURSING
H	=	THEATRE TECHNIQUE
I	=	ADVANCED DIPLOMA IN MIDWIFERY

FIGURE 5.6: Professional registration(s) in nursing (N=514)

■ Time since completion of basic training

The analysis of this item gives an indication of the time span since completion of the basic training. Figure 5.7 highlights the fact that 131 (25,7%) respondents completed their basic training between 11 and 15 years ago, with 119 (23,2%) respondents in the category 16-20 years. Three (0,6%) respondents indicated that they completed the basic nursing education programme 41-45 years ago.

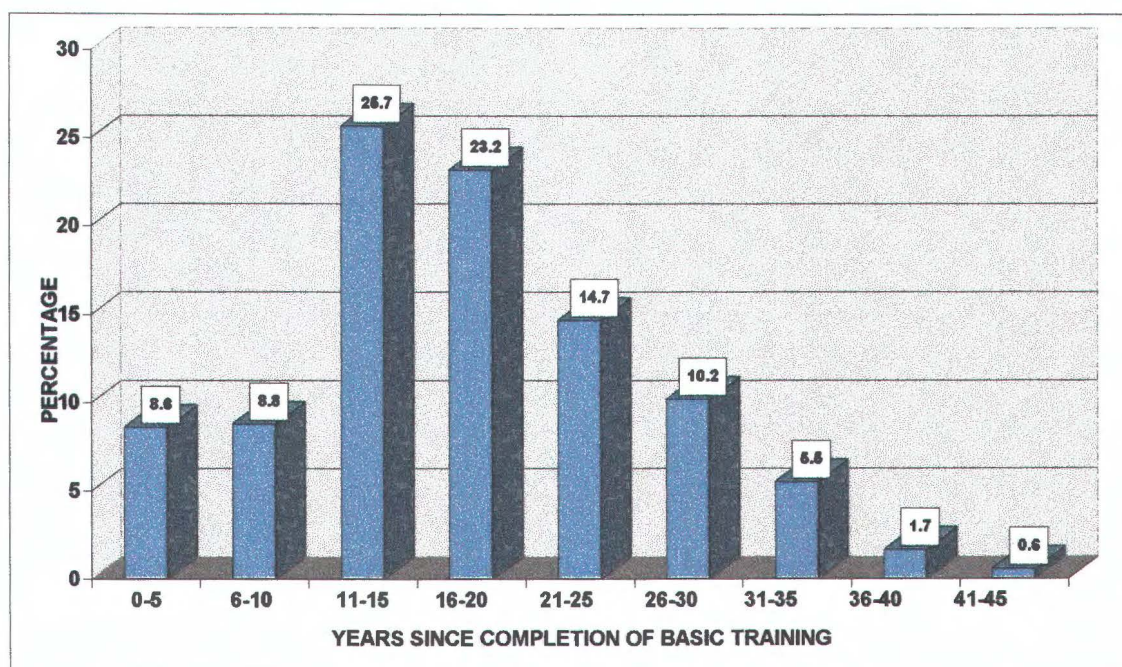


FIGURE 5.7: Years since completion of basic training (N=511)

■ **Means of acquiring basic midwifery registration**

Figure 5.8 indicates that the majority of the respondents (45,5%) acquired their basic midwifery registration by means of a postbasic midwifery qualification. One hundred and fifty-nine (31%) respondents completed an integrated course, while 92 (18%) respondents had a single midwifery registration.

5.4.1.3 Vocational background

■ **Current employment and place of work**

The majority of the respondents (94,3%) were employed as nurses (Figure 5.9), in a variety of settings (Figure 5.10) at the time of the survey.

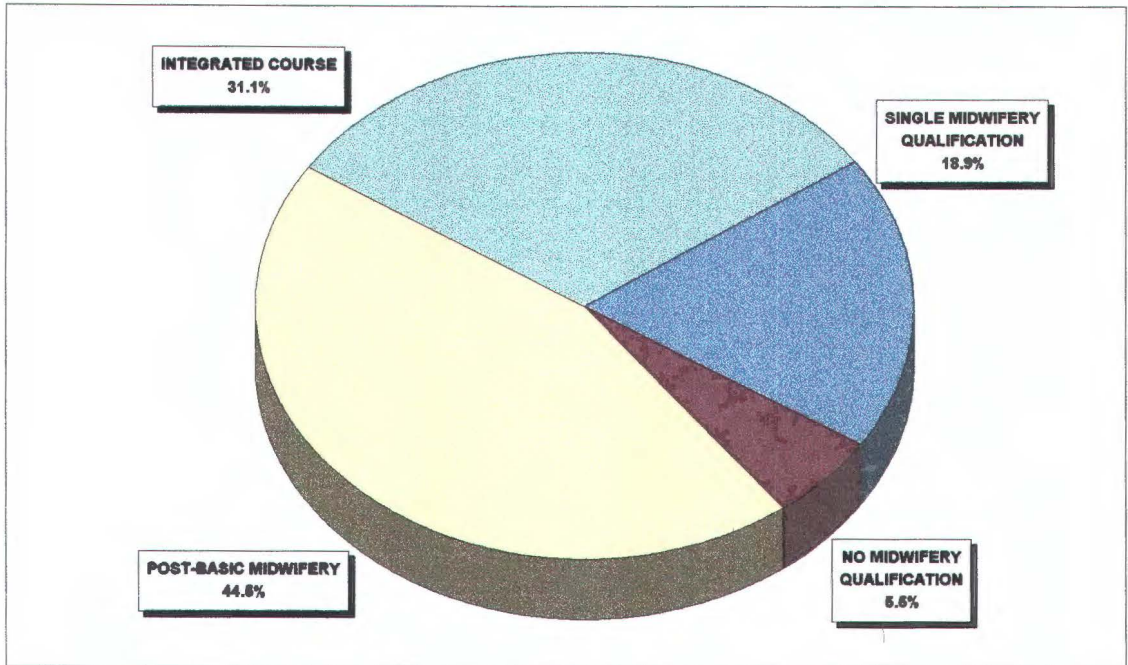


FIGURE 5.8: Means of acquiring basic midwifery registration (N=512)

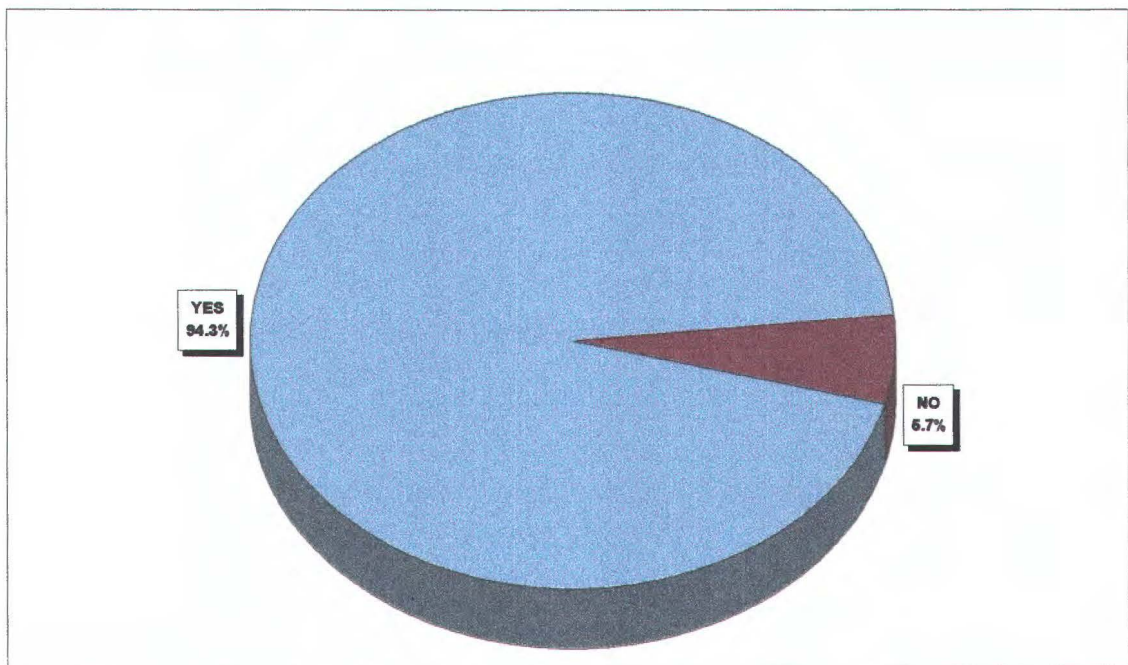
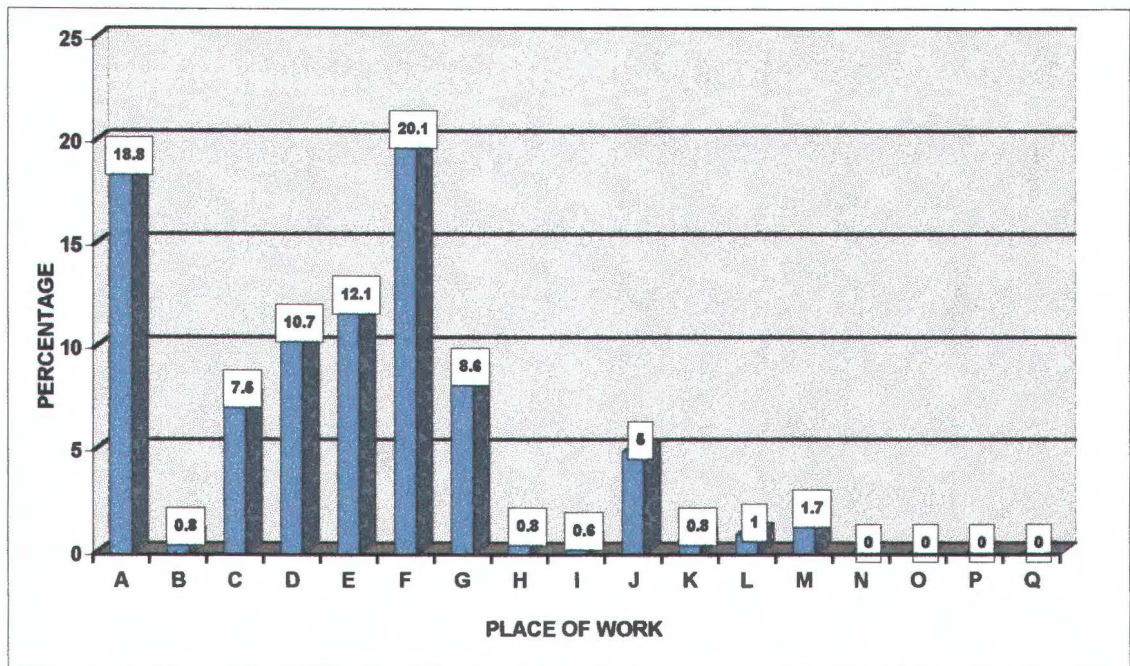


FIGURE 5.9: Current employment as a nurse (N=513)



A	=	CLINICS	J	=	TERTIARY EDUCATIONAL INSTITUTION
B	=	COMMUNITY CARE CENTRE	K	=	PRIMARY HEALTH CARE CENTRE
C	=	MOBILE CLINIC (SEC. 30)	L	=	PSHYCIATRIC HOSPITAL
D	=	COMMUNITY HOSPITAL	M	=	DOCTOR'S CONSULTING ROOMS
E	=	REGIONAL HOSPITAL	N	=	OLD AGE/CHILDREN'S HOME
F	=	ACADEMIC HOSPITAL	O	=	OCCUPATIONAL HEALTH CARE CENTRE
G	=	PRIVATE HOSPITAL	P	=	HEAD OFFICE
H	=	MIDWIFERY UNIT	Q	=	PRIVATE HEALTH CARE CENTRE
I	=	PRIVATE PRACTICE			

FIGURE 5.10: Place of work (N=508)

Figure 5.10 indicates that 96 (20,1%) respondents were working in academic hospitals, while 90 (18,8%) were employed in clinics. Fifty one (10,7%) and 58 (12,1%) respondents respectively were working in community and regional hospitals. This analysis shows that the majority (51,5% = D + E + F + G) of the respondents were working in hospitals and that 27,9% (A + B + C + K) worked in community settings. Three (0,6%) respondents indicated that they were in private practice.

Respondents (1,2%) in possession of an advanced midwifery registration indicated that they worked in community hospitals or midwifery units (Table 5.3).

TABLE 5.3: Place of work of respondents with an advanced midwifery registration (N=6)

QUALIFICATION	Place of work		Total
	Community hospital	Midwifery unit	
Advanced diploma in midwifery	4	2	6
Total	4	2	6

■ **Number of years in current position and years before retirement**

The analysis of this item indicates the number of years the respondents had been employed in their current position (see Figure 5.11). The majority (42,9%) had worked in their current position for 0-5 years, while 30,1% had been employed in this capacity between 11 and 35 years.

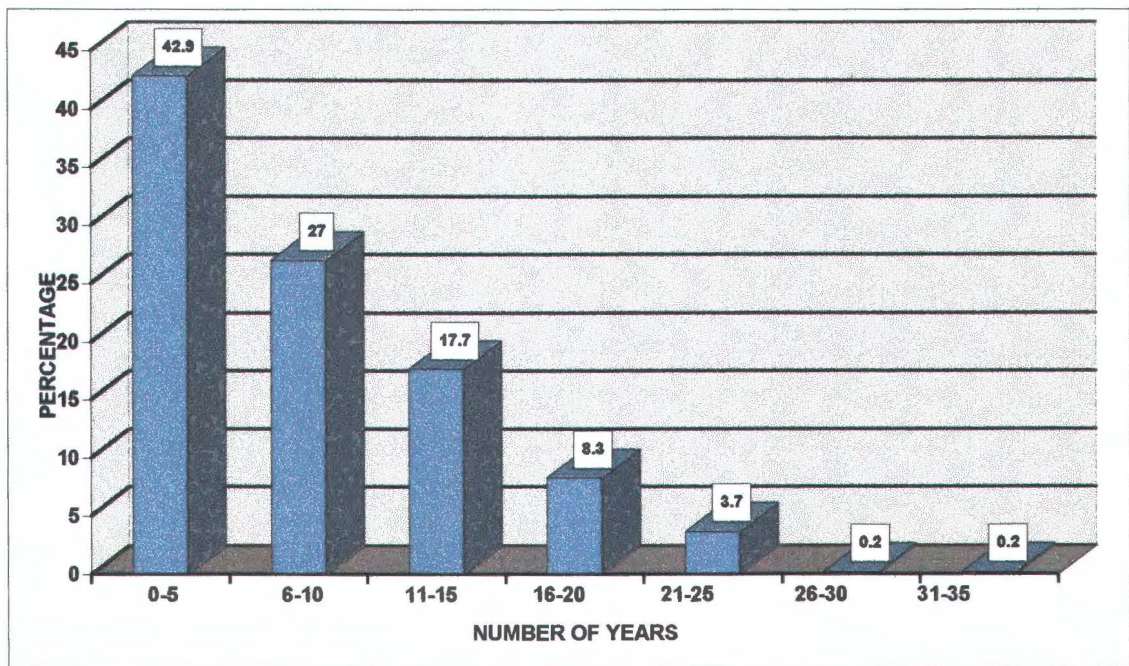


FIGURE 5.11: Number of years in current position (N=482)

This item established the number of (productive) years before retirement.

The results of the analysis of the responses are given in Figure 5.12. The category best represented is that of 16-20 years before retirement, namely 115

(25%) of the respondents. Cumulatively 338 (73,6%) of the respondents have a productive life of eleven years or more before retirement.

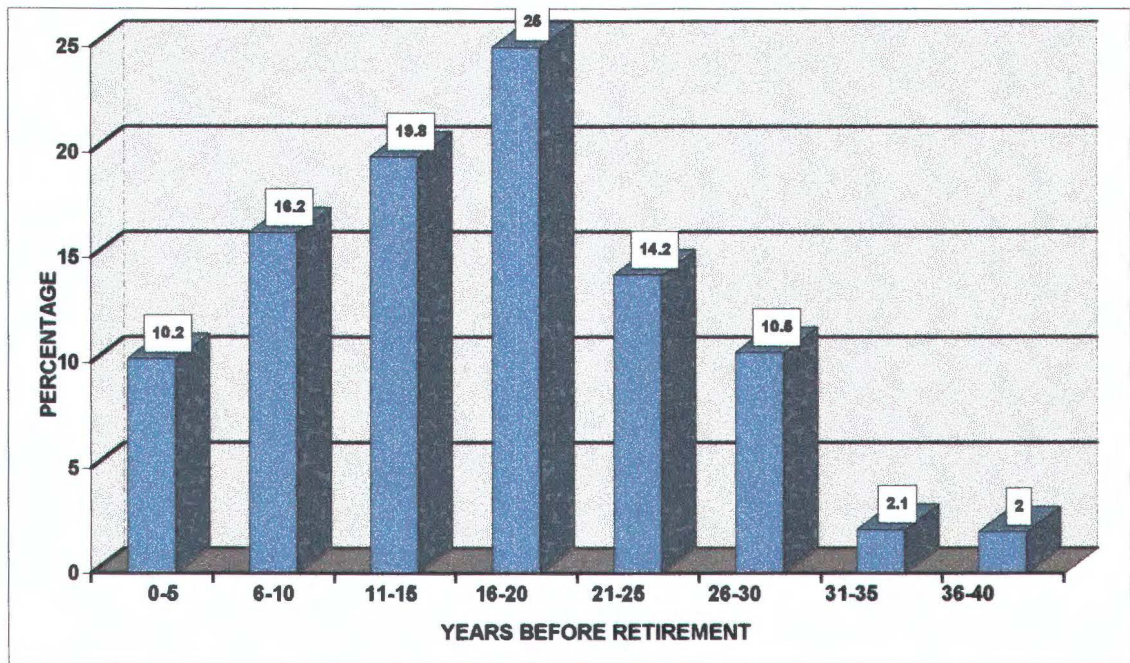


FIGURE 5.12: Years before retirement (N=459)

All nurses must remain up-to-date and competent regarding their profession and professional practice, and a large group (73,6%) of the respondents will remain in practice for eleven years or more. This emphasises the importance of continuing education programmes to keep them abreast of developments in their field.

■ Regions of the Free State in which the respondents work/live

At the time of this research the Free State was divided into five regions as discussed in Chapter 1 (see Annexure H). Two hundred and twenty (44,2%) respondents indicated that they worked or lived in Bloemfontein (Region 1). The second largest group (19,9%) were from the Welkom region (Region 5), while 70 (14,1%) and 69 (13,9%) were from the Bethlehem (Region 3) and Kroonstad (Region 4) regions respectively. Forty (8%) respondents were from the South Free State region (Region 2) (see Figure 5.13).

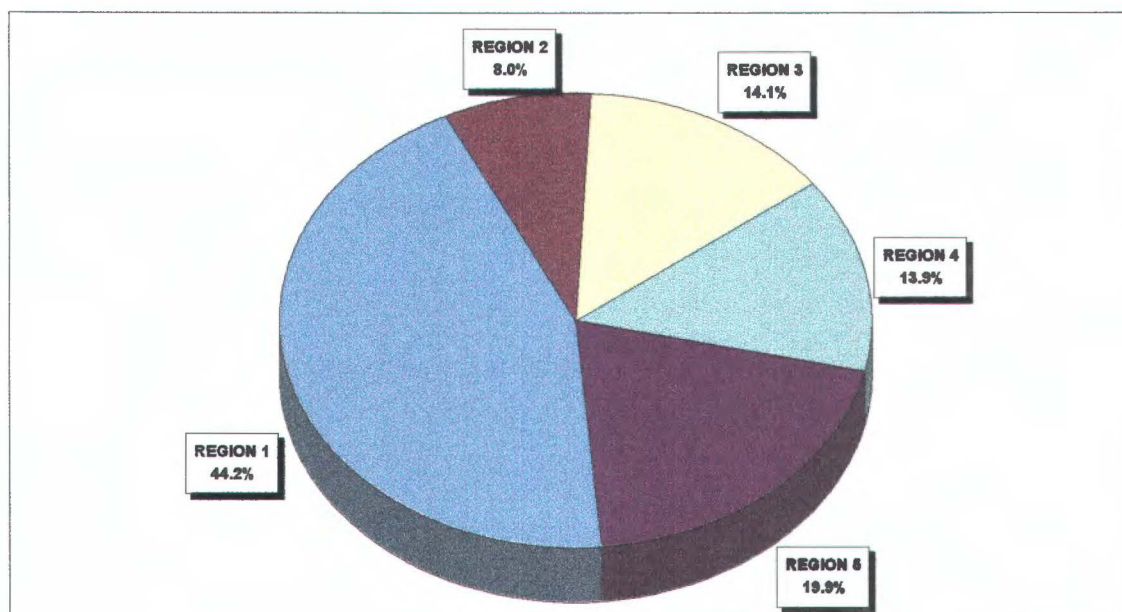


FIGURE 5.13: Regions of the Free State in which the respondents work/live (N=498)

■ Provide(d) midwifery services

This item determined whether the respondents had ever practised midwifery as professional nurses. Figure 5.14 indicates that 365 (71,2%) of the respondents had practised midwifery during their professional career, while 148 (28,8%) respondents never had.

■ When last respondents practised midwifery

Nurses who responded positively to Question 13 indicated when last they had practised midwifery. One hundred and sixteen (31,9%) of the respondents were practising midwifery at the time of the study, while 32 (8,8%) and 40 (11%) respectively had done so for the past 1-2 and 3-4 years. The majority of the respondents (48,3%) had not practised midwifery for the past five years. This information emphasizes the importance of continuing education programmes to update the knowledge required by registered nurses to deliver the primary health care services expected of them (see Figure 5.15).

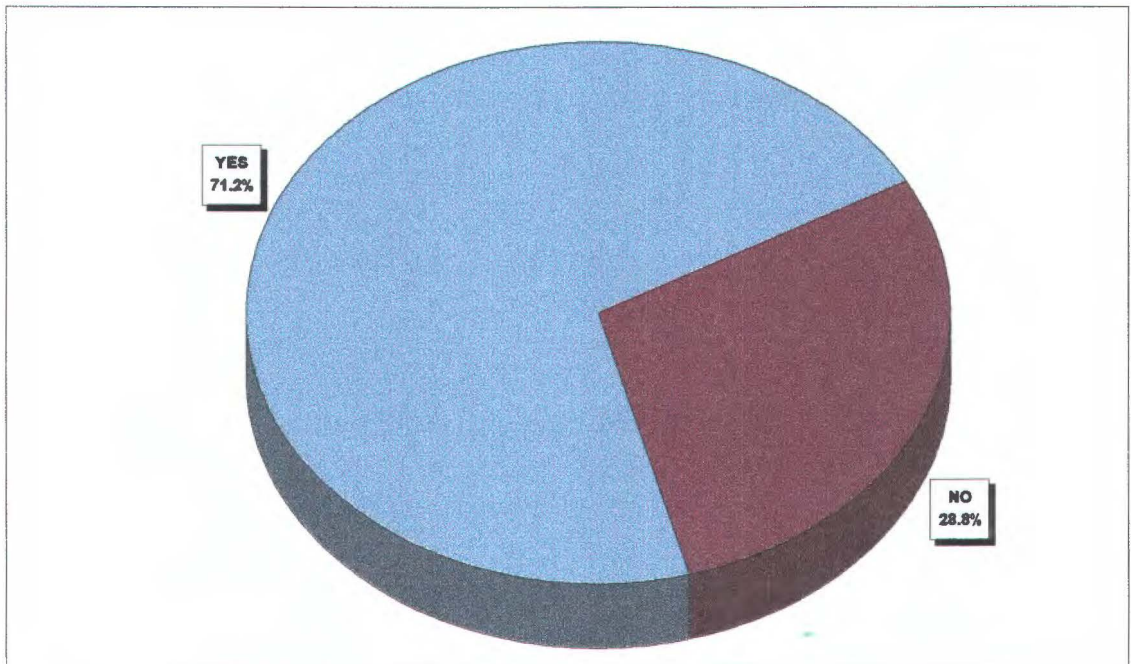


FIGURE 5.14: Practised midwifery (N=513)

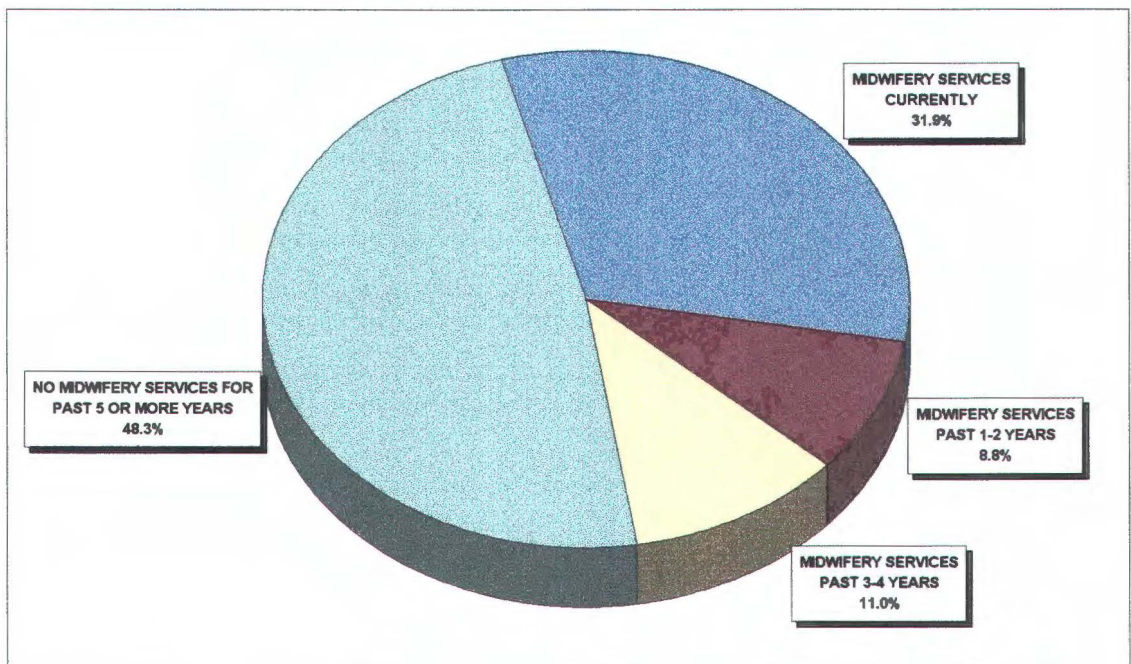


FIGURE 5.15: When last respondents practised midwifery (N=374)

■ Perinatal stages in which care was provided

This item indicates in which perinatal stages respondents nursed patients. Figure 5.16 indicates that 339 (66%), 302 (58,8%) and 343 (66,9%) of the respondents respectively delivered health care in the antenatal, intrapartum and postnatal periods, whereas 13,4% of the respondents were not involved in a midwifery service.

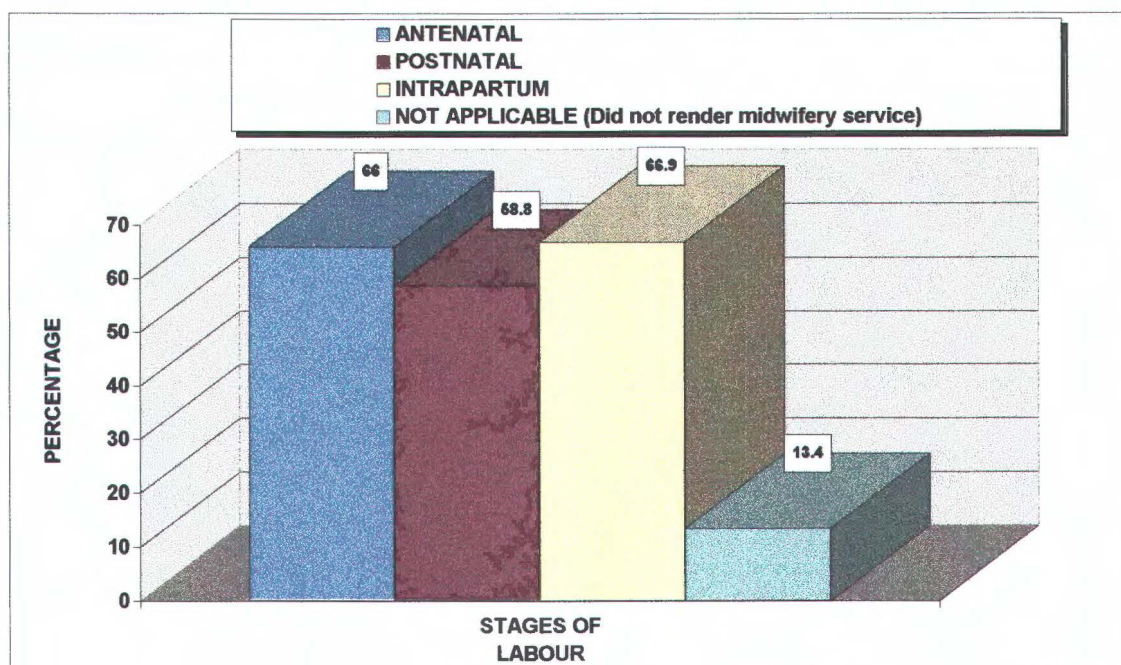


FIGURE 5.16: Perinatal stages in which care was delivered (N=364)

5.4.1.4 Opinion on services rendered

■ Opinion on quality of patient care

The majority of the respondents were of the opinion that the newborn and mother in all stages of labour received optimum patient care. Cumulatively 85 of the respondents (21,1%) did not think or were unsure if optimum patient care was delivered to the newborn. Ninety of the respondents (23%) had the same opinion about antenatal care, while 77 (20,9%) and 54 (22,7%) indicated these opinions on intrapartum and postpartum care respectively (see Figure 5.17).

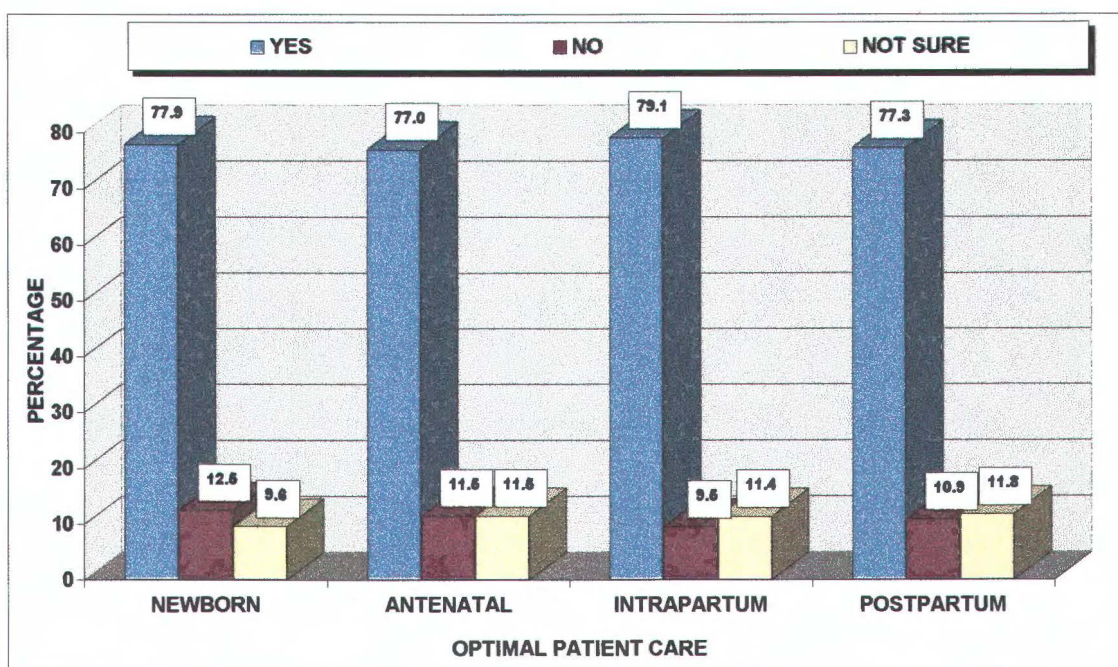
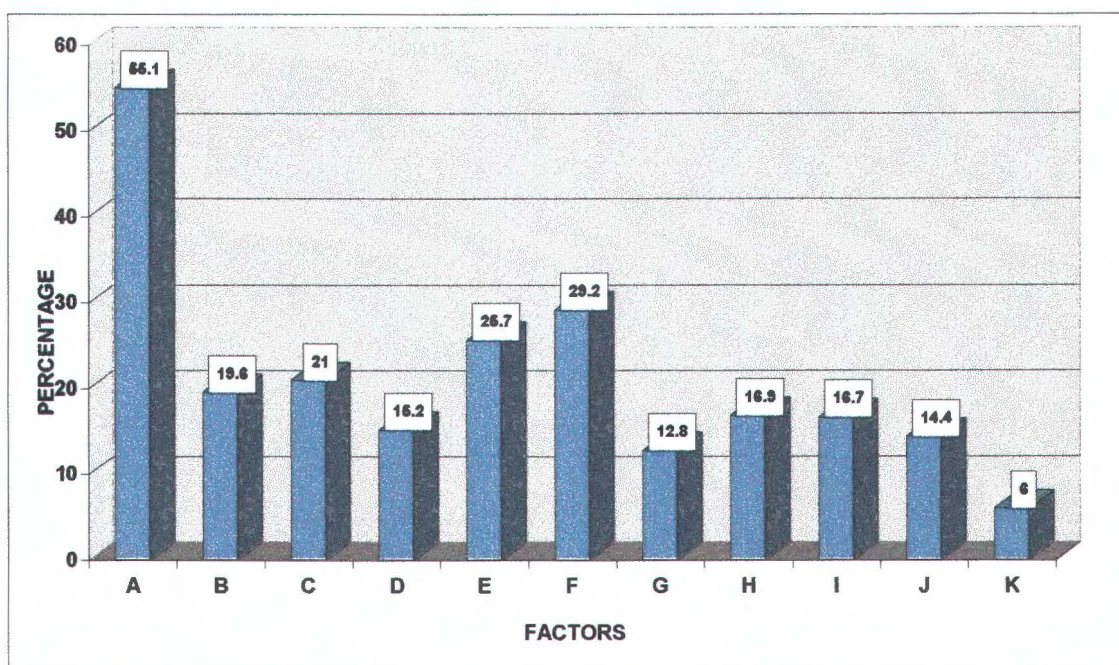


FIGURE 5.17: Opinion on good quality of patient care (Newborn N=238; Antenatal N=385; Intrapartum N=392; Postpartum N=368)

■ **Factors that have a negative influence on perinatal health care**

This item was included to establish which factors, as perceived by the respondents, have a negative influence on the health care of mother and baby during the antenatal, intrapartum and postpartum periods.

Administration was identified by 283 (55,1%) respondents to be the most important factor with a negative influence on perinatal health care, while patient cooperation took second place (29,2%). Problems with transport (19,6%), lack of a professional support system (21%) and lack of funds (25,7%) were also identified as negative factors. Lack of knowledge and clinical skills on the part of registered nurses were identified by 66 (12,8%) and 87 (16,9%) respondents respectively as factors with a negative influence on perinatal health care. Lack of motivation (16,7%) and interpersonal skills were other characteristics of registered nurses that have a negative influence on patient care (Figure 5.18).



A	=	ADMINISTRATION, E.G. PAPER WORK, PERSONNEL SHORTAGE	G	=	REGISTERED NURSE LACKS KNOWLEDGE
B	=	TRANSPORT, E.G. BUS/AMBULANCE SERVICES	H	=	REGISTERED NURSE LACKS CLINICAL SKILLS
C	=	LACK OF PROFESSIONAL SUPPORT SYSTEM	I	=	REGISTERED NURSE LACKS MOTIVATION
D	=	LACK OF A REFERRAL SYSTEM	J	=	REGISTERED NURSE LACKS INTERPERSONAL SKILLS
E	=	FINANCE, E.G. LACK OF EQUIPMENT	K	=	OTHER
F	=	PATIENT CO-OPERATION, E.G. ATTENDING CLINICS			

FIGURE 5.18: Factors with a negative influence on perinatal care according to the respondents (N=321)

5.4.1.5 Professional development

■ Availability of educational opportunities

This item indicates the available educational opportunities. Fewer than half (224 or 43,6%) of the respondents indicated that an orientation programme was available to them, while inservice training was available to 338 (65,8%) of the respondents. These low figures are alarming considering the changes taking place in health care in South Africa. Two hundred and forty-seven (48,1%) and 258 (50,2%) of the respondents indicated that they had access to courses and/or seminars/symposiums. Only 133 (25,9%) of the respondents stated that they were able to attend workshops. An alarming 59 (11,5%) of the respondents

indicated that no educational opportunities were available to them (see Figure 5.19).

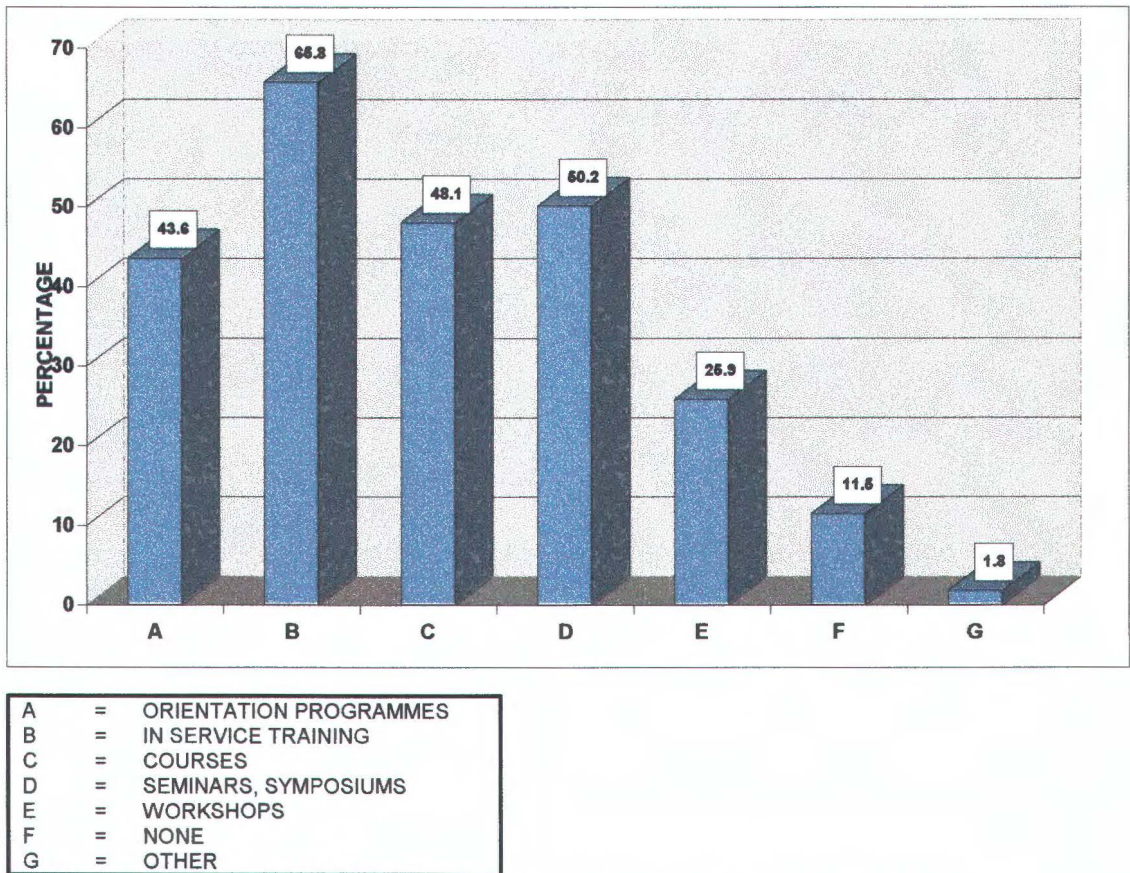


FIGURE 5.19: Available educational opportunities (N=514)

■ Problems in attending/offering educational programmes

This was an open question. The respondents were asked to identify problems they encountered in attending/offering educational programmes (see Table 5.4). The majority (23,1%) of the respondents identified staff shortages as the greatest problem. Fourteen (4,4%) indicated that they could not take study leave. Thirty three (10,3%) identified problems such as lack of opportunity (only the senior staff may attend courses), and lack of information (information reaches them too late or is incomplete) as reasons for not attending educational programmes.

TABLE 5.4: Problems in attending/offering educational programmes (N=321)

RESPONSES	f	%
Working conditions		
Staff shortage	74	23.1
No study leave	14	4.4
Logistic		
No opportunity, no information	33	10.3
Programmes not practice orientated, too long, poorly presented	24	7.5
Distance, transport and accommodation	49	15.3
Language problem (do not understand Afrikaans)	15	4.7
Personal contact absent (distance courses)	1	0.3
Personal		
Not a good time	44	13.7
Finances	32	10
Personal (children, husband, age)	14	4.4
Personal motivation		
No motivation/interest	21	6.5

Co-ordinators of educational programmes should take note that 24 (7,5%) of the respondents had problems with facts such as programmes not being practice orientated or being too long; inappropriate teaching methodology and poorly presented programmes. Distance, transport and accommodation were identified by 49 (15,3%) of the respondents as problems in attending educational programmes.

Fifteen (4,7%) of the respondents identified language (do not understand Afrikaans) as a problem. One respondent (0,3%) identified lack of personal contact in certain courses as a reason for not enrolling in educational programmes.

Forty-four (13,7%) of the respondents felt that educational programmes were presented at unsuitable times, while 32 (10%) identified lack of funds as a problem.

Twenty one (6,5%) of the respondents stated that they were not motivated or interested in attending educational programmes.

■ Interest in educational opportunities

Figure 5.20 highlights the educational opportunities the respondents would be interested in attending. Courses were identified by 309 (60,1%) as the most likely educational opportunity to be attended, with inservice training (293 or 57%) and seminars, symposiums (302 or 58,8%) in the second place. Workshops were also high on the list for 243 (47,3%) of the respondents, while 180 (35%) indicated an interest in orientation programmes. This shows the positive attitude of the respondents to continuing education.

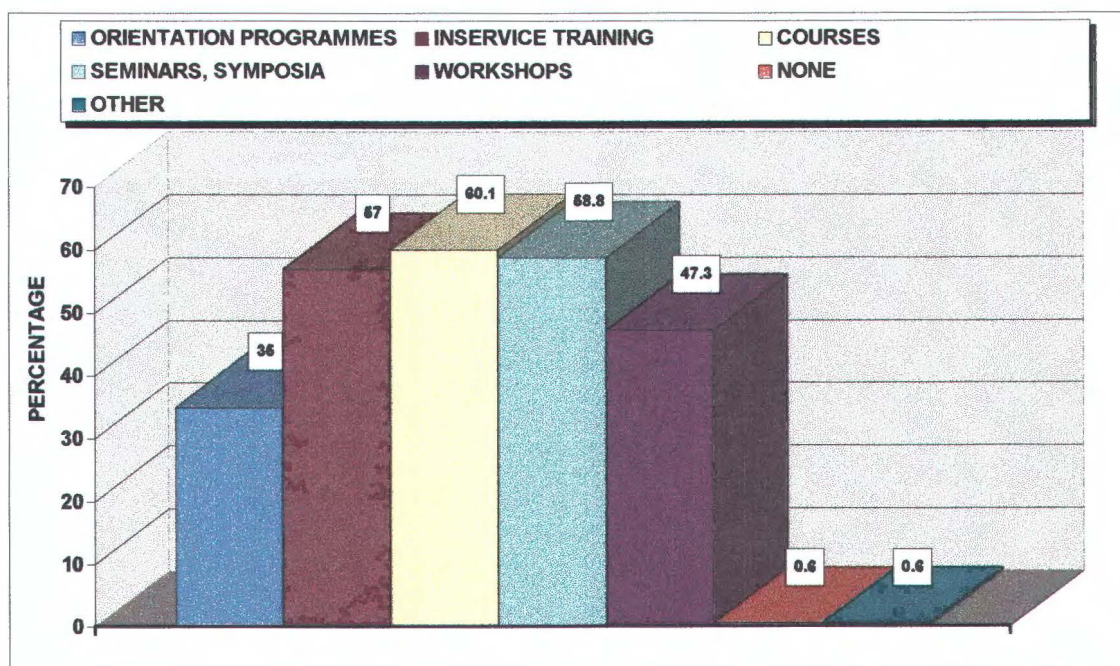


FIGURE 5.20: Interest in educational opportunities (N=514)

■ Professional contact with midwives

This item showed that 275 respondents (58,8%) had professional contact with midwives outside their service, while 193 (41,2%) had no such contact (see Figure 5.21).

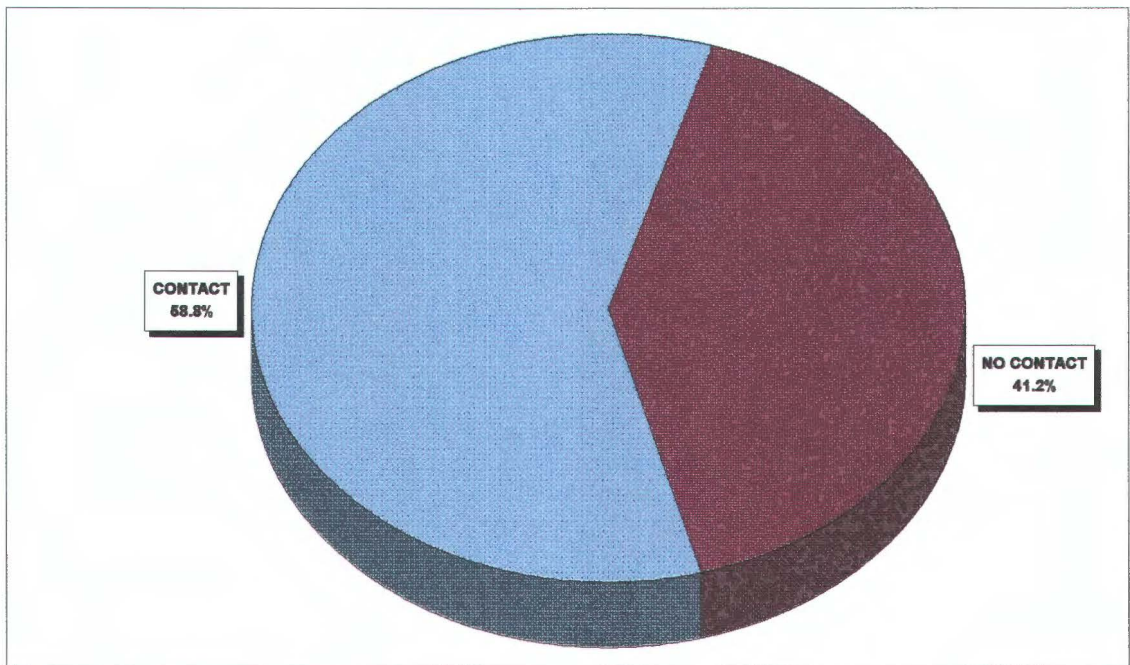


FIGURE 5.21: Professional contact with midwives outside own service (N=468)

■ Professional contact with other members of the multidisciplinary team

Figure 5.22 shows how often respondents had professional contact with other members of the multidisciplinary team. One hundred and eighty-five (39,3%) had daily contact with members of the multidisciplinary team. Forty-five (9,6%) and 23 (4,9%) respectively had weekly and monthly professional contact with other multidisciplinary team members. One hundred and fifty-seven (33,3%) indicated that they had professional contact on request or in case of an emergency, while 61 (13%) never had professional contact with members of the multidisciplinary team. The last two percentages are alarmingly high and emphasize the need for

continuing education to enable respondents to deliver the high quality health service required of the team.

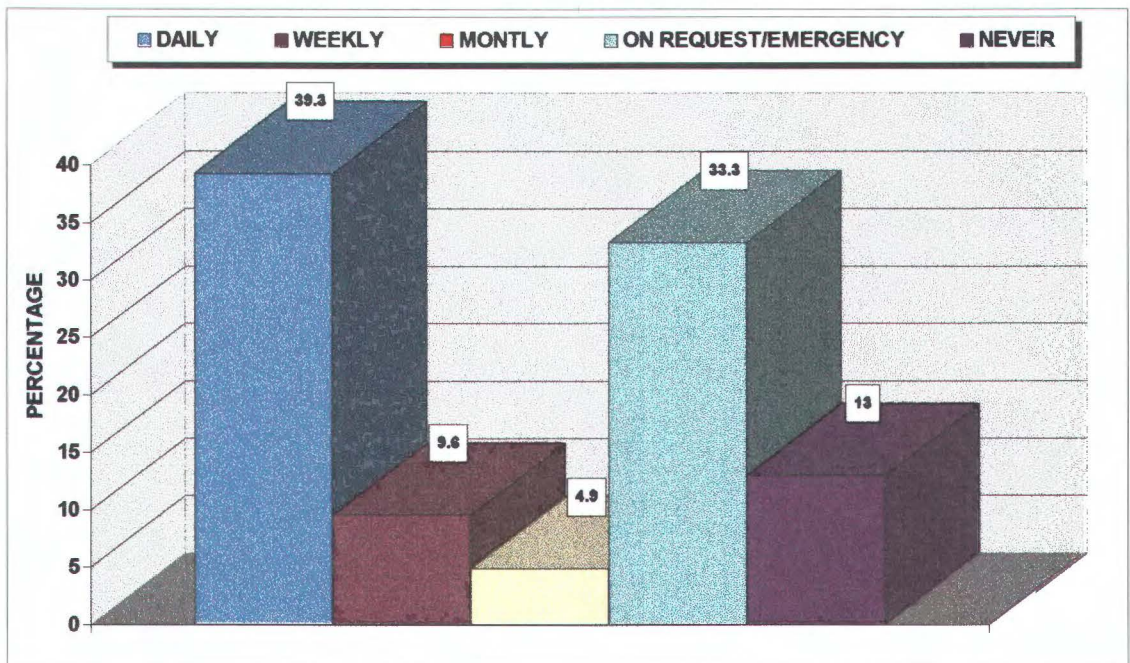


FIGURE 5.22: Professional contact with members of the multi-disciplinary team (N=471)

■ Reading of professional journals

This item determined how often the respondents read professional journals. Three hundred and sixty-six (72,2%) indicated that they read a professional journal monthly, while 66 (13%) and 33 (6,5%) respectively, read a professional journal weekly and annually. Reading professional journals is a way of improving professional knowledge, thus the high cumulative percentage of 91,7% of respondents who read professional journals is encouraging as it may indicate a positive attitude to upgrade their professional knowledge (see Figure 5.2'3).

Forty-two of the respondents (8,3%) never read professional journals.

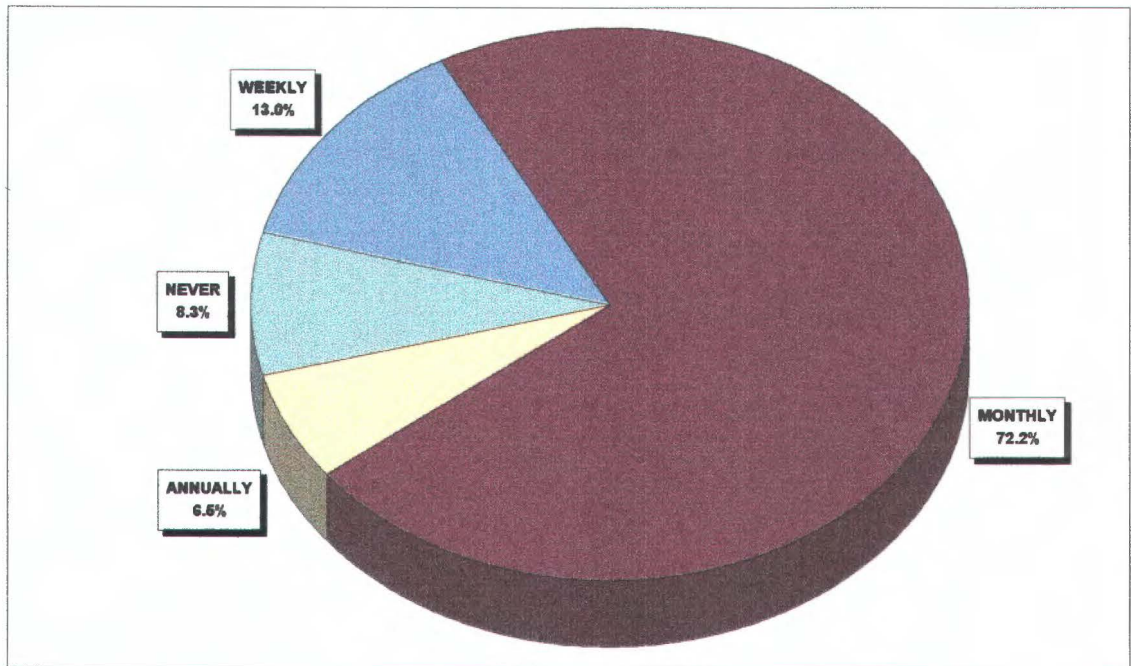


FIGURE 5.23: Reading of professional journals (N=507)

■ Currently furthering education

Question 23 elicited data by asking the respondents whether they were furthering their education at the moment, and if the answer was negative, they were asked to specify the reasons. Figure 5.24 illustrates the alarming fact that only 148 of the respondents (29%) were furthering their education at the time by means of a distance learning (12,9%), part-time (14,7%) or full-time (1,4%) programme.

The respondents (71%) who answered “No” to Question 23 were asked to specify why they were not furthering their education at present. An analysis of the reasons is given in Table 5.5. This was an open question. The responses were categorized into six respective categories.

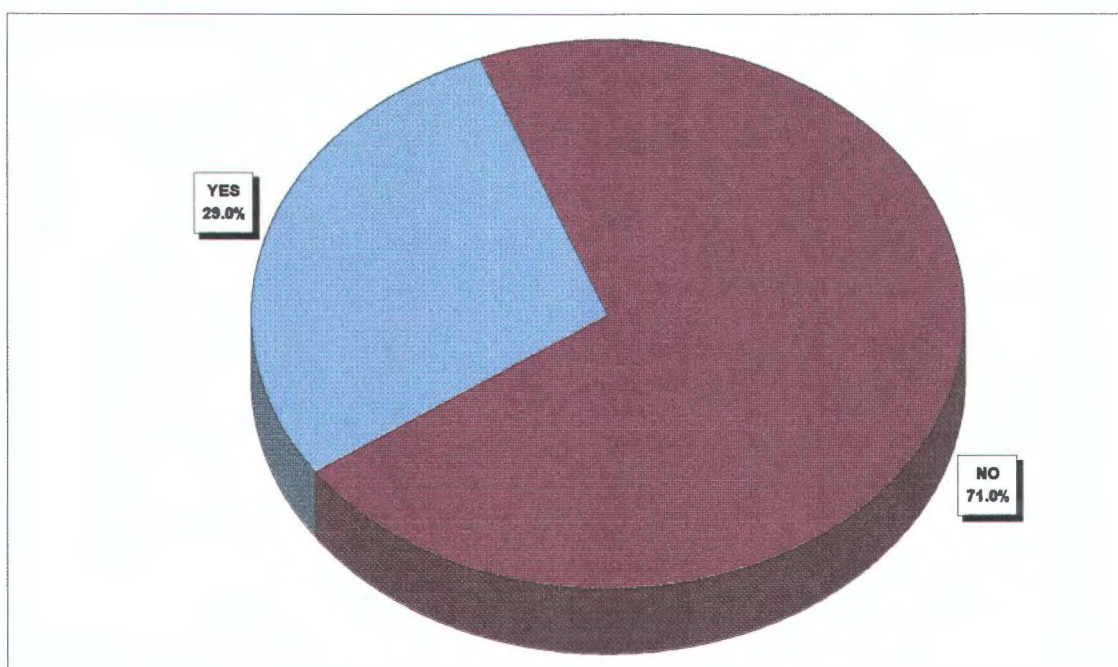


FIGURE 5.24: Currently furthering education (N=510)

TABLE 5.5: Reasons for not furthering education at present (N=306)

REASONS	f	%
Personal reasons		
Household responsibilities	63	20.6
Financial	46	15.0
Too close to retirement	20	6.5
Poor health	4	1.3
Personal motivation		
Not worth it/No credit given	4	1.3
Lack of motivation and interest/Reached goals	37	12.1
Educational shortcomings		
Not in possession of matriculation certificate	3	1.0
Does not qualify for course	9	2.9
Working conditions		
Working conditions e.g. staff shortage	25	8.2
Logistics		
Distance/No local opportunities	13	4.2
No study leave/Time/Courses too long	34	11.1
Other		
Will study later/Has applied	25	8.2
Not relevant - administrative work	23	7.5

Personal reasons (28,4%) ranked high on the list for not furthering their education at present. Sixty-three respondents (20,6%) gave household responsibilities as a reason, lack of funds was identified by 46 as a reason, 20 (6,5%) felt that they were too close to retirement and four (1,3%) identified ill health as a reason for not furthering their education.

A small percentage of the respondents (1,3%) stated that they were given no credit for courses successfully completed, while 37 (12,1%) were not interested, not motivated or had reached their goals.

Nine of the respondents (2,9%) answered that they did not qualify for a course and four respondents (1,3%) had not completed their matriculation. Twenty-five (8,2%) identified working conditions as the inhibiting factor, while the same percentage replied that they would study later or had applied for courses. Thirty-four of the respondents (11,1%) identified lack of study leave, time and long courses as reasons for not furthering their education as present. A problem experienced by 13 of the respondents (4,2%) was that of distance - there were no local opportunities for furthering their education.

Twenty-three of the respondents (7,5%) indicated that they did administrative work - therefore furthering their education was not relevant.

5.4.1.6 Need for an advanced diploma in midwifery and neonatology

■ Interest in willingness to register for an Advanced Diploma in Midwifery and Neonatology

There does appear to be interest in an advanced diploma in midwifery and neonatology as 181 of the respondents (36,3%) stated that they were interested

in this diploma, while 109 (21,8%) were not sure. Two hundred-and-nine of the respondents (41,9%) were not interested in such a diploma (see Figure 5.25).

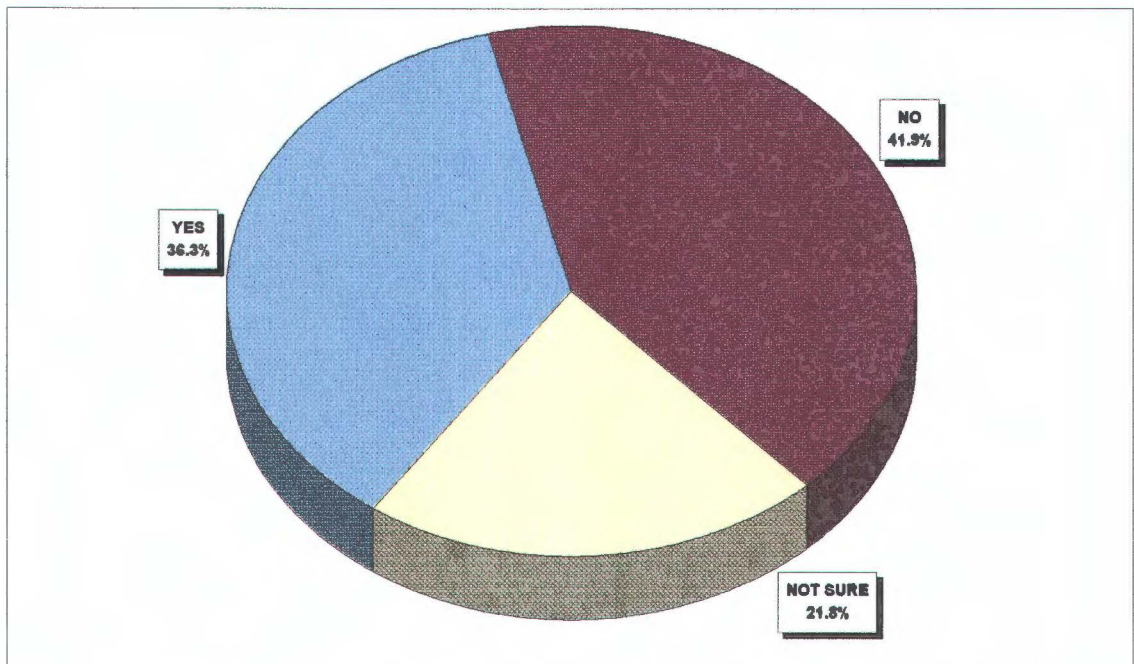


FIGURE 5.25: Interest in an advanced diploma in midwifery and neonatology (N=499)

It is interesting that most of the respondents who indicated that they were interested (36,3%) in an advanced diploma in midwifery and neonatology are currently practising (45,95%) or had practised midwifery five or more years ago (35,14%) (see Table 5.6). It seems as if respondents in midwifery practice had a need to learn more about the health care they were delivering and respondents who had not delivered this service for five years or more identified that they had a knowledge deficiency and were, therefore, also interested in this education programme.

TABLE 5.6: Comparison between respondents interested in an advanced diploma in midwifery and neonatology and when last they practised midwifery (N=353)

	WHEN LAST THEY PRACTISED MIDWIFERY AS REGISTERD NURSES				Total
	Currently	Past 1-2 years	Past 3-4 years	5 or more years	
Interested Yes	68 45,95%	15 10,14%	13 8,78%	52 35,14%	148
Interested No	25 18,80%	8 6,02%	16 12,03%	84 63,16%	133
Interested Unsure	22 30,56%	7 9,72%	10 13,89%	33 45,83%	72
Total	115	30	39	169	353

TABLE 5.7: Comparison between respondents interested in an advanced diploma in advanced midwifery and neonatology and employment settings (N=468)

	EMPLOYMENT SETTING			Total
	Community settings	Hospitals	Other	
Interested Yes	62 36,04%	86 50%	24 13,96%	172
Interested No	69 35,93%	71 36,98%	52 27,09%	192
Interested Unsure	51 49,04%	37 35,58%	16 15,38%	104
Total	182	194	92	468

Most of the respondents (50%) interested in a diploma in advanced midwifery and neonatology worked in hospitals, while only 36,04% of those interested in this education programme were employed in community settings. This is unfortunate, as maternal services must be decentralized away from hospitals, because of the higher maternal and perinatal mortality rates, as indicated in Chapter 1. Nurses with an advanced diploma in midwifery and neonatology are needed in these health care centres to deliver a maternity service of high quality. It is, however, reassuring that the largest number of respondents (49,04%) who indicated that they were not sure whether they were interested in this education programme worked in community settings (see Table 5.7). With the decentralization of health care services they may yet develop an interest.

Identifying interest in an education programme is not enough. It is also necessary to establish whether registered nurses would be prepared to register for such a programme if it were developed and implemented. Question 25 of the checklist obtained this information and it is presented in Figure 5.26.

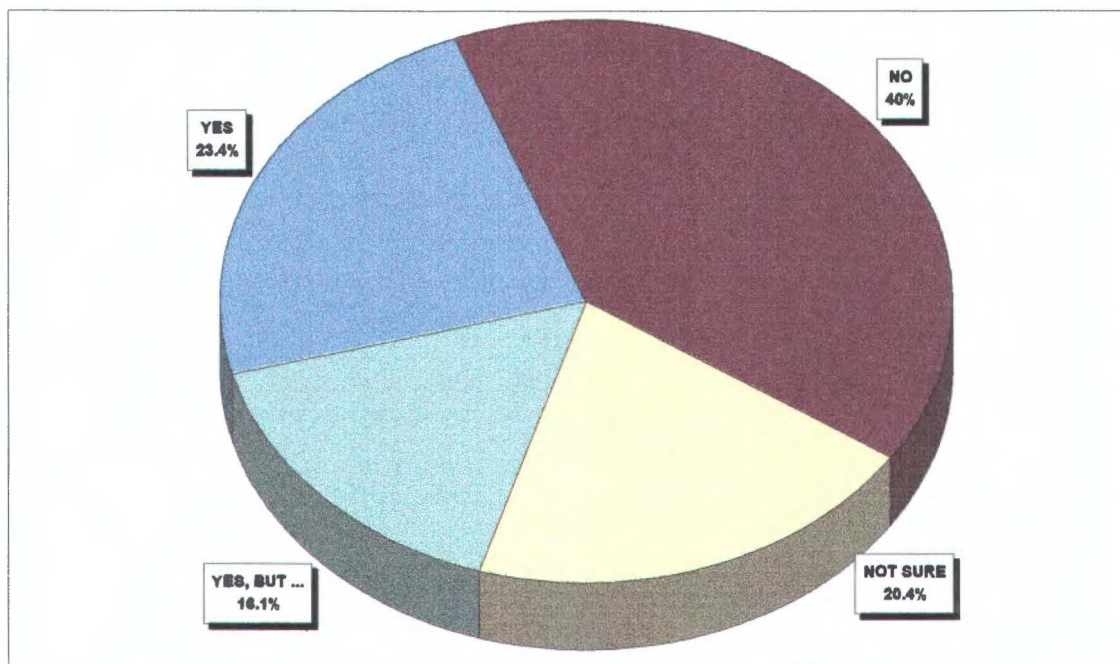


FIGURE 5.26: Willingness to register for an advanced diploma in midwifery and neonatology (N=496)

Nearly a quarter of the respondents (23,4%) were prepared to register for this education programme, while 80 (16,1%) answered that they would register under certain conditions (e.g. study leave, bursaries). One hundred-and-one of the respondents (20,4%) were not sure whether they would register for an advanced diploma in midwifery and neonatology and 199 (40,1%) replied that they would not register for this education programme.

Most of the respondents indicating interest (60%) in such a programme also stated that they would register for the programme (see Table 5.8).

TABLE 5.8: Comparison of respondents interested in an advanced diploma in midwifery and neonatology and willingness to register for it (N=488)

	REGISTER				Total
	Yes	No	Yes, but ...	Unsure	
Interested Yes	108 60%	14 7,78%	48 26,67%	10 5,56	180
Interested No	1 0,5%	179 88,61%	4 1,98%	18 8,91%	202
Interested Unsure	6 5,66%	3 2,83%	25 23,58%	72 67,92%	106
Total	115	196	77	100	488

■ Reasons for not being prepared register for an advanced diploma in midwifery and neonatology

The respondents who answered question 25 by indicating that they were unwilling to register for this specific education programme were then asked to identify the reasons for their decision. The responses were analyzed and the results are shown in Table 5.9.

TABLE 5.9: Reasons for refusal to register for an advanced diploma in midwifery and neonatology (N=199)

REASONS	f	%
Not interested/Not relevant to my work	119	59.8
Competent enough	7	3.5
Too close to retirement	38	19.1
Would interfere with current studies	25	12.6
Would interfere with family commitments	56	28.1
Financial reasons	52	26.1
Study leave problems	35	17.6
No time	27	13.6
Already qualified as an advanced midwife	5	2.5
Other	0	0

It seems as though the reasons for not wanting to register for this education programme relate to issues of work and personal issues. The majority of those (59,8%) who responded negatively to the question indicated a lack of interest and relevancy to their work as the reason for being unwilling to register. Five of the respondents (2,5%) would not register as they were already in possession of

this professional qualification. Seven (3,5%) indicated that they were sufficiently competent implying that they did not require the additional knowledge.

A variety of personal reasons for negative responses were offered, such as interference with current studies (12,6%), interference with family commitments (28,1%), financial reasons (26,1%), study leave problems (17,6%), and having no time for further study (13,6%). A large number (38, 19,1%) offered the fact that they were too close to retirement as the reason why they were not willing to register for this continuing education programme.

■ Feelings about compulsory continuing education programmes for registered nurses working in midwifery services

Question 27 was asked in order to identify the feeling of the respondents regarding the development of a compulsory education programme for registered nurses in midwifery services. The results of the analysis are portrayed in Figure 5.27.

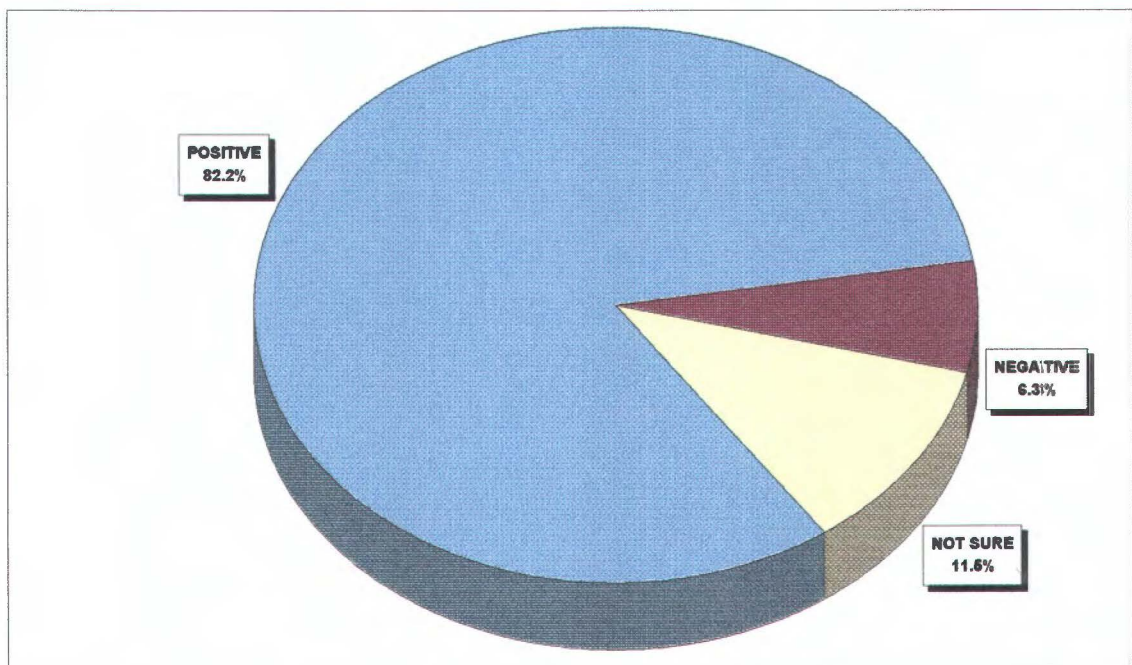


FIGURE 5.27: Feelings about a compulsory continuing education programme for registered nurses in midwifery services (N=505)

An overwhelming 415 of the respondents (82,2%) felt that a continuing education programme should be made compulsory for registered nurses working in midwifery services. This positive attitude emphasizes the need for such a programme. Fifty-eight of the respondents (11,5%) were not sure about their response to this question, while only 32 (6,3%) felt that a continuing education programme should not be made compulsory.

■ Preference for the type of education programme

It is important to develop an education programme appropriate for its users. This item elicited the data to establish appropriateness.

This question required respondents to indicate the type of continuing education programme they preferred to acquire knowledge and skills. According to Figure 5.28, 218 (43,3%) respondents perceived the need for a distance learning programme, with self-directed learning packages and contact sessions. A full-time course with study leave was preferred by 164 of the respondents (32,5%), while 117 (23,2%) identified a part-time course as the type of programme they would prefer (see Figure 5.28).

Respondents were not asked to indicate the type of teaching methodology they prefer, as literature has indicated that the traditional backgrounds of most of the respondents may influence them to favor the traditional approach (Murray, 1982:19).

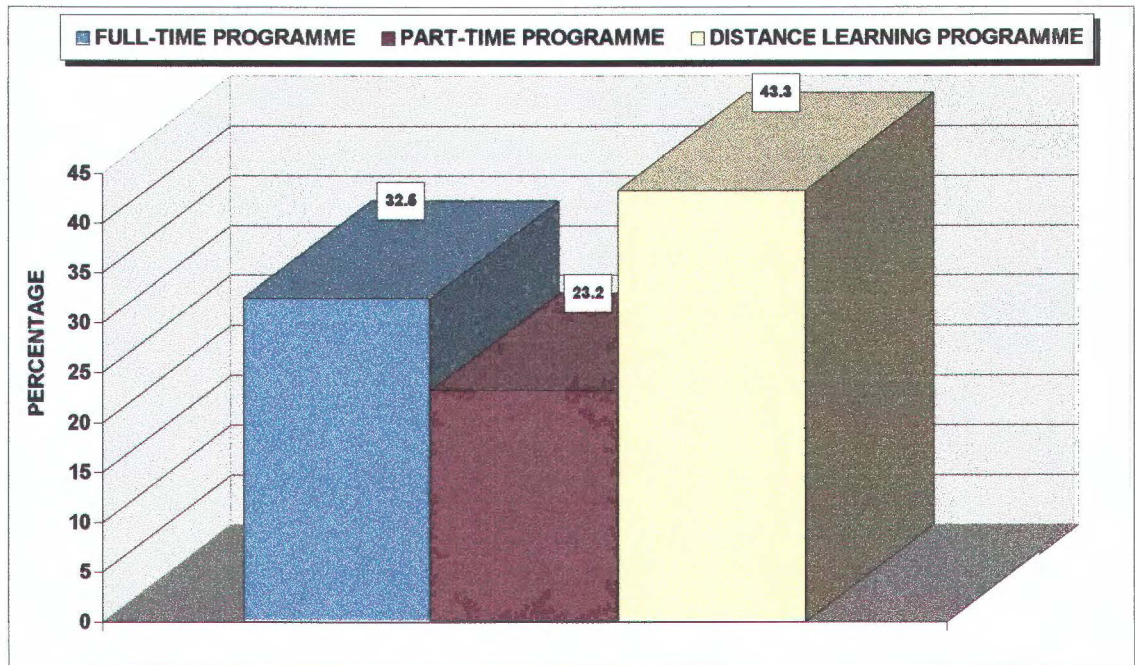


FIGURE 5.28: Type of programme preferred by respondents (N=504)

5.4.2 Self-perceived profile of level of related knowledge and skills (Checklist B)

In Checklist B respondents were asked to evaluate their knowledge and skills regarding health care. These results, although representing the nurses' self-perceived competency, give an indication of their future training and educational priorities. The concepts (themes) of the profile on competency is schematically presented in Figure 5.29.

5.4.2.1 Self-perceived competency: General

Table 5.10 highlights the results of the analysis of this part of the questionnaire. It is a cause for concern that only 141 of the respondents (27,4%) rated themselves very good or excellent at adult resuscitation - a life-saving skill. Fifty-two of the respondents (10,1%) rated themselves very good or excellent at endotracheal intubation.

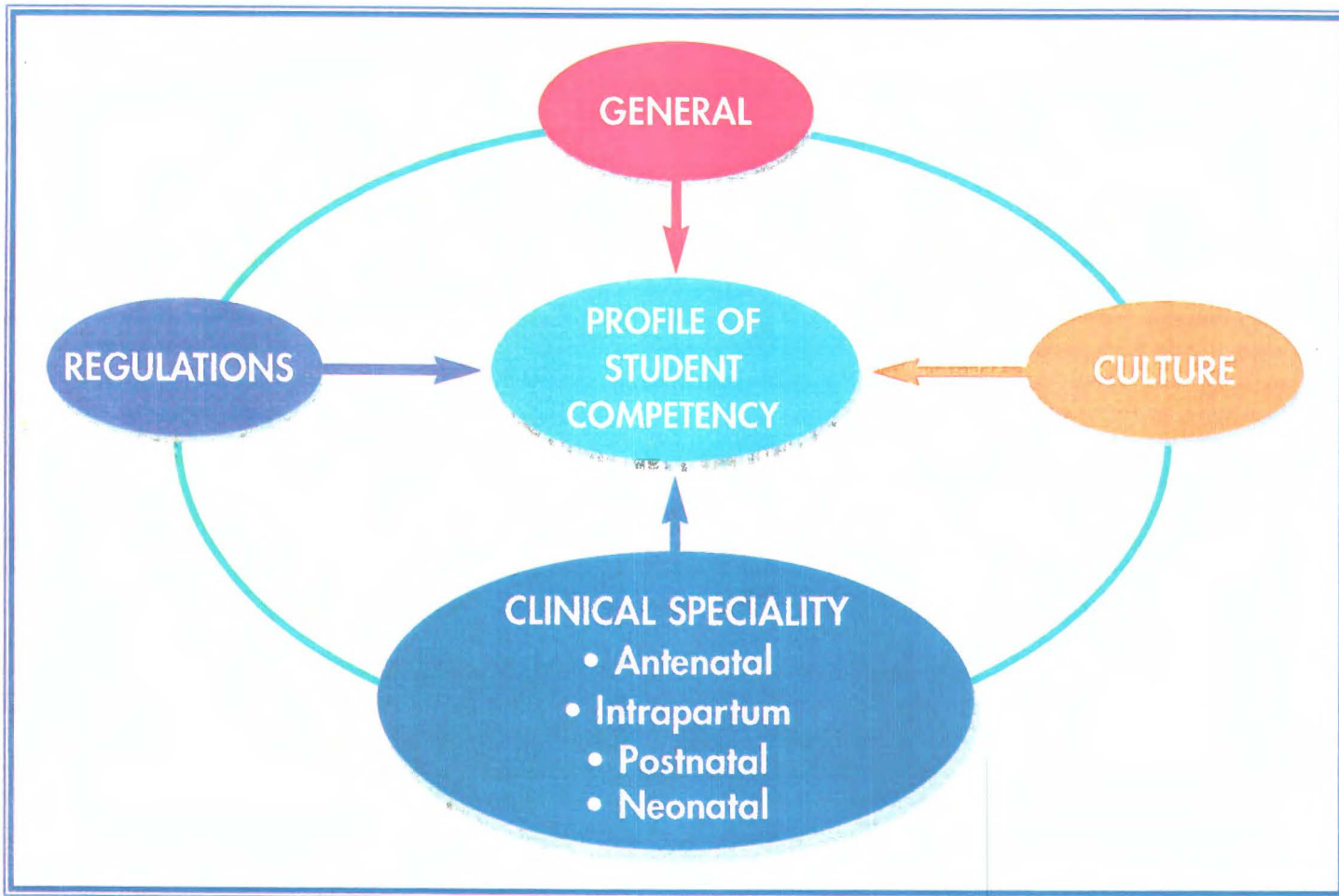


FIGURE 5.29: Self-perceived profile of student competency

Only 106 (20,6%) and 146 of the respondents (28,4%) respectively rated their knowledge and skills at speculum and vaginal examination as very good or excellent. It is encouraging to note that 174 respondents (33,9%) rated their competency at abdominal palpation at the very good or excellent level. Only 80 of the respondents (15,6%) rated their competency in doing a pelvic assessment as very good or excellent. A hundred and thirty-seven (26,7%) indicated that they were very good or excellent at assessing cervical discharge. It is interesting to note that while 229 of the respondents (44,6%) indicated that they were very good or excellent at doing a general physical assessment, only 189 (36,8%) evaluated their skill at identifying physical needs on the same level. A very good

or excellent competency in identifying psychological and educational needs was indicated by 161 (31,3%) and 181 (35,2%) respectively of the respondents.

TABLE 5.10: Self-perceived competency: General¹

NURSING KNOWLEDGE AND SKILLS	Poor		Reasonable		Good		Very good		Excellent	
	f	%	f	%	f	%	f	%	f	%
Urinary catheterisation	20	3.9	56	10.9	159	30.9	148	28.8	131	25.5
Vulva swabbing	21	4.1	55	10.7	177	34.4	137	26.7	124	24.1
Commencing an intravenous line	57	11.1	67	13.0	149	29	128	24.9	113	22.0
Setting up an infusion pump (IVAC)	123	23.9	87	16.9	107	20.8	96	18.7	101	19.6
Adult resuscitation	73	14.2	131	25.5	169	32.9	90	17.5	51	9.9
Administering blood transfusions	51	9.9	62	12.1	167	32.5	122	23.7	112	21.8
Preparing a patient for obstetric diagnostic procedures	93	18.1	92	17.9	149	29.0	106	20.6	74	14.4
Performing endotracheal intubation	290	56.4	104	20.2	68	13.2	36	7	16	3.1
Administering intravenous infusions	37	7.2	32	6.2	145	28.2	158	30.7	142	27.6
Administering oxygen (in different percentage e.g. 40%)	22	4.3	58	11.3	141	27.4	139	27.0	154	30.0
Wound care	12	2.3	37	7.2	186	36.2	174	33.9	105	20.4
Obtaining blood samples	14	2.7	29	5.6	122	23.7	172	33.5	177	34.4
Taking a history	12	2.3	25	4.9	147	28.6	184	35.8	146	28.4
Physical assessment:										
• assessing hydration status	36	7.0	71	13.8	177	34.4	145	28.2	85	16.5
• general	24	4.7	54	10.5	207	40.3	137	26.7	92	17.9
• speculum examination	140	27.2	127	24.7	141	27.4	71	13.8	35	6.8
• vaginal examination	95	18.5	116	22.6	157	30.5	87	16.9	59	11.5
Identifying physical needs	20	3.9	79	15.4	226	44.0	135	26.3	54	10.5
Identifying psychological needs	31	6.0	91	17.7	231	44.9	119	23.2	42	8.2
Identifying educational needs	33	6.4	90	17.5	210	40.9	134	26.1	47	9.1
Formulating a nursing diagnosis	37	7.2	100	19.5	209	40.7	126	24.6	41	8.0
Establishing a therapeutic relationship with:										
• patients	19	3.7	55	10.7	189	36.8	167	32.5	84	16.3
• family	19	3.7	70	13.6	193	37.5	160	31.1	72	14.0
• nursing staff	18	3.5	55	10.7	197	38.3	170	33.1	74	14.4
Co-ordinating health care regimes provided for the patient by other categories of health personnel	112	21.8	101	19.6	180	35.0	97	18.9	24	4.7
Formulating a community diagnosis	75	14.6	146	28.4	175	34.0	99	19.3	19	3.7
Prioritizing health risks	61	11.9	114	22.2	201	39.1	107	20.8	31	6.0
Interpreting vital statistics of populations:										
• growth rate	138	26.8	166	32.3	136	26.5	55	10.7	19	3.7
• birth rate	128	24.9	158	30.7	145	28.2	61	11.9	22	4.3
• maternal and child mortality (death rates)	129	25.1	153	29.8	141	27.4	68	13.2	23	4.5
• fertility rate	151	29.4	167	32.5	134	26.1	48	9.3	14	2.7
Planning preventive health programmes	78	15.2	150	29.2	162	31.5	81	15.8	43	8.4
Training community health workers	118	20.3	124	24.1	147	28.6	91	17.7	34	6.6
Conducting research	189	36.8	150	29.2	122	23.7	43	8.4	10	1.9
Writing a research report	208	40.5	166	32.3	99	19.3	31	6.0	10	1.9
Interpreting research findings	182	35.4	169	32.9	120	23.3	33	6.4	10	1.9
Educating the community	58	11.3	110	21.4	185	36.0	101	19.6	60	11.7

¹ Responses do not add up to 100% due to missing frequencies.

A hundred and sixty-seven of the respondents (32,6%) indicated that they were very good or excellent at formulating a nursing diagnosis. Only 121 (23,5%) rated their competency as being very good or excellent at co-ordinating health care regimes provided for the patient by other categories of health personnel. It is alarming that only 118 (23%) and 138 (26,8%) of the respondents respectively indicated that they were very good or excellent at formulating a community diagnosis or prioritizing health risks.

The interpretation of vital statistics of the population seems to be a problem. One hundred and thirty-eight of the respondents (26,8%) indicated their competency at interpreting growth rates as being poor with 128 (24,9%) and 129 (25,1%) of the respondents respectively evaluating their skills at interpreting birth and maternal and child mortality rates on the same level. A hundred and fifty-one of the respondents (29,4%) indicated that their skills in interpreting fertility rates were poor.

Conducting research seems to be an even bigger problem. A hundred and eighty-nine of the respondents (36,8%) evaluated their knowledge and skills at conducting research as poor, while 208 (40,5%) rated themselves poor at writing a research report. It is a cause for concern that 182 of the respondents (35,4%) indicated that they were poor at interpreting research findings.

One hundred and sixty-one of the respondents (31,3%) rated their knowledge and skills in educating the community as very good or excellent, while 124 (24,1%) and 125 (24,3%) respectively rated their competency at planning preventive health programmes and training community health workers on the same level.

■ **Self-perceived knowledge of South African Nursing Council regulations**

This question requested the respondents to score their knowledge of South African Nursing Council regulations.

TABLE 5.11: Self-perceived knowledge of South African Nursing Council regulations²

REGULATION	Poor		Reasonable		Good		Very good		Excellent	
	f	%	f	%	f	%	f	%	f	%
• Scope of practice (R.260 of 1991)	116	22,6	112	21,8	179	34,8	80	15,6	27	5,3
• Regulations regarding acts and omissions (R.2490 of 1990)	112	21,8	117	22,8	175	34,0	83	16,1	27	5,3
• Medication which the midwife may prescribe/administer (R.2418 of 1984)	113	22,0	106	20,6	181	35,2	84	16,3	30	5,8
• Conditions under which midwives may carry on their profession (R.2488 of 1990)	124	24,1	104	20,2	170	33,1	85	16,5	31	6,0

It is alarming that although 94,3% of the respondents (see Figure 5.9) indicated that they were currently practising as nurses, less than a quarter of the respondents scored their knowledge of the regulations of the South African Nursing Council as very good or excellent. Only 107 of the respondents (20,8%) evaluated their knowledge on the scope of practice (R.260 of 1991) as very good or excellent, while 110 (21,4%) evaluated their knowledge on the regulation regarding acts and omissions (R.2490 of 1990) on the same level. A hundred and fourteen (22,2%) and 116 (22,6%) of the respondents respectively indicated that their knowledge of medications which midwives may prescribe (R.2418 of 1984) and conditions under which midwives may carry on their profession (R.2488 of 1990) was very good or excellent.

² Responses do not add up to a 100% due to missing frequencies.

■ Cultural, traditional and customary beliefs and practices of patients

The respondents were also requested to score their knowledge on cultural, traditional and customary beliefs and practices of patients. Until recently these aspects were not emphasized in the curricula. It is therefore not surprising that only a small percentage (13,6%, 14,2% and 14,6%) of the respondents' knowledge in these categories was very good or excellent. The results of the analysis are illustrated in Table 5.12.

TABLE 5.12: Self-perceived knowledge on cultural, traditional and customary beliefs and practices of patients³

KNOWLEDGE OF CULTURAL, TRADITIONAL AND CUSTOMARY BELIEFS AND PRACTICES IN:	Poor		Reasonable		Good		Very good		Excellent	
	f	%	f	%	f	%	f	%	f	%
• Pregnancy	143	27,8	147	28,6	154	30,0	59	11,5	11	2,1
• Labour and birth	143	27,8	150	29,2	148	28,8	60	11,7	13	2,5
• Postpartum	143	27,8	141	27,4	155	30,2	64	12,5	11	2,1

■ Self-perceived competency: Antenatal related nursing care

Question 1 under this item asked respondents to evaluate their competency in nursing actions related to the health care of pregnant women in the antenatal period. Table 5.13 demonstrates the responses to this question.

The competency of the respondents on the assessment of foetal well-being is distressing. Two hundred and eighty-two of the respondents (54,9%) indicated that they were poor at interpreting and analyzing the foetal heart pattern. Even more, 329 of the respondents (64%) evaluated their competency at doing a non-stress test as poor, while 335 (65,2%) indicated that their knowledge and skills of an oxytocin stress test was poor.

³ Responses do not add up to a 100% due to missing frequencies.

TABLE 5.13: Self-perceived competency: antenatal related nursing care⁴

ANTENATAL NURSING CARE	Poor		Reasonable		Good		Very good		Excellent	
	f	%	f	%	f	%	f	%	f	%
Planning a diet to meet specific health care needs in pregnancy	85	16,5	158	30,7	164	31,9	70	13,6	37	7,2
Assessing foetal well-being and uterine activity:										
• interpret and analyse cardiotocograph results/findings	282	54,9	120	23,3	60	11,7	36	7,0	16	3,1
• do a non-stress test	329	64,0	98	19,1	52	10,1	22	4,3	13	2,5
• do an oxytocin stress test	335	65,2	97	18,9	49	9,5	20	3,9	13	2,5
Assisting with an amniocentesis	266	51,8	109	21,2	90	17,5	30	5,8	19	3,7
Interpreting the results of examinations/investigations	191	37,2	140	27,2	110	21,4	52	10,1	21	4,1
Recognising dysrhythmias (ECG)	174	33,9	158	30,7	105	20,4	57	11,1	20	3,9
Making neurological observations	95	18,5	131	25,5	158	30,7	95	18,5	35	6,8
Identifying anaphylaxis	71	13,8	169	32,9	177	34,4	69	13,4	28	5,4
Abdominal palpation	57	11,1	101	19,6	182	35,4	112	21,8	62	12,1
Pelvic assessment	187	36,4	134	26,1	113	22,0	51	9,9	29	5,6
The pregnant woman with:										
• a heart disease	71	13,8	169	32,9	177	34,4	69	13,4	28	5,4
• diabetes mellitus	58	11,3	162	31,5	176	34,2	87	16,9	31	6,0
• anaemia	57	11,1	144	28,0	193	37,5	91	17,7	29	5,6
• hypertension	46	8,9	130	25,3	196	38,1	105	20,4	37	7,2
• placenta praevia	84	16,3	150	29,2	181	35,2	71	13,8	28	5,4
• trauma due to an accident	105	20,4	150	29,2	176	34,2	63	12,3	20	3,9
• a sexually transmitted infection	68	13,2	121	23,5	192	37,4	94	18,3	39	7,6
The battered pregnant woman	110	21,4	159	30,9	159	30,9	66	12,8	20	3,9
The pregnant woman practising substance abuse	123	23,9	174	33,9	135	26,3	64	12,5	18	3,5

Two hundred and sixty-six of the respondents (51,8%) indicated that their knowledge and skills at assisting with an amniocentesis was poor. Competency at interpreting the results of examinations/investigations performed in the antenatal period was perceived by 191 of the respondents (37,2%) as poor.

It is significant that respondents rated their competency (very good and excellent) much higher in nursing actions, such as recognising dysrhythmias (ECG) (15%); making neurological observations (25,3%) and identifying anaphylaxis (18,8%) that are not exclusively related to perinatal health care.

⁴ Responses do not add up to a 100% due to missing frequencies.

Question 2 under this heading deals with the theory and implementation of specific nursing interventions in the health care of women with pathology in the antenatal period. The respondents were asked to rate their competency in this regard.

One hundred-and-five respondents (20,4%) indicated that their knowledge and skills regarding the antenatal care of a woman with trauma due to an accident were poor. Competency in the antenatal care of battered pregnant women and pregnant women practising substance abuse was rated poor by 110 (21,4%) and 123 (23,9%) of the respondents respectively. Table 5.13 highlights that most of the respondents evaluated their competency as reasonable or good in the antenatal care of women with pathology. Only a few respondents indicated their competency on the antenatal care of women in this category as very good or excellent.

■ **Self-perceived competency: Intrapartum related nursing care**

This item consists of two parts. Respondents were questioned firstly about their knowledge and skills regarding nursing actions related to intrapartum care and secondly on their competency in giving patients information and advice on specific topics.

Table 5.14 demonstrates that a small percentage (18,7%, 15,5% and 21%) of the respondents rated their competency on monitoring a patient on specific medication (Ipradol®, Magnesium sulphate® and Syntocinon®) as very good or excellent.

Two hundred and eight-seven of the respondents (55,8%) indicated that their competency in setting up a cardiotocograph monitor was poor, while an even larger number, 306 (59,5%) evaluated their competency in analysing and interpreting cardiotocograph findings as poor. The majority of the respondents indicated that they were not competent at applying foetal scalp electrodes. Three

hundred and eighty-two of the respondents (74,3%) evaluated their competency in this skill as poor. A further 209 (40,7%) perceived themselves to be poorly competent in detecting threatening uterine rupture. These findings underline the poor competency respondents indicated in assessing foetal well-being and uterine activity in the antepartum period.

TABLE 5.14: Self-perceived competency: Intrapartum related nursing care⁵

INTRAPARTUM NURSING CARE	Poor		Reason-able		Good		Very good		Excel-lent	
	f	%	f	%	f	%	f	%	f	%
Monitoring a patient on:										
• Ipradol®	177	34,4	115	22,4	126	24,5	55	10,7	41	8,0
• Magnesium sulphate®	213	41,4	117	22,8	104	20,2	51	9,9	29	5,6
• Syntocinon®	153	29,8	128	24,9	125	24,3	61	11,9	47	9,1
Setting up a cardiotocograph monitor	287	55,8	93	18,1	68	13,2	41	8,0	25	4,9
Analysing and interpreting cardiotocograph findings	306	59,5	90	17,5	67	13,0	28	5,4	23	4,5
Artificial rupturing of membranes	166	32,3	114	22,2	126	24,5	62	12,1	46	8,9
Performing an episiotomy	134	26,1	125	24,3	179	34,8	47	9,1	29	5,6
Doing a vaginal delivery	93	18,1	116	22,6	199	38,7	70	13,6	36	7,0
Detecting threatened uterine rupture	209	40,7	139	27,0	117	22,8	38	7,4	11	2,1
Assisting anaesthetist:										
• during administration of an epidural anaesthetic	235	45,7	106	20,6	93	18,1	57	11,1	23	4,5
Giving epidural topping up	296	57,6	105	20,4	68	13,2	35	6,8	10	1,9
Recognising spinal shock	287	55,8	107	20,8	78	15,2	32	6,2	10	1,9
Treating hypoglycemia	146	28,4	130	25,3	142	27,6	73	14,2	23	4,5
Treating hypotension	122	23,7	137	26,7	143	27,8	84	16,3	28	5,4
Treating uterine hyperactivity	249	48,4	120	23,3	86	16,7	47	9,1	12	2,3
Treating foetal distress	165	32,1	129	25,1	121	23,5	68	13,2	31	6,0
Diagnosing abruptio placentae	191	37,2	125	24,3	110	21,4	64	12,5	24	4,7
Administering entonox	337	65,6	99	19,3	51	9,9	21	4,1	6	1,2
Applying a foetal scalp electrode	382	74,3	69	13,4	38	7,4	13	2,5	12	2,5
Assisted delivery:										
• forceps delivery	342	66,5	80	15,6	61	11,9	18	3,5	13	2,5
• vacuum extraction delivery	338	65,8	76	14,8	65	12,6	22	4,3	13	2,5
• breech delivery	277	53,9	106	20,6	80	15,6	31	6,0	20	3,9
• symphysiotomy	397	77,2	72	14,0	36	7,0	4	0,8	5	1,0
Manual removal of placenta	297	57,8	109	21,2	66	12,8	29	5,6	13	2,5
Examining the placenta	103	20,0	100	19,5	153	29,8	114	22,2	44	8,6
Repairing perineal tears	188	36,6	103	20,0	122	23,7	63	12,3	38	7,4
Scrubbing for caesarean sections	246	47,9	84	16,3	91	17,7	52	10,1	41	8,0
Patient education										
• Alternative methods of pain control	128	24,9	148	28,8	152	29,6	56	10,9	30	5,8
• Alternative positioning during labour	147	28,6	149	2,9	148	28,8	40	7,8	30	5,8
• Bonding	93	18,1	91	17,7	174	33,9	96	18,7	60	11,7
• Breastfeeding	48	9,3	56	10,9	172	33,5	138	26,8	100	19,5

⁵ Responses do not add up to a 100% due to missing frequencies.

It is interesting to note that 19,2% of the respondents rated their competency (very good or excellent) higher in the treatment of foetal distress than in its diagnosis (analysing and interpreting cardiotocograph findings 12,9%). However, competency in the treatment of uterine hyperactivity was perceived by 249 (48,4%) of the respondents as poor.

A large number of respondents (235 or 45,7%) rated their competency in assisting the anaesthetist during the administration of an epidural anaesthetic as poor. What is even more alarming is that 287 of the respondents (55,8%) were poorly competent in recognising spinal shock - a life-threatening complication of epidural anaesthesia. The administration of Entonox seems also to be a problem. Three hundred and thirty-seven of the respondents (65,6%) evaluated their competency in this skill as poor.

It is not surprising that a very small percentage of the respondents rated their competency in assisted deliveries as very good or excellent, as these are viewed as advanced skills. Thirty one (6%) and 35 (6,8%) of the respondents respectively indicated that they were very good or excellent at forceps and vacuum extraction deliveries, while 51 (9,9%) evaluated their competency in breech deliveries on the same level. Only nine of the respondents (1,8%) indicated that they were very good or excellent at performing a symphysiotomy. Very good or excellent competency in another advanced skill, manual removal of the placenta, was also indicated by few respondents, (42 or 8,1%).

A hundred and eighty-eight of the respondents (36,6%) indicated that they were poorly competent at repairing perineal tears. Competency in scrubbing for a caesarean section was perceived by 246 of the respondents (47,9%) as poor.

Question 2 asked respondents how competent they were in teaching patients about specific topics. The results of the analysis are portrayed in Table 5.14.

Eighty-six (16,7%) and 70 (13,6%) of the respondents respectively rated themselves as being very good or excellent at alternative methods of pain control and positioning during labour. Very good or excellent competency in patient education regarding bonding was indicated by 156 of the respondents (30,4%). It is encouraging that nearly half of the respondents, 238 or 46,3%, perceived their competency in patient education on breastfeeding as very good or excellent.

■ Self-perceived competency: Postnatal nursing care

This item is divided into two parts. The first question requested respondents to evaluate their competency in nursing skills associated with the postnatal period and the second question requests responses regarding their competency in family planning matters.

The analysis of the data regarding postnatal care is portrayed in Table 5.15. Table 5.15 indicates that generally speaking respondents perceived their competency in nursing skills associated with the postnatal period much higher than nursing skills associated with the intrapartum period. It is interesting that competency in identifying involution of the uterus was the nursing skill in Table 5.15 that most respondents, 149 (29%), rated poorly. Two hundred-and-five of the respondents (39,9%) indicated their competency in assessing hydration status as very good or excellent. It is interesting that 171 of the respondents (33,3%) rated their competency on facilitating breast feeding as very good or excellent, while more than half of them (56,6%) indicated the same level of competency in operating a breast pump. A hundred and twenty-five of the respondents (24,3%) also perceived their competency in providing emotional and physical comfort measures as poor.

Two hundred and thirty-nine of the respondents (46,5%) rated their competency in nursing a patient who had had an epidural anaesthetic on a very good or excellent level, while competency in identifying and treating patients with

complications related to childbirth on these levels was much lower. A hundred and seventy-four (33,9%) and 162 (31,5%) of the respondents respectively indicated that they were very good or excellent at identifying patients at risk of postpartum depression and identifying and treating postpartum haemorrhage. A hundred and fifty-two (29,6%) and 119 (23,2%) of the respondents rated their competency in identifying and treating infection of the genital tract and identifying and treating thrombosis as very good or excellent.

TABLE 5.15: Self-perceived competency: Postnatal nursing care⁶

POSTNATAL NURSING CARE	Poor		Reason-able		Good		Very good		Excel-lent	
	f	%	f	%	f	%	f	%	f	%
Identifying involution of uterus and perineum	149	29,0	99	19,3	147	28,6	79	15,4	40	7,8
Assessing hydration status	55	10,7	71	13,8	183	35,6	124	24,1	81	15,8
Facilitating breastfeeding practices	83	16,1	101	19,6	159	30,9	114	22,2	57	11,1
Operating the breast pump	25	4,9	40	7,8	158	30,7	177	34,4	114	22,2
Teaching general hygiene	33	6,4	52	10,1	170	33,1	170	33,1	89	17,3
Providing comfort measures (emotional and physical)	125	24,3	95	18,5	137	26,7	113	22,0	44	8,6
Nursing a patient who has had an epidural anaesthetic	27	5,3	77	15,0	171	33,3	174	33,9	65	12,6
Identifying patients at risk of postpartum depression	52	10,1	104	20,2	184	35,8	130	25,3	44	8,6
Identifying and treating postpartum haemorrhage	79	15,4	100	19,5	173	33,7	120	23,3	42	8,2
Identifying and treating infection of the genital tract	82	16,0	99	19,3	181	35,2	113	22,0	39	7,6
Identifying and treating thrombosis	79	15,4	145	28,2	171	33,3	97	18,9	22	4,3

■ Self-perceived competency: Family planning care

The respondents were requested to evaluate their competency regarding family planning. They indicated that they were fairly competent in the items listed under this question except for the insertion or removal of an intra-uterine contraceptive device. Two hundred and ninety-six of the respondents (57%) rated their competency in these skills as poor, while only 57 (11,1%) indicated they were very good or excellent at inserting or removing an intrauterine contraceptive device (see Table 5.16).

⁶ Responses do not add up to a 100% due to missing frequencies.

TABLE 5.16: Self-perceived competency: Family planning care⁷

FAMILY PLANNING CARE	Poor		Reason-able		Good		Very good		Excel-lent	
	f	%	f	%	f	%	f	%	f	%
Determining the methods and side effects	92	17,9	125	24,3	135	25,9	105	20,4	59	11,5
Relationship counselling	69	13,4	130	25,3	167	32,5	104	20,2	44	8,6
Counselling for choice	79	15,4	113	22,0	174	33,9	104	20,2	44	8,6
Insertion/removal of intrauterine contraceptive device	296	57	99	19,3	62	12,1	34	6,6	23	4,5

■ Self-perceived competency: Newborn nursing care

Two questions were asked under this item. Question 1 asked the respondents how well they assessed the newborn physically and neurologically, while Question 2 requested them to evaluate their competency in nursing actions related to neonatal care.

Table 5.17 indicates the responses to the first question regarding assessment of the newborn. Only 114 of the respondents (27,2%) rated their competency in assessing the newborn physically as very good or excellent. Even a smaller number, 88 (17,1%), indicated that they were very good or excellent at the neurological assessment of the newborn.

It is alarming to note that only 99 of the respondents (19,3%) indicated that they were very good or excellent at diagnosing asphyxia, while even fewer, only 80 of respondents (15,6%) believed they were very good or excellent at resuscitation of the newborn. Two hundred and forty-nine of the respondents (48,4%) evaluated their competency in setting up an intravenous scalp line as poor. Taking blood from the newborn also seemed to be a problem, as 233 of the respondents (45,3%) indicated that their competency in this skill was poor.

Only 77 of the respondents (15,1%) indicated that they were very good or excellent at nasogastric intubation of the newborn, while 177 (33,7%) rated their competency in nasogastric feeding of the newborn on the same level.

⁷ Responses do not add up to a 100% due to missing frequencies.

TABLE 5.17: Self-perceived competency: Newborn nursing care⁸

NEWBORN NURSING CARE	Poor		Reasonable		Good		Very good		Excellent	
	f	%	f	%	f	%	f	%	f	%
Physical assessment	63	12,3	108	21,0	203	39,5	100	19,5	40	7,8
Neurological assessment	116	22,6	135	26,3	175	34,0	72	14,0	16	3,1
Identifying congenital abnormalities	77	15,0	129	25,1	189	36,8	90	17,5	29	5,6
Diagnosis of asphyxia	84	16,3	144	28,0	187	36,4	80	15,6	19	3,7
Resuscitation of the newborn	143	27,8	144	28,0	147	28,6	63	12,3	17	3,3
Suctioning (nose, mouth and throat)	59	11,5	96	18,7	199	38,7	100	19,5	60	11,7
Nasogastric:										
• intubation	212	41,4	114	22,3	109	21,3	52	10,2	25	4,9
• feeding	78	15,2	91	17,7	172	33,5	109	21,2	64	12,5
Setting up an intravenous scalp line	249	48,4	105	20,4	83	16,1	48	9,3	29	5,6
Taking blood	233	45,3	111	21,6	83	16,1	54	10,5	33	6,4
Nursing the:										
• sick neonate	153	29,8	132	25,7	148	28,8	53	10,3	28	5,4
• premature neonate	142	27,6	138	26,8	146	28,4	56	10,9	32	6,2
• small for gestational age neonate	156	30,4	129	25,1	151	29,4	51	9,9	27	5,3
• respiratory distressed neonate	180	35,0	129	25,1	131	25,5	48	9,3	26	5,1
• neonate with jaundice	133	25,9	114	22,2	164	31,9	60	11,7	43	8,4
• neonate with hyper/hypoglycaemia	192	37,4	131	25,5	123	23,9	43	8,4	25	4,9
• neonate with hypothermia	161	31,3	125	24,3	143	27,8	50	9,7	35	6,8

A hundred and three of the respondents (20,1%) indicated that they were very good or excellent at nursing the neonate with jaundice, while fewer than 18% believed they were very good or excellent at nursing the neonate with problems. One hundred and eighty of the respondents (35%) evaluated their competency in nursing the respiratory distressed neonate as poor. Competency in nursing the neonate with hyper- or hypoglycaemia was rated by 192 of the respondents (37,4%) as poor.

5.4.3 Comments

Some of the respondents made comments at the end of the questionnaire. They remarked that they had lost their competency in a number of midwifery related skills, because they had not updated these after completion of their basic midwifery training. They felt that continuing education programmes in midwifery are necessary, as they feel particularly concerned about their competency in this

⁸ Responses do not add up to a 100% due to missing frequencies.

field after completion of the questionnaire. Continuing education programmes in other fields of nursing were also suggested.

Respondents requested continuing education programmes that would be accessible to those of them working in rural areas. Some of the respondents congratulated the researcher on the idea of an education programme in midwifery and wished her luck.

5.4.4 Overall competency scores of respondents

It is striking that respondents (57,6%) who indicated that they were currently providing midwifery services or had provided midwifery services as a registered nurse the past one to two years, rated their overall competency much higher than the other respondents. The chi-square and Fisher's exact test used to determine whether a significant difference exists, were equal or lower than 0,05 in most of the questions in Checklist B.

No statistically significant difference in competency was noted between respondents who indicated that they were currently providing midwifery services or had provided midwifery services as a registered nurse the past one to two years and respondents who indicated that they had not provided midwifery services as a registered nurse for the past three or more years, in nursing care such as setting up an infusion pump, adult resuscitation, administering oxygen, wound care, identifying psychological needs, conducting research, writing a research report, interpreting research findings, training community health workers, recognising spinal shock and taking blood from a neonate. All of these skills except for taking blood from a neonate are general nursing skills.

5.4.5 Conclusion

The information obtained through the questionnaire underlines the importance of needs assessment in the development of an educational programme. Advanced

midwifery educational programmes emphasize the teaching of advanced midwifery knowledge and skills and accept that the students entering these programmes already have specific knowledge and skills included in the curricula for basic courses.

This is contrary to the findings of this study. Competency in knowledge and skills associated with basic courses, for example adult resuscitation (Table 5.10), South African Nursing Council regulations (Table 5.11), assessing foetal well-being (Table 5.12), and identifying involution of the uterus and perineum (Table 5.15) to name a few, were alarmingly low. On the other hand, competency in knowledge and skills such as operating a breast pump (Table 5.15) and nursing a patient who has had an epidural anaesthetic (Table 5.15) were rated much higher than expected.

These findings could be due to the fact that 81,6% of the respondents completed their basic training more than 10 years ago (Figure 5.7), that 71% of them (Figure 5.24) are not furthering their education and that primary health care has not been strongly emphasized until recently. The competencies which were rated higher than expected, as previously mentioned, may be due to the fact that 55,5% of the respondents (Figure 5.10) are hospital based and these skills are usually associated with nursing care practised in hospitals.

This concludes the analysis of the results of the questionnaire, in which the profile and the learning needs of the respondents were established. A needs assessment of the students is essential before consideration can be given to the content or the educational strategies to be adopted in an educational programme.

Unless there is an adequate needs assessment, one cannot expect to have an educational programme relevant to the needs of the practising registered nurse. Relevancy is arguably the most important criterion of effective education

(Laidlaw *et al.*, 1995:87). This is particularly important when time for educational activities is at a premium and when these activities have to be cost effective.

5.5 SUMMARY

In Chapters 4 and 5 the design phase of the Advanced University Diploma in Midwifery and Neonatology was discussed.

The production, implementation and evaluation used in this education programme will be discussed in Chapter 6.

CHAPTER 6

Production, implementation and evaluation

6.1 INTRODUCTION

The Department of Nursing at the University of the Orange Free State has a holistic philosophy. The Department endorses nursing as a scientific process of problem-solving which contributes to the health care of the individual, family and community. The philosophy of the Department also states that learning means a change in behaviour through the active involvement of the learner (see Annexure B). With this philosophy as background, the Advanced University Diploma in Midwifery and Neonatology was developed.

6.2 PRODUCTION

This education programme was developed in response to a need identified by the community and the health care personnel (see 1.2.1.4) and by the registered nurses in the province who took part in the survey (see 5.4.1.6).

6.2.1 Curriculum

The curriculum for the Advanced University Diploma in Midwifery and Neonatology was developed over a two year period.

Two experts in midwifery and neonatology, the researcher and another lecturer, and the Head of the Department of Nursing were responsible for the development of the curriculum.

The following factors played a significant role in the development of the objectives and the selection of the content of the programme:

- a visit to the established, community orientated Decentralized Education Programme in Advanced Midwifery at the McCord Zulu Hospital, Durban at the beginning of 1993;
- the emphasis on primary health care by the present government;
- perinatal health indicators, as discussed in Chapter 1 (see 1.3);
- perinatal health care problems, as identified in clinical practice and discussed in chapter 1 (see 1.3);
- the evaluation of the curricula of four diplomas in advanced midwifery in other regions of South Africa;
- the directive for Advanced Midwifery of the South African Nursing Council (see Annexure G);
- the learning needs of the registered nurses regarding midwifery and neonatology as discussed in chapter 5 (see 5.4); and
- trends in midwifery and neonatology.

Administrators of the University of the Orange Free State, as well as staff of the Departments of Anthropology, Obstetrics and Gynaecology and Paediatrics of the same university served as consultants during this process.

The Perinatal Committee was consulted and kept well-informed about the progress of the process by means of monthly meetings.

After the curriculum (see Annexure I) was approved by the Faculty Committee of Social Science¹ and the Executive Committee of the Council of the University of the Orange Free State, it was submitted to the Department of Education and Culture for approval. On February 15th, 1994 the Minister of Education and Culture approved the introduction of the Advanced University Diploma in

¹ The Department of Nursing is a department of the Faculty of Social Sciences at the University of the Orange Free State.

Midwifery and Neonatology at the University of the Orange Free State (see Annexure J).

A more detailed curriculum, as requested by the South African Nursing Council, was submitted to this professional council (see Annexure K). Early in March, 1994 the South African Nursing Council approved the curriculum of the Advanced University Diploma in Midwifery and Neonatology became a reality (see Annexure L).

Although students had to fulfil the minimum requirements for admission to the University of the Orange Free State, admission requirements for this programme were not based on previous academic achievements (see Annexures I and K). The reason for this decision was not to exclude students from the course because of a previous lack of educational opportunities. The programme was thus more accessible.

The curriculum consisted of a core curriculum with three subjects: Professional practice and clinical instruction, Health Care Dynamics and Anthropology. This part of the curriculum was lectured, for reasons discussed in Chapter 1 (See 1.4).

In the second part of the curriculum, Midwifery and Neonatology, problem-based learning was used as the teaching methodology. Anatomy, physiology, pharmacology and the theoretical and practical components of midwifery and neonatology were integrated².

Although the teaching methodology differed, the curriculum was developed as an integrated whole, with all the courses playing a significant role in the development of the students.

² The rest of this chapter will deal only with this part of the programme.

6.2.2 Material for the course

A theoretical study guide and a practical workbook were developed by the researcher and the lecturer who was also involved in the development of the curriculum.

The theoretical study guide consisted of an orientation to the objectives, courses, teaching methodology and evaluation of the programme, as well as objectives and resources for every module. The practical workbook orientated the students to the practical requirements and the evaluation methods used for practicals.

Learning modules on prioritized perinatal health care problems were also developed by the researcher and her colleague. These modules served as resources for the programme.

Problems³ for the Advanced University Diploma in Midwifery and Neonatology were developed by the researcher and reviewed by experts. The requirements of problems for problem-based learning, as discussed in Chapter 3, were borne in mind during the development of the problems (see 3.6). A method similar to the Bipolar Approach used at the Medical School of the University of the Suez Canal, as discussed in Chapter 3 (see 3.6.3), was used in the development of the problems. The objectives of the programme and the modules on the one hand, together with the perinatal health care problems on the other, gave birth to the problems for the programme. Real problems from clinical practice were used. Some of the problems used were obtained from other problem-based learning schools and adapted for this programme. Problems varied from brief results of investigations to written, structured case studies, slides and video recordings of patients.

³ See Annexure M for an example of a problem and Annexure P for an outline of a paper problem package.

Experts in the field of midwifery and neonatology at the University of the Orange Free State, as well as other schools of nursing in South Africa were consulted during the development of the material. These educational materials were subjected to peer review.

Formative and summative evaluation methods were decided upon. The development of various evaluation instruments followed.

6.3 IMPLEMENTATION

In January 1995 ten students enrolled for the Advanced University Diploma in Midwifery and Neonatology. The closed-loop problem-based method (reiterative) was used in this education programme (Barrows, 1986:481-486).

6.3.1 The tutor

The tutor⁴ for the programme has a Master's degree in Midwifery and Neonatology, has clinical experience in this field and apart from being a lecturer, has knowledge of the role of the tutor as a result of a literature review and attendance at workshops and conferences on problem-based learning. The assumption can be made that the tutor is an expert. However, practical experience in the role of a tutor was lacking.

Clinical tutors facilitated the students in the clinical settings. The researcher, registered nurses with an advanced midwifery qualification and medical staff acted as clinical tutors (see 5.3.2.2).

⁴ The researcher also acted as co-ordinator of the Advanced University Diploma in Midwifery and Neonatology, clinical tutor and tutor.

6.3.2 The group

The cornerstone of the programme was the tutorial group. The problem-based group was composed of 10 students who met with a tutor in a three hour session on Wednesday mornings and a two hour session the same afternoons (Figure 6.1).

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
08:00-08:50							
09:00-09:50				Phase III and IV			
10:00-10:50				Core curriculum			
11:00-11:50				Lectures			
12:00-12:50		Phase II		Phase I		Phase II	
14:00-14:50							
15:00-15:50							

FIGURE 6.1: Time table for the Advanced University Diploma in Midwifery and Neonatology

6.3.3 The group process

During the first three hour meeting the group members introduced themselves. Each group member received a theoretical study guide and practical workbook and these were discussed (Barrows, 1985:51). As suggested by Bligh (1995:9) the students were also orientated to problem-based learning. The motivation to adopt the “seven steps” (see 3.9) teaching strategy in the process of problem-solving and the roles and responsibilities of the group members were discussed and decided upon. Evaluation also commenced, as will be discussed later in this chapter.

The group always sat in a circle, which encouraged discussion and interaction (Little, 1994:5).

6.3.3.1 Phase I

The first problem-based group commenced that afternoon. A group leader and scribe were chosen and the problem was presented. The cold approach was thus used (Barrows, 1985:58; Pelausa & Marsan, 1993:42).

The problem was first quietly read to themselves by group members, and notes were made. The group leader then asked a group member to read the problem aloud. Under the guidance of the group leader and with the help of the tutor each segment of the problem was analyzed. The tutor encouraged discussion and interaction and stimulated the problem-solving process by using non-verbal communication, questioning skills, such as redirecting, critiquing, clarifying and elaborating, reflection and challenging students' responses (Little, 1994:5).

The first five steps of the "seven steps" were followed. After the students had identified the learning issues, the tutor initially guided them to formulate appropriate objectives in accordance with the requirements of an objective as discussed in Chapter 2 (see 2.5).

According to Barrows (1985:67) clinical skills are part of this phase. Clinical skills were acquired in the computer learner centre, simulation laboratory or the midwifery units where the students worked. One of the students was pregnant for most of the programme and consented to be used for the demonstration of appropriate clinical skills, such as abdominal palpation. For the rest simulation models or real patients were used.

Textbooks were available during Phase I, as recommended by Barrows (1985:60) as resources.

6.3.3.2 Phase II

Students decided among themselves whether each member would prepare all the learning objectives for a session or to divide them among the group. Students travelled to the university from different towns and with their limited time and access to the library, some resources were pre-selected and made available to them. The students were, however, responsible for finding additional resources.

During this phase, students worked in hospitals and clinics, where clinical skills were further acquired and developed, with the help of clinical facilitators. Students were sometimes rotated to different hospitals and clinics, because of a lack of learning opportunities, as were identified in 5.3.2.2.

6.3.3.2.1 Resources

Motivated staff and students were part of the human resources of the Advanced University Diploma in Midwifery and Neonatology. The students brought a wealth of knowledge to the group. They came from four different hospitals, with at least five years of clinical experience each and from five ethnic groups, Sotho, Tswana, Xhosa, Zulu and Afrikaans.

Health care personnel, experts and patients served as resource persons.

With regard to materials, the University of the Orange Free State, and particularly the Department of Nursing have well equipped libraries and laboratories, as indicated in Chapter 5. Material resources such as:

- textbooks;
- articles;
- modules developed by personnel of the Department of Nursing;
- slides;
- videos;

- computer programmes;
- pamphlets from pharmaceutical companies;
- simulation models; and
- simulated patients were used for the programme.

The lecture hall (H18) adjacent to the multimedia centre of the Department of Nursing (see 5.3.2.1.2.4) was used for the tutorial group meetings. This contribute to the integration of clinical skills in the problem-based learning process. A generous grant from the W.K. Kellogg Foundation contributed to the fiscal resources for the programme. The students paid class fees determined by the University of the Orange Free State.

6.3.3.3 *Phases III and IV*

The next Wednesday morning the students returned for the second tutorial on the same problem after focusing their study on their learning objectives. Resources used were discussed, the problem was again read to the group by a group member, new knowledge was applied to the problem and prior performance was evaluated.

Reflection on the problem, the summary and group evaluation concluded the process.

The process recommenced with the introduction of a new problem, in the afternoon session.

The application of problem-based learning in the Advanced University Diploma in Midwifery and Neonatology can be schematically presented in Figure 6.2.

10 STUDENTS: 1 TUTOR

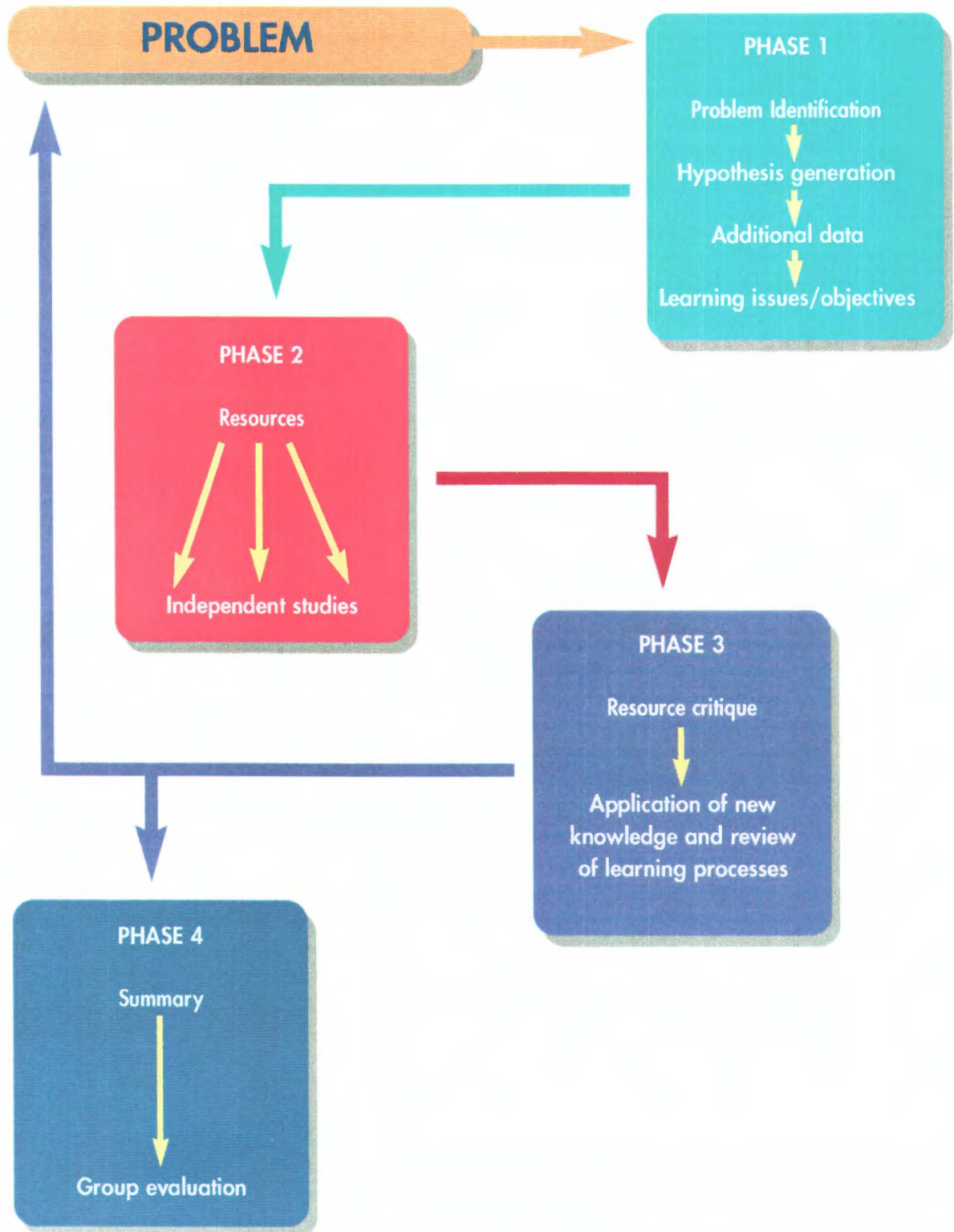


FIGURE 6.2: The closed-loop problem-based learning method followed in the Advanced University Diploma In Midwifery & Neonatology

6.4 EVALUATION

A multidimensional assessment programme was used in the Advanced University Diploma in Midwifery and Neonatology. Subjective and objective methods were included in the formative and summative evaluation of the students. The tutor, clinical tutors and students took part in the assessment programme.

Subjective methods were mainly formative in character and included self-evaluation, group process evaluation, video tapes, completion of a workbook, writing of case studies and free style writing. Assignments were used for summative evaluation. Objective methods included multiple choice questions which were used in a formative way, while summative evaluation was done by means of short essay questions and an Objective Structured Clinical Examination (Table 6.2).

TABLE 6.2: Summary of the evaluation methods used in the Advanced University Diploma in Midwifery and Neonatology

	FORMATIVE	SUMMATIVE
Subjective	Pre-and post-test Group process evaluation Video tapes Workbook Case studies Free style writing	Assignments
Objective	Multiple choice questions	Short essay questions Objective structured clinical examination

6.4.1 Pre- and post-tests

Self-evaluation of clinical skills was done by means of a checklist on which students rated their competency. This checklist was the same one used as checklist B in the questionnaire discussed in Chapter 3. The students completed the checklist on the first day and again on the last day of the programme as a pre- and post test.

Statistical analysis, using the SAS-system showed a marked increase in competency between the pre- and post-test self-evaluation in 104 of the 129 items listed in the checklist. In 21 of the items a one frequency decrease of one level of competence was indicated. Two students indicated a decrease of one level of competence in three items and in one item one student indicated a decrease of two levels of competence. The decrease in competency can be ascribed to self-evaluation on a lower standard in the pre-test in relation to a higher standard used as reference in the post-test or deficiencies in the programme. The areas in which a decrease in competency was indicated will be addressed in the evaluation of the programme.

An average competency mark was calculated for the pre- and post-test for each student. These results are demonstrated in Figure 6.3. The figure clearly indicates an increase in competency for every student. The difference in the standard of reference for the pre- and the post-test should again be taken into account as this could have influenced the results.

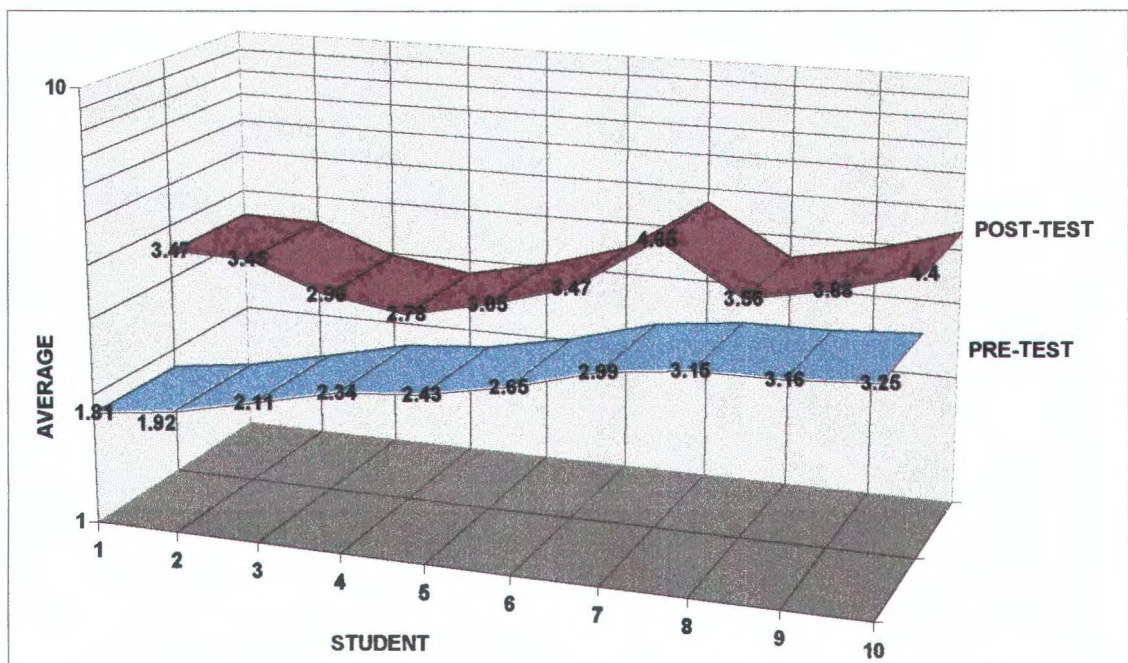


FIGURE 6.3: Average of competency of students in pre- and post-test

6.4.2 Group process evaluation

After the completion of each problem, i.e. every week students evaluated themselves, their peers, the tutor and the problem. The tutor evaluated herself, the students and the problem. This feedback helped to maintain and improve group dynamics and problems (case studies) were adapted where necessary. This group evaluation process was initially difficult, but as students became more confident, this evaluation became more valuable. The weekly evaluation also included choosing a “*student-of-the week*”.

A “*student-of-the-week*” who best demonstrated a variety of characteristics, for example, asked the best question(s), showed the greatest commitment to learning and best resembled the ideal group member and/or midwife with an Advanced Diploma in Midwifery and Neonatology, was identified weekly. Sloan *et al.* (1994:19) also mention this as a subjective method of evaluation. Being chosen as student of the week helped to build self-esteem and served as a motivating factor.

This evaluation was done informally and the results were not officially recorded, but the information obtained were used, for example to improve case studies and address the content overload in Anthropology.

6.4.3 Video tapes

A four hour video tape-recording was made of each of the first and last group process to demonstrate the change, if any, in group dynamics. From the evaluation, which was done by the researcher and a colleague of the first video it became quite clear that the tutor was very directive. often interrupting and steering the group discussion in a specific direction. The result limited student communication. This directive approach of the tutor could have been the result of her inexperience and over anxiousness.

This situation, however, changed dramatically in the second video recording. The tutor was much less directive and adopted a co-learner style and an attitude of "*letting go*". This change in tutorial approach could be attributed to the increase in tutorial skills and the increase in confidence of the tutor in herself, the students and the process.

An open learning environment resulted. This letting go of control of the learning caused students to move from being passively externally-directed to being actively, self-directed.

6.4.4 Workbook

A workbook was compiled which included the important clinical skills expected of graduates of the Advanced University Diploma in Midwifery and Neonatology. Clinical tutors assessed students in the clinical setting in terms of this workbook.

6.4.5 Case studies

Students wrote six case studies during the year. This method not only enhanced their metacognitive skills in facilitating examination of practice (Camasco & McLaughlin, 1994:9), but also their writing skills.

6.4.6 Free style writing

Students wrote an anonymous evaluation using the freestyle writing approach four times during the programme, in the beginning, after three months, after eight months and at the end. The same is approach described by Colby *et al.* (1986:414). This method also enhance metacognitive skills.

6.4.6.1 First evaluation

The students were asked to write a baseline evaluation of themselves and their expectations of the course at the first contact session. Extracts include:

“I have been longing to do this programme, my reasons are personal and to serve the community’s needs. I feel so excited”,

“I expect to acquire clinical skills I do not have, by this programme”,

“I am excited about this education programme, one is going to be more competent in specific clinical skills”,

“The modern trends require knowledge. This course is going to be challenging. There is a lack of midwives with an advanced qualification to help the community and to prevent complications”,

“I hope the community will also gain a lot from this course as it is pertaining to help them”,

“I developed interest in the course as to improve my theory and practical experience. I feel very excited now that I have started with the course, I’ve been long dreaming to do”,

“The need for skilled people motivated me to do the course”.

6.4.6.2 Second and third evaluation

In the following three evaluations students were asked to write comments covering their opinions of the skills of their tutor in stimulating active learning, of their own and their group’s gains in information and skills, of the learning value of the problems used in the course, of the effectiveness of the problem-based

learning method, resource material and persons and of the overall strengths and weaknesses of the course.

Items were selected under the appropriate categories. Only generated new items were listed in this study. Duplications were thus not included.

During the second and third evaluations the students wrote:

- **Tutor**

“My tutor is conducting the group well and uses every chance to help us to be independent. She has a sense of humour and I think this makes us keep on working”,

“The tutor is approachable and comes to the level of every student in the class”,

“The tutor makes students comfortable, students are free to ask questions”,

“The tutor is ‘open’, she always tries by all means to motivate us and to help us where we need”,

“Additional nursing clinical facilitators must be considered”.

- **Knowledge, attitude and skills**

“The advanced course in midwifery and neonatology has actually lightened and broadened my knowledge. All along I have been under the impression that I know almost everything, practically I was excellent but theoretically just average, I see it is important to correlate theory with practice”,

"I learned many things which I thought I knew,"

"It seems my practical work is improving a lot. I am learning new skills I thought I will never manage. I am able to diagnose, I feel responsible for my work and feel more independent",

"I feel confident and happy when I make decisions",

"The course is appropriate. I have self-confidence and feel competent",

"I am very positive about the course",

"I have realised some great improvement in my knowledge especially theory ever since I've started the course. My practical skills have also improved, as a result I feel confident in what I am doing",

- **Problems**

"The problems are the same ones we encounter in work everyday".

- **Methodology**

"The method of teaching is excellent, it gives us the chance of being active and not just passive. It motivates us to be the teachers of tomorrow",

"I think this is a very good method which encourages full participation of all students. I feel free to communicate even at work",

“The type of methodology gives us the opportunity to be independent, to self-study and to solve problems on your own”,

“The method of teaching gives me the chance to improve my communication skills”,

“The method teaches one to analyze”,

- **Group**

“The group relationship is good”,

6.4.6.3 Fourth evaluation

At the conclusion of the programme the students wrote:

- **Tutor**

“The tutor was a role model. She really encourages us”,

“I think the tutor has all the good qualities of a facilitator. I think and I hope she will maintain her standard. She is able to neutralize any threatening atmosphere”,

“The tutor was always there to guide us, so everything was easy and possible. Praises were given when necessary which motivated everybody to do her utmost best”,

“The students were a nice group, everybody willing to help one another. Knowledge was shared through group discussion. It has

been a wonderful group with a wonderful tutor which made the year wonderful”,

“The tutor of this course is ‘a born teacher’. She is friendly, with a sense of humour. She is approachable and always willing to help when the students need it and gives praise where due”,

“More clinical facilitators are needed”.

- **Knowledge, attitude and skills**

“I am now able to work independently”,

“My communication skills improved a lot”,

“I am now an asset to my profession”,

“I feel motivated and thinking of furthering my education”,

“The course has changed me. I look at things in my practical setting from a different view. I am able to apply the theoretical concepts to my practical skills. I feel competent”,

“Though there is quite a lot of work to do, with the help of our tutor we reached the end, being a well equipped professional nurse”,

“You do in class what you encounter in practice”,

“I thought I know enough, the course made me realize what I didn’t know”,

“Other colleagues turn to me for help and opinions. This make me feel very good and confident”,

- **Methodology**

“The first semester was tough, because we were not used to the problem-based method, but we quickly adjusted”,

“The method of teaching was excellent. It improves the communication and teaching skills of an individual. It is a very democratic way of teaching”,

“The method of teaching was excellent, everybody was included in the learning situation”,

“I can strongly recommend the method of teaching and appeal that other schools of nursing incorporate this method of teaching”,

“The teaching method was very good, each and-every one being given chance to participate. It has been a successful method. Everyone participated fully with confidence”,

“The methodology urges one to think constructively. It opened my mind”,

“Students were regarded as adults, they are free to communicate,”

- **Content**

“The subjects which were lectured had too much work”,

"Include clinical skills such as fetal-skull blood sampling and leave out stomach wash-outs".

- **Course**

"The course is expensive",

"I think the course is appropriate, for this is the time for development and for improvement of midwifery services",

Most of the comments were positive. From these evaluations it may be concluded that the programme was appropriate for its aim, the teaching method was effective, it fostered confidence, independence, active learning and clinical and communication skills, the tutor's skills were satisfying and the problems chosen were applicable. A lot of students voiced concern about the work overload in the lectured subjects and about the financial implications of the programme. Student also made recommendations about the workbook and the need for additional clinical facilitators. These comments will be used to revise the programme.

6.4.7 Assignments

The students were given three assignments during the year. Besides broadening and deepening their knowledge, writing skills were also developed with this evaluation method.

6.4.8 Multiple choice questions

Multiple choice questions were used in a pre- and post-test to assess content knowledge. Some of the multiple choice questions from the well-known Perinatal Education Programme (PEP) in South Africa were used to construct the test. The

same test was used at the beginning and end of the year. The results depicted in Figure 6.4 show an increase in the content knowledge of students.

6.4.9 Modified essay questions

Content examinations based on case materials and related concepts were developed. The modified essay question (for an example see Annexure N) was used in test and semester examinations to demonstrate competence in the process of problem-solving on the basis of applying the content of the related basic and clinical sciences as suggested by Feletti and Engel (1980:79).

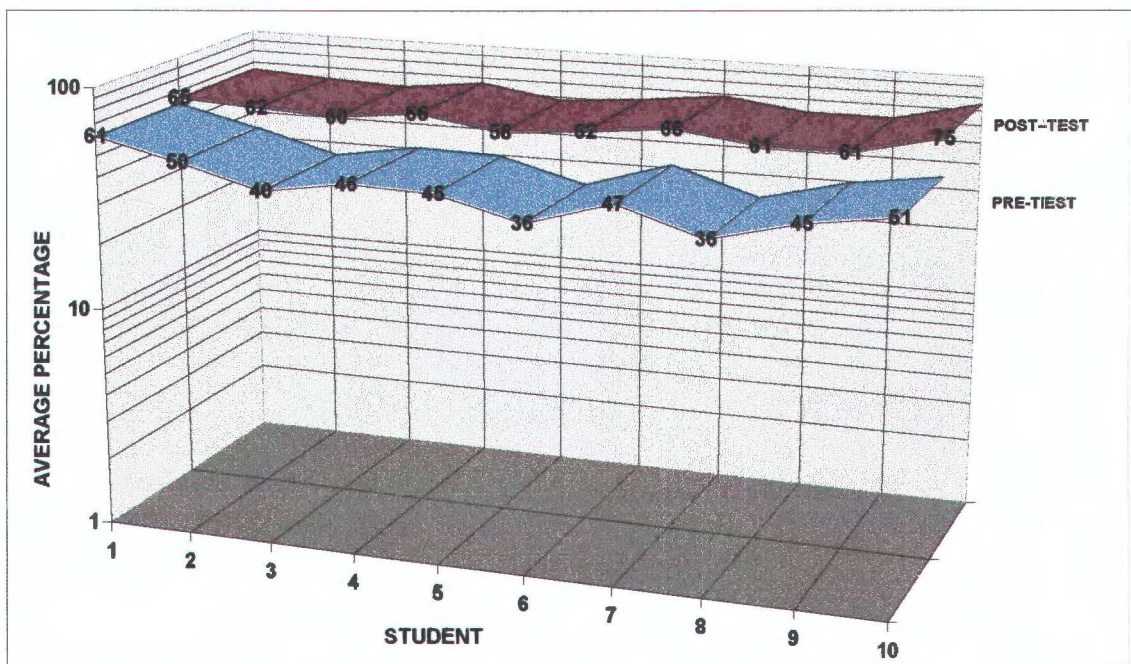


FIGURE 6.4: The pre- and post-test results of the multiple choice questions of students

6.4.10 Objective structured clinical evaluation

Clinical skills are an important objective of the Advanced University Diploma in Midwifery and Neonatology and these were assessed by means of the objective structured clinical evaluation. The evaluation instruments were developed by the researcher (for an example see Annexure O).

6.5 SUMMARY

In this chapter the production and implementation of the Advanced University Diploma in Midwifery and Neonatology and the evaluation of the students were discussed. In Chapter 7 the process of the development and implementation of this education programme will be reflected on, conclusions will be drawn and recommendations made.

CHAPTER 7

Reflection on the process

7.1 INTRODUCTION

In 1513 Machiavelli wrote: “... *there is nothing more difficult to arrange, more doubtful of success, more dangerous to carry through than initiating changes*” (Engel, 1989:96).

Implementing the process of change is not enough. The success of it must also be established. Formal programme evaluation was not done in this study, as it was the first year the programme was implemented. In order to get an overview on the programme development and implementation and the process of change brought about by it, reflection was done on the process.

7.2 PROCESS OF CHANGE

Barriers to programme evolution are not unique (Thompson *et al.*, 1985:200). Kaufman *et al.* (1989:285) identified four typical barriers to change: fear of loss of control, comfort with the status quo, seeing academic promotion as based more on research than on teaching and seeing educational innovation as being too costly in time, money and resources. These attitudes can endanger the success of a new innovation. Attention should be given to strategies to overcome these barriers to assist with the process of change.

Four strategies for overcoming barriers were proposed by Kaufman *et al.* (1989:285):

- Develop broad ownership of the proposed innovation:

- Win converts by inviting participation rather than simply by intellectual discussion;
- Form new alliances to broaden the base of support; and
- Share the rewards of change broadly.

It is clear that relevant innovative ideas themselves cannot bring about change. Rather, it is the relationship between innovative ideas and the political, economic and social environment into which they are introduced that determines acceptance and growth of the innovation (Mennin & Kaufman, 1989:109).

A series of successful strategies implementing changes in established, traditional institutions emerged from the Albuquerque Conference in October 1986 (Mennin & Kaufman, 1989:104). These strategies are listed in Figure 7.1.

Because of the importance of the success of the Advanced Diploma in Midwifery and Neonatology these 23 strategies were considered during the development and implementation of the programme. The strategies and the process to implement the innovative teaching methodology, namely problem-based learning in the Advanced University Diploma in Midwifery and Neonatology are discussed simultaneously. This strategy is implemented to reduce unnecessary discussion.

7.3 STRATEGIES FOR IMPLEMENTING CHANGE

7.3.1 Getting started

7.3.1.1 Explore external motives for change

The broader context in which motives for change exist outside the institution should be explored. For a change to achieve broad support, it must be relevant to an audience wider than the small group who plan it. The innovation should in a way address society's pressing health needs. The innovation should be linked to important forces outside the institution, which also seek change.

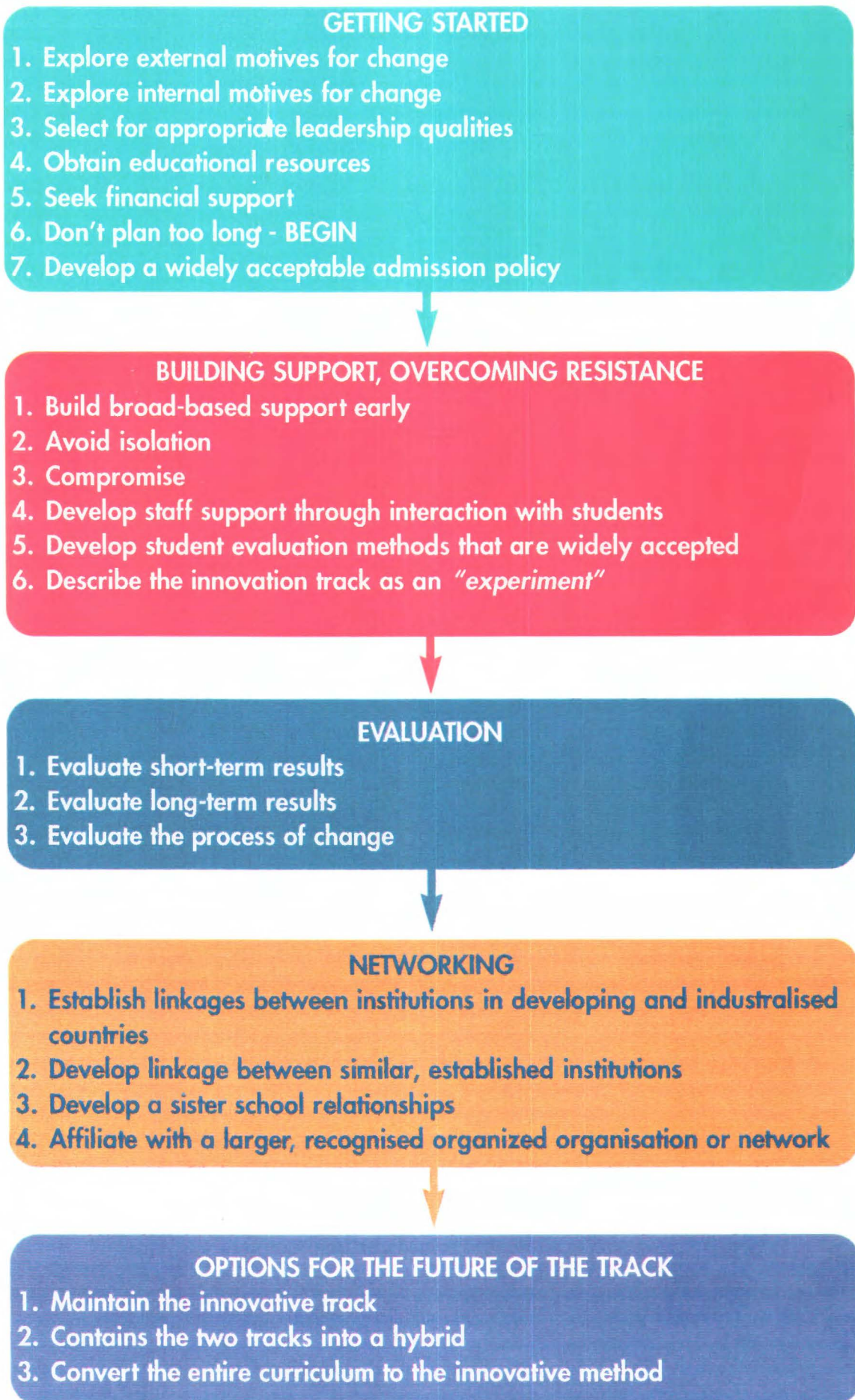


FIGURE 7.1: Recommended strategies for implementing change

The transitional government of South Africa emphasizes the policy to achieve basic, acceptable primary health care for all people as stated in Chapter 1 (see 1.1). Local educational reform initiatives are encouraged at national level (see 1.1)

7.3.1.2 Explore internal motives for change

A base of support within the institution is critical for innovative track planners. All institutions feel a need for educational improvement, but the degree of this need and its constituency vary with the times and the local environment. This potential support should be broadened by disclosing educational issues addressed by the innovation.

The mission of the University of the Orange Free State includes a service to its community. Nurse educators in the Department of Nursing, University of the Orange Free State were dissatisfied with their students' lack of independent thinking, their passive learning behaviour and inability to integrate the philosophy of primary health care in nursing care. Most of the educators at the Department of Nursing were desirous of producing graduates who were more scientific thinkers than those produced by the traditional teaching methods.

The researcher therefore widened the emphasis on exploring innovations in innovative teaching/learning methods, such as problem-based learning and offered this new teaching method as a vehicle for achieving the goals of their colleagues.

7.3.1.3 Select for appropriate leadership qualities

Leadership qualities were found to be important to the successful institution of innovative tracks: The ability to:

1. influence others (charisma)

3. be an advocate who believes strongly in the innovation
4. be a risk-taker with considerable self-assurance
5. be flexible and able to compromise

The Head of the Department supported the innovative track and identified opportunities to motivate the rest of the Department of Nursing. After national and international exposure the researcher was an advocate who believed strongly in problem-based learning. Both the Head of the Department and the researcher are flexible and are able to compromise. They also took a personal risk by supporting a then relatively unknown teaching methodology in the Department of Nursing. These qualities helped in slowly generating interest in problem-based learning within the Department of Nursing.

7.3.1.4 Obtain educational resources

It is enormously costly in staff time to create curriculum and resource materials denovo. Initially time is better spent preparing staff to facilitate student learning using the innovative methodology. The success of the innovation is more dependent on the quality of teacher-student interaction than on the specific curriculum materials, as long as these are easily available to students. Furthermore, the most creative ideas about how to revise case problems come after students have worked with the materials. It is very hard for innovative-track planners to predict beforehand how well a particular problem will suit specific programme objectives.

Curricular syllabuses from nursing schools, case problems, learning resources and ideas were obtained nationally and internationally from other innovative schools by the researcher, during the planning phase of this education programme. These were reviewed, revised and adapted for this education programme's goals and curricular needs.

7.3.1.5 Seek financial support

All innovative tracks require special financial allocations because of the cost incurred in the development phase of any programme. The source of such funding can be reallocation of existing institutional budgets or external government or foundation grants. Financial support for the track helps to validate the worth of the project, and encourages acceptance within the institution.

Funding was sought and obtained. The Advanced University Diploma in Midwifery and Neonatology began with internal funding as well as generous private financial support from the W.K. Kellogg's Foundation.

7.3.1.6 Don't plan for too long - begin

It is important for the innovative track to become a reality expeditiously and to note that the most efficient and creative programme development takes place after students arrive, not before, when planning is done in a vacuum.

Numerous reservations, doubts and questions concerning the innovative track will emerge within and outside the programme. While thoughtful planning and broad-based input can relieve some anxiety, waiting too long can actually magnify doubts and paralyze decision-making. Having real, live students participating in the programme focuses staff energy productively.

The Department of Nursing set their goal for starting with the programme for 1995. The department settled for using existing facilities, such as a classroom without a table and one tutor per ten students.

7.3.1.7 Develop a widely acceptable admission policy

Criteria for selecting students vary with the goals of the programme. In order to facilitate acceptance of the innovative track by the institution as a whole, track planners should incorporate aspects of traditional admission criteria.

Admission requirements for the course include admission requirements of the University of the Orange Free State, but previous marks obtained in undergraduate courses were not considered.

7.3.2 Building support and overcoming resistance

7.3.2.1 Build broad-based support early

It is crucial for tract planners to build support from different departments within the institution and if appropriate from communities and government constituencies.

The initiatives of the education programme were discussed at the Perinatal Committee meetings and members were consulted and kept up-to-date with the development and implementation. Other departments, such as Obstetrics, Paediatrics and Anthropology were also consulted in the planning. This early involvement encouraged physicians of those departments to serve as clinical facilitators in the programme.

7.3.2.2 Avoid isolation

There is a tendency on the part of core planners to remain too isolated from the rest of the institution. They often unveil their innovation only after problems have been sorted out. Isolating the programme from the institution diminishes the ability of others to contribute productively to the innovative track or to feel any sense of responsibility for the programme.

The planners of this education programme decided on a transparent approach. The Department of Nursing were kept informed about the progress of the planning in meetings on different levels, a workshop was organized to better acquaint the staff with this teaching initiative and staff were invited to attend the tutorial groups once the programme was implemented. New academic staff of the University were also briefed about the new initiative in the Department of Nursing.

7.3.2.3 *Compromise*

Innovators should defend and protect the basic values underlying their new track, but they should show flexibility in compromising on specific educational methods. Innovators honour their critics and offer them ownership in the innovative track by taking criticism seriously and by modifying the track on the basis of feedback. The innovation is usually strengthened by its incorporation. Compromise is understood as a willingness of innovators to conform to a degree with the common goals of the institution.

The planners of the Advanced University Diploma in Midwifery and Neonatology made some compromises. A hybrid curriculum was adopted (see 1.3). Traditional methods of teaching were still used in three courses of the programme, while the rest of the programme was problem-based learning.

7.3.2.4 *Develop staff support through interaction with students*

Students' enthusiasm for learning is the most successful force for convincing staff to participate in the innovative track. There are many roles staff can be asked to play in developing and running the new track. These roles include administration, preparing of curriculum materials and evaluation. None, however, offers more immediate reward than working with students who are enthusiastic about learning. Intellectual debates about the new learning methods and

educational research data supporting their value are not as convincing as hands-on, personal experience with the students.

Not only were members of the Department of Nursing consulted in the planning and development of the programme with regard to writing of objectives, selection of content, and production of materials for the course (see 6.3), but they were involved in the evaluation of students and they were invited to attend tutorial groups.

7.3.2.5 Develop student evaluation methods that are widely accepted

Almost all innovative track planners develop student assessment methods which are uniquely suited to the innovative curriculum. Evaluations without numerical standards are often attacked by critics. The consequence is questioning of the standard of the innovative programme. For this reason, traditional student assessment instruments are incorporated in the evaluation of innovative tracks, to win staff approval and to satisfy the demand for more familiar, quantifiable assessment by many of their students.

Included in the subjective and formative assessment the Advanced University Diploma in Midwifery and Neonatology gives a comprehensive examination in all courses to its students every six months as required by the University of the Orange Free State.

7.3.2.6 Describe the innovative track as an “experiment”

Staff give education a lower priority than research, grant-writing and other income-generating activities such as patient care and consultation. In addition, an experiment leads to results, analysis and presentation for critical review. Staff are more likely to support innovative tracks that are consistent with their values and if they feel that they retain ultimate control over its continuation.

Periodic presentation of programme outcome was given to the staff of the Department of Nursing and a recommendation will be made that this education programme should be evaluated after three years (see 7.4).

7.3.3 Evaluation

7.3.3.1 Evaluate short-term results

It is important for planners of an innovative track to establish answers to the feasibility and effectiveness of the programme. Decisions about the innovative track and its role in the larger institution depends on this information.

The duration of the programme is one year. All the students completed the programme successfully and obtained a registration in Advanced Midwifery by the South African Nursing Council. Informal, undocumented verbal reports were made by medical doctors on the positive attitude and the increase in knowledge and skills of the graduates. Two graduates were promoted. A positive attitude to lifelong learning was identified. The graduates approached the Department of Nursing *via* the researcher to help them to form a support group, where they can discuss clinical problems and new trends in midwifery and neonatology.

7.3.3.2 Evaluate long-term results

Measures to establish whether the programme achieves its goals and to describe the effects of the track on the students and the institution should be established by planners. The evaluation will require the collection of baseline data (for later comparison), periodic assessment and both quantitative and qualitative measurements.

The long-term evaluation of this programme included the comparison of student profiles of competency when they entered the programme, with competency

profiles when they left (see 6.5.1). It is still too early to assess if the graduates' performance improves the health status of consumers in the settings in which they work.

7.3.3.3 Evaluate the “process” of change Evaluate short-term results

It is important for programme evaluators to document not only what changes occurred as a result of the innovative track, but how and why they occurred. One of the most important contributions to the field of education made by innovative track schools, concerns the process of change. These schools, therefore, have a unique opportunity to share with other educators a rigorous analysis of the change process itself, which strategies succeeded and which failed. The outcomes of the innovative tracks cannot be fully understood without a process analysis which explores such issues as the context in which change occurred, the forces which supported change and the forces opposed to change.

Problem-based learning as a teaching methodology was first initiated and implemented by the Department of Nursing in the University of the Orange Free State. Since establishing the innovative track, because of networking and communicating change, the visibility of the track and school increased within the University. The researcher is invited as a speaker to education strategy workshops and is seen as a consultant. This enhances the image of the programme and the school within the institution and increases support for the initiative in the Department of Nursing.

The process of the development and implementation of the programme is fully documented in this study. The researcher is also involved in the curricular reform of the undergraduate nursing programme to community-based, problem-based and the development of the academic staff of the Department of Nursing in these aspects.

7.3.4 Networking

7.3.4.1 Establish linkages between institutions in developing and industrialised countries

Developing institutional linkages is important. Refreshing insights emerge when health science institutions see how educators from very different backgrounds and cultures identify and solve pedagogic problems. Innovative health science institutions in developing countries tend to have more fully developed community-based education programmes than their counterparts in the industrialised countries, while innovative institutions in the industrialised countries often have better developed problem-based learning and more advanced evaluation technologies.

Networking was first done on a national level. Planners of the innovative track attended conferences in developing and industrialised countries, but also undertook field trips to both types of countries to network (see 1.3).

7.3.4.2 Develop linkages between similar, established institutions

It is important to develop linkages between similar, established institutions - with or without an innovative track. The transferability of innovation may be easier between schools whose environment, histories, and cultures are similar.

The researcher, the Head of the Department and one other staff member visited schools of medicine and nursing as described in 1.3. During 1994, 1995 and 1996 academic staff of the Department of Nursing visited medical and nursing schools in South Africa with a problem-based learning strategy, namely the Medical School of the University of Transkei, the Nursing School of the University of Natal and the Nursing School of the University of the Witwatersrand.

7.3.4.3 Develop a “sister school” relationship

Schools can build a close co-operative educational relationship over a long period of time. There can be an exchange of staff and trainees, and exchange of programme ideas and even a formal, signed declaration of co-operation between the two schools.

Such a relationship has not been formed with other nursing schools (see 7.4).

7.3.4.4 Affiliate with a larger, recognized organization or network

National and regional health education bodies can provide guidance and support to innovative programmes. Staff may be professionally isolated from other educational innovators and without external recognition and support, their innovation is vulnerable to extinction by isolation, exclusion, neglect or active rejection by their established mother institution. Recognition of the importance of their work to the institution and to society can be enhanced if their efforts are publicly linked to a nationally or internationally recognized organization.

The initiatives of the Department of Nursing were presented at an international meeting and conference: the 9th General Network Meeting in Manila, Philippines in November 1995. At the same meeting the Department of Nursing joined the meeting for Innovative Nursing Schools and also became an Associate Member Institution of the WHO-supported Network of Community-Orientated Educational Institutions for Health Sciences.

7.3.5 Options for the future of the track

7.3.5.1 Maintain the innovative track

A school might decide to retain the innovative track indefinitely as a “*research and development*” track. It would serve as a testing ground for new methods,

while the more traditional curriculum would continue to evolve by adapting features of the innovative track.

The existence of different tracks provides varied educational options for students with different learning styles.

7.3.5.2 Combine the two tracks into a hybrid

After a trial period, institutions can create a single “*hybrid*” track by combining the best of the innovative and traditional tracks. Some institutions find the cost of running two tracks prohibitive.

7.3.5.3 Convert the entire curriculum to the innovative method

After a trial period, the innovative track can demonstrate its worth and encourage a total conversion of the institution. When enough is known about which curricular changes need to take place one should act on this knowledge and attempt to convert the entire curriculum to the content and methods employed by the innovative track. This would allow the institution to focus on a unified change rather than to continue with the uncertainty and higher cost of either endlessly fostering curricular change or running two tracks.

After evaluation the Department of Nursing of the University of the Orange Free State decided to convert their entire undergraduate curriculum to the innovative method of problem-based learning and to convert the education methodology of other post basic courses to this method.

7.4 CONCLUSION AND RECOMMENDATIONS

The need for registered nurses with an advanced midwifery registration in the Free State was initially identified by the community through the Perinatal Committee. Registered nurses in the clinical practice echoed this need. The

emphasis on primary health care and part of the situational analysis, namely the perinatal health indicators and learning needs of the respondents of this study proved this need. In response the Advanced University Diploma in Midwifery and Neonatology was developed and implemented.

The learning needs of the registered nurses were formally assessed and an education programme was developed in which the community's perinatal health care problems and the learning needs of the potential students played a significant role in the development of the objectives and the selection of the content. An innovative teaching methodology, namely problem-based learning was chosen.

No new educational programme is likely to be perfect the first time and it is important to effect essential revisions after each run of the material to improve the educational experience offered to the students and to ensure that the material and the learning environment do indeed achieve their objectives (Neame, 1981:98).

- During the development of this education programme shortcomings in regard to the objectives of primary health care and problem-based learning in the philosophy of the Department of Nursing were identified. It is therefore recommended that the philosophy should be adapted to reflect the emphasis on primary health care and the philosophy of problem-based and community based learning.
- The situation analysis indicated a need for lecture halls which can accommodate groups. Two lecture halls were modified with loose tables and chairs to contribute to group learning.
- The formative and summative assessment (see 6.4) of the programme resulted in:
 - * eliminating irrelevant content in lectured courses;

- * appointing two additional part-time clinical facilitators;
 - * emphasizing items which showed a decrease in competency (see 6.4.1);
and
 - * adjusting the workbook, to better reflect the clinical practice.
- Problem-based learning has proven itself and the academic staff of the Department of Nursing now has a positive attitude to this teaching methodology. The researcher recommends that the core subjects should also be integrated in this methodology.
 - The researcher recommends that a comprehensive programme evaluation of the Advanced University Diploma in Midwifery and Neonatology should take place in 1998, after three years of implementation.
 - This education programme played a significant role in motivating the academic staff of the Department of Nursing to pursue a community-orientated, community-based, problem-based learning philosophy for the undergraduate nursing programme. It is recommended that:
 - * curriculum planning should be done using a team approach;
 - * academic staff should be developed with regards to these innovative approaches;
 - * a commitment is needed that the health care needs of the community will be accommodated in the curriculum; and
 - * a "sister school" relationship should be developed.

7.5 SUMMARY

With the development and implementation of the Advanced University Diploma in Midwifery and Neonatology the researcher not only tried to prepare graduates who can function in clinical context with the demands placed on them are constantly changing, where problems and situations are not easily defined or solved and where the body of knowledge is rapidly changing. The researcher

also aimed to prepare future health workers who will contribute maximally to the improved health of the individuals and communities they serve and tried to help students to learn how to learn, that is to create independent learners who will assume active responsibility for a lifetime of continuing education and who will be able to keep up with advances in their field.

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WORKSHOP, CONFERENCES AND VISITS

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Annual conference on Compatibility and Conflict - Directions in Health Professional Education by Australian and New Zealand Association for Medical Education in Newcastle, Australia, July 1994;

Bi-annual conference on Reflections on Problem-Based Learning by the Australian Problem-Based Learning Network in Newcastle, Australia, July 1994.

Decentralized Education Programme in Advanced Midwifery, McCord Zulu Hospital, Durban 1993.

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PHILPOTT, H. 1994. *Workshop on orientation to problem-based learning*.

The Medical and Nursing School of the University of Kebangsaan, Kuala Lumpur, Malaysia, July 1994.

The Open University, Hong Kong, July 1994.

The School of Medical Education, University of New South Wales, Sydney, Australia, July 1994.

The School of Nursing of the University of Western Sydney, Macarthur, Australia, July 1994.

Workshop on A Practical Introduction to Problem-Based Learning by Professor Penny Little in Newcastle, Australia, July 1994.

Workshop on Orientation to Problem-Based Learning by Professor Hugh Philpott In Bloemfontein, South Africa, January 1994.

Workshop on the Training of Advanced Midwives in South Africa, Durban, 29-31 March 1995.

ABSTRACT

A problem-based education programme for registered nurses in advanced midwifery and neonatology

A.E. Fichardt

PROMOTER: M.J. Viljoen

It is the aim of the current government that primary health care should be established in South Africa to address the health care needs of the entire South African population. In this regard midwives are seen as the key figures to establish comprehensive perinatal health care. The altered focus of the delivery of health care from curative to primary health care demands expertise from midwives to enable them to meet the needs of the community. This requires an alternative approach to nursing education.

Various researchers expressed a concern regarding continuing professional education for midwives.

To address these problems, grass root involvement by practising midwives is proposed, in order to prepare them for continuing education. A proposal was made that continuing professional education should be implemented in the regions. The Perinatal Committee of the Free State supported the need for an education programme for midwives in the region.

In response, the learning needs of the registered nurses were formally assessed and the Advanced University Diploma in Midwifery and Neonatology was developed and implemented. The community's perinatal health care problems and the learning needs of the potential students played a significant role in the

development of the objectives and the selection of the content. An innovative teaching methodology, namely problem-based learning was chosen.

With the development and implementation of the Advanced University Diploma in Midwifery and Neonatology the researcher not only tried to prepare graduates who can function in clinical context with the demands placed on them are constantly changing, where problems and situations are not easily defined or solved and where the body of knowledge is rapidly changing. The researcher also aimed to prepare health workers who will contribute maximally to the improved health of the individuals and communities they serve and tried to help students to learn how to learn, that is to create independent learners who will assume active responsibility for a lifetime of continuing education and who will be able to keep up with advances in their field.

OPSOMMING

A problem-based education programme for registered nurses in advanced midwifery and neonatology

A.E. Fichardt

PROMOTOR: M.J. Viljoen

Dit is die oogmerk van die huidige regering dat primêre gesondheidsorg in Suid-Afrika gevestig moet word om aan die gesondheidsbehoefte van die totale Suid-Afrikaanse bevolking te voorsien. Vroedvroue word in hierdie verband as die sleutelfigure gesien om omvattende verloskundige gesondheidsorg te vestig. Dié veranderde fokus in die lewering van gesondheidsorg van kuratiewe na primêre gesondheidsorg vereis bepaalde kundigheid van vroedvroue om aan die behoeftes van die gemeenskap te voldoen, wat weer 'n andersoortige benadering tot verpleegopleiding vereis.

Hierbenewens spreek verskeie navorsers vir 'n geruime tyd hul kommer uit oor voortgesette professionele opleiding van vroedvroue.

Om genoemde probleme aan te spreek, word grondvlakbetrokkenheid van verloskundige praktisyns voorgestel om hulle vir voortgesette professionele opleiding voor te berei. Daar is 'n mening dat voortgesette professionele opleiding binne streeksverband geïmplementeer moet word. Die Perinatale Komitee van die Vrystaat ondersteun die behoefte aan 'n opleidingsprogram vir vroedvroue in die streek.

In respons, is die leerbehoefte van geregistreerde verpleegkundiges bepaal en die Gevorderde Universiteitsdiploma in Verloskunde en Neonatologie ontwikkel

en geïmplementeer. Die gemeenskap se perinatale gesondheidsorg probleme en die leerbehoefte van die potensiële studente het 'n belangrike rol gespeel in die ontwikkeling van die doelwitte en die seleksie van die inhoud. 'n Innoverende onderrig metode, naamlik probleemgebaseerde - leer is gekies.

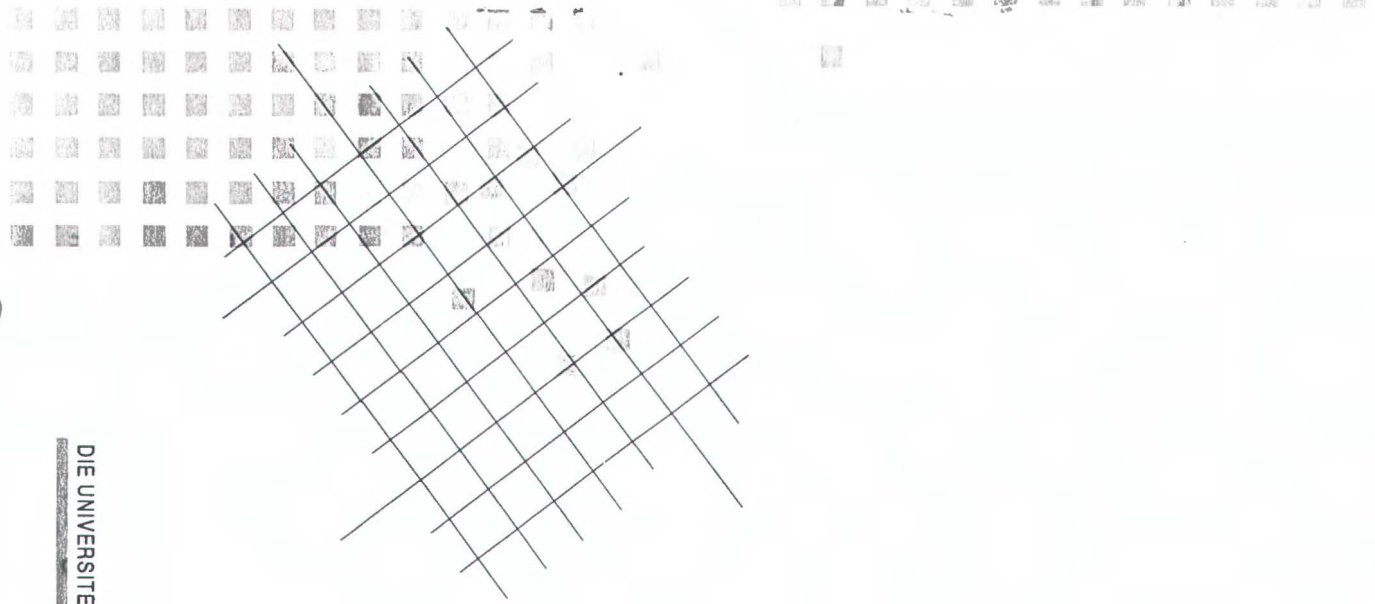
Met die ontwikkeling en implementering van die Gevorderde Universiteitsdiploma in Verloskunde en Neonatologie het die navorser gepoog om nie alleenlik gegraduateerdes voor te berei om in die kliniese verband, waar die eise wat aan hulle gestel word voortdurend verander en waar probleme en situasies nie maklik definieerbaar is of opgelos word nie, te kan funksioneer nie. Die navorser het ook gepoog om gesondheidsorgpersoneel op te lei wat maksimaal tot die verbeterde gesondheid van individue en gemeenskappe wat hulle dien by te dra en het probeer om studente te leer om te leer, dit wil sê om onafhanklike leerders te ontwikkel, wat aktiewe verantwoordelikheid vir lewenslange voortgesette professionele opleiding aanvaar en tred sal hou met ontwikkeling in hulle vakgebied.

ANNEXURE A

mission



THE UNIVERSITY OF THE ORANGE FREE STATE



DIE UNIVERSITEIT VAN DIE ORANJE-VRYSTAAT

missie

DIE UNIVERSITEIT VAN DIE ORANJE-VRYSTAAT

MISSIE

Die missie van die Universiteit is wetenskapsbeoefening soos dit neerslag vind in die skepping, integrering, toepassing en oordrag van kennis deur

- * die bevordering van 'n akademiese kultuur binne die universiteitsgemeenskap;
- * die ontwikkeling van die vermoë tot krities-wetenskaplike denke;
- * die aanbieding van relevante wetenskaplike onderwys;
- * die uitbou van die wetenskap deur basiese en toegepaste navorsing;
- * die lewering van addisionele samelewingsdiens vanuit die kernfunksies van onderwys en navorsing; en
- * die omvattende ontwikkeling van die student vanuit die akademiese kultuur.

THE UNIVERSITY OF THE ORANGE FREE STATE

MISSION

The University's mission is the pursuit of scholarship, as embodied in the creation, integration, application and transmission of knowledge by

- * promoting an academic culture within the University community;
- * developing critical and analytical thought;
- * providing relevant academic tuition;
- * expanding the body of scholarly knowledge by both pure and applied research;
- * performing community service as a supplement to its core functions of teaching and research; and
- * comprehensively developing its students within its academic culture.

VISION

The University, as an academic institution, aims

- * to earn national and international recognition for the quality of its programmes and the achievements of its students and staff;
- * to consider both national and regional interests in all activities; and
- * to contribute actively to the reconstruction and development of the whole community in a context-sensitive manner.

VALUES

In the performance of its functions on the basis of its mission and vision, the University upholds the following values:

- * The consistent pursuit of excellence
- * Academic freedom, while taking cognisance of the subjectivity and fallibility of all knowledge and judgement

VISIE

Die Universiteit streef daarna om as akademiese instelling

- * nasionaal en internasionaal voortdurend erkenning vir die gehalte van sy programme en die prestasies van sy studente en al sy personeellede te handhaaf en uit te bou;
- * deurlopend 'n nasionale en streekperspektief te handhaaf in al sy werksaamhede; en
- * op 'n konteksgevoelige wyse daadwerklik by te dra tot die heropbou en ontwikkeling van die hele gemeenskap.

WAARDES

In die uitvoering van handeling op grond van die missie en visie handhaaf die Universiteit die volgende waardes:

- * 'n Volgehoue strewe na voortreflikheid
- * Akademiese vryheid, met inagneming van die subjektiwiteit en feilbaarheid van alle kennis en insig

* The right to freedom of speech and difference of opinion within the context of responsibility	* Die bevordering van demokratiese prosesse.
* A respect for all life, which implies ethically justified interaction with people as well as co-responsibility for the preservation of the environment	* Die waardering vir en ontwikkeling van personeel * betekenisvolle inligting gebaseer moet wees
* The pursuit of social justice	* Die vereiste dat alle besluite en handelinge op funksionering binne finansiële vermoëns
* The development of respect and appreciation for cultural diversity and the rejection of all forms of discrimination	* Gedissiplineerde en kostedoeltreffende menswaardigheid voldoen
* The maintenance of an orderly campus environment which meets the requirements of equity and human dignity	* Die handhawing op die kampus van 'n geordende omgewing wat aan die eise van billikheid en vorm van diskriminasie
* The disciplined and cost-effective management of available financial means	* Die ontwikkeling van respek en waardering vir kultuurverskeidenheid en die afwysing van enige
* The requirement that all decisions made and actions taken be based on valid information	* Die uitbouing van sosiale geregtigheid omgewing te aanvaar
* The appreciation and development of its staff	* medeverantwoordelikheid vir die behoud van die wyse teenoor alle mense op te tree en
* The advancement of democratic processes.	* Eerbid vir alle lewe deur op 'n eties regverdige binne 'n raamwerk van verantwoordelikheid * Die reg op vryheid van spraak en meningsverskil

TAAL EN GODSDIENS

Die Universiteit van die Oranje-Vrystaat is ooreenkomstig sy Wet 'n Afrikaanse universiteit. Terwyl die administratiewe voertaal dus Afrikaans is, voer die Universiteit in ooreenstemming met die Suid-Afrikaanse grondwet sy taalbeleid op 'n soepel wyse uit. Daarom bedien die inrigting sy kultureel uiteenlopende studentegemeenskap in sowel Afrikaans as Engels deur

* onderrig in Afrikaans en Engels aan te bied;

* toets- en eksamenvraestelle in Afrikaans en Engels op te stel vir beantwoording in enige van dié twee tale;

* studente en lede van die publiek (by dienspunte) in Afrikaans of Engels te help;

* indien nodig, dokumentasie en korrespondensie waarvoor normaalweg Afrikaans gebruik word, vir eksterne kommunikasie ook in Engels te voorsien, en deur

* die kampus toegankliker vir die toenemende aantal nie-Afrikaanssprekende studente te probeer maak

LANGUAGE AND RELIGION

According to its Act, the University of the Orange Free State is an Afrikaans University. While its administrative medium is thus Afrikaans, the University, in accordance with the South African Constitution, implements its language policy in a flexible manner. Therefore the institution serves its culturally diverse student population in Afrikaans as well as English; by

* providing instruction in Afrikaans as well as English;

* setting tests and examination papers in Afrikaans and English, to be answered in either language;

* assisting students and members of the public (at service points) in Afrikaans or English;

* providing as needed for external communication, English versions of documents or correspondence normally written in Afrikaans; and by

* attempting to make the campus more accessible to the increasing number of students whose home language is not Afrikaans by promoting the use of

Afrikaans and English as well as Sesotho on campus.

The University's Statute stipulates that it is fundamentally a Christian institution. The implementation of this stipulation is achieved by

* maintaining Christian values and principles, while making provision for freedom of conviction; and

* ensuring that there is absolutely no discrimination against staff or students on the grounds of their religious convictions.

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Bloemfontein

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deur die gebruik van Afrikaans, Engels en ook Sesotho op die kampus te bevorder.

Die Statuut van die Universiteit bepaal dat dié instelling op Christelike grondslag gevestig is. Aan hierdie bepaling word uitvoering gegee deur

* Christelike waardes en beginsels te handhaaf op 'n wyse wat ruimte laat vir die godsdienstige oortuigings van ander, en deur

* in geen opsig teen personeellede of studente te diskrimineer op grond van hul godsdienstige oortuigings nie.

00000

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ANNEXURE B

**UNIVERSITY OF THE ORANGE FREE STATE
DEPARTMENT OF NURSING**

Philosophy

HUMANS are unique creatures created by God, with a trans-earthly destiny, and with their own particular:

- moral, ethical, religious and cultural-historical value systems; and physical, psychological and social needs that are given within their life activities, developmental stages and total environment.

THE COMMUNITY and humans are interdependent and are characterized by change and mobility.

NURSING is vested in a scientific process of problem-solving and provides a significant contribution to the maintenance and safeguarding of health:

- of individuals, groups and communities;
- in a promotive, supportive, preventive, curative and rehabilitative context.

THE NURSE makes a unique, creative contribution to her nursing service from the perspective of her own humanity and her own activity in all aspects of reality.

HEALTH AND SICKNESS

- are points on a continuum
- enable people to or prevent them from acting within all the normative aspects of reality
- are complex entities that may be present in a person simultaneously at any point in time.

LEARNING implies changes in behaviour by the active involvement of the learner. This implies:

- instruction based on learning theory principles
- clear formulation of objectives
- a variety of learning experiences and learning opportunities
- valid and reliable evaluation.

ANNEXURE C

Mangaung - University OFS Community Partnership Programme



29 April 1993

The Deputy Director
P.O. Box 517
BLOEMFONTEIN
9300

Dear Miss Nel

SURVEY: DETERMINATION OF THE LEARNING NEEDS OF MIDWIVES IN THE ORANGE FREE STATE

As you know there is, at present, a comprehensive perinatal strategy to promote perinatal health care in the OFS. The presentation of an Advanced Diploma in Midwifery and Neonatology which is now being planned by the Department of Nursing of the University of the Orange Free State, is part of that strategy.

The Department of Nursing, in collaboration with the Department of Obstetrics and Gynaecology, believes that ground level involvement by clinical practitioners is a prerequisite for the implementation of such a course in 1995.

A questionnaire has been designed to determine the specific learning needs of practising midwives in the entire Free State (See Annexure).

Your approval of and consent to this project are essential for the successful assessment of needs and the implementation of a credible curriculum.

We look forward to a speedy reply and trust that you will approve this survey.

Yours sincerely

A Fichardt

(Mrs) A. Fichardt
LECTURER

Contact Persons: Prof. S.J. Wessels, J. Mokoka
P.O. Box 23160, KAGISANONG, 9323
Tele: (051) 352902/352903 Fax: (051) 352841
Site: 19057 Singozo Street, Rocklands.

ANNEXURE D

**Consent by the Deputy Director of
Nursing of the Orange Free State
Provincial Administration to undertake a
survey to determine the learning needs
of registered nurses regarding midwifery
and neonatology**

PROVINSIALE ADMINISTRASIE ORANJE-VRYSTAAT
ORANGE FREE STATE PROVINCIAL ADMINISTRATION



Mev. A. Fichardt
Departement Verpleegkunde
Posbus 339
BLOEMFONTEIN
9300

VERWYSING
REFERENCE

H5/3/20/2

RIG NAVRAE AAN
ADDRESS ENQUIRIES TO
KANTOOR OFFICE

Mev. A. Myburgh

Subdirektoraat Verpleegdienste
Tak Gesondheidsdienste

Faks
Fax
Telegrafiese adres
Telegraphic address

051-304958
ORANVRY



4055022
Posbus 517
BLOEMFONTEIN
9300

Geagte Mev. Fichardt

OPNAME: BEPALING VAN LEERBEHOEFTE VAN VROEDVROUE
IN DIE ORANJE VRYSTAAT

Hiermee word toestemming verleen om bogenoemde
opname te doen.

E. J. Nel
ADJUNK-DIREKTEUR: VERPLEEGDIENSTE

Datum: 18/05/03

ANNEXURE E

Mangaung - University OFS Community Partnership Programme



Dear colleague

DETERMINATION OF LEARNING NEEDS OF REGISTERED NURSES IN THE O.F.S. REGARDING MIDWIFERY AND NEONATOLOGY

Primary health care must be established in South Africa in order to meet the health needs of the entire population. In this respect midwives are seen as the key figures to establish comprehensive perinatal health care. The altered focus of the delivery of health care from curative to primary health care demands expertise from midwives to enable them to meet the needs of the community.

An Advanced University Diploma in Midwifery and Neonatology, to be offered in the Department of Nursing of the University of the Orange Free State, forms part of a comprehensive strategy to improve perinatal health care in the Free State.

The Department of Nursing is of the opinion that grass roots involvement by clinical practitioners in the development of the curriculum of this course, is essential. The course is being planned to commence in 1994. With this end in view registered nurses in the O.F.S. are being involved and permission to get information from them has already been obtained. (Ref. H5/20/2).

A questionnaire to determine the **learning needs** of midwives is included. The results from this questionnaire will partly be used to compile the syllabus. **Your input is therefore of the greatest necessity.** The questionnaire takes about \pm 15 minutes to complete. You are welcome to telephone me at (051) 4012527 if you encounter any problems on completion of the questionnaire.

The questionnaire is anonymous and the information given will be regarded as confidential.

You are therefore requested to:

1. complete the questionnaire as accurately and honestly as possible to enable us to develop a course which will reflect your learning needs and
2. **return the completed questionnaire within a week of receiving it**
3. in the envelope enclosed for the purpose.

Please note that the questionnaire is compiled in both official languages.
Thank you for your cooperation.

Yours sincerely

..... A. Fichardt

Mrs. Annali Fichardt
LECTURER: DEPARTMENT OF NURSING

Contact Persons: Prof. S.J. Wessels, J. Mokoka
P.O. Box 23160, KAGISANONG, 9323
Tele: (051) 352902/352903 Fax: (051) 352841
Site: 19057 Singozo Street, Rocklands.



CHECKLIST A

FOR OFFICE USE

				1
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PLACE A CROSS IN THE CORRESPONDING BLOCK(S)

1. What is your age:

20-29	1
30-39	2
40-49	3
50-59	4
60+	5

 6

2. Sex:

M	F
---	---

 7

3. Do you have a standard 10 certificate?

Yes	1
No	2

 8

4. What is your highest level of education:

Diploma	1
Baccalaureate degree	2
Honours degree	3
Masters degree	4
Doctorate	5

 9

5. Indicate **all** your professional nursing registrations:

General nursing	1
Midwifery	2
Psychiatry	3
Community nursing	4
Paediatric, ophthalmic, orthopaedic and/or occupational health nursing	5
Intensive care nursing	6
Theatre technique	7
Advanced diploma in midwifery	8
Other (Specify)	

	10
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	18

6. How long ago did you complete your basic training?
..... years

		19-20
--	--	-------

7. How did you accomplish your basic midwifery registration:

Post-basic midwifery	1
Integrated course	2
Single midwifery qualification	3
Not applicable	4

21

8. Are you currently employed as a nurse?

Yes	1
No	2

22

9. If so, where do you work?

Clinic	1
Community care centre	2
Mobile clinic (Sec. 30)	3
Community hospital	4
Regional hospital	5
Academic hospital	6
Private hospital	7
Midwifery unit	8
Private practice (Home deliveries)	9
Tertiary educational institution	10
Other (Specify)	

23-24

10. How long have you been employed in you current position? years

25-26

11. In which region (or town) of the Free State do you practice? (If you are not practising in which region do you live?)

27

12. How many years before you plan to retire? years?

28-29

13. Have you ever provided midwifery services as a registered nurse?

Yes	1
No	2

30

14. If yes, when last:

Currently	1
Past 1-2 year	2
Past 3-4 year	3
5 or more years	4

31

15. In which stadia do/did you nurse your patients:

Antenatal	1
Intrapartum	2
Postnatal	3
Not applicable	4

32
 33
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 35

16. Do/did your patients, in your opinion, receive optimal patient care:

	YES	NO	NOT SURE
Newborn	1	2	3
Mother:			
• Antenatal	1	2	3
• Intrapartum	1	2	3
• Postnatal	1	2	3

36
 37
 38
 39

17. Indicate all the **factors** that have a negative influence on the care mentioned question 16 in your situation: (This question may have more than one answer).

Administration, e.g. paper work, personnel shortage	1
Transport, e.g. bus/ambulance services	2
Lack of a professional support system	3
Lack of a referral system	4
Finance, e.g. lack of equipment	5
Patient cooperation, e.g. attending clinics	6
Registered nurse:	
• lacks knowledge	7
• lacks clinical skills	8
• lacks motivation	9
• lacks interpersonal skills	10
Other (Specify)	11
.....	

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18. Which of the following educational opportunities is/are available for you? (indicate all applicable)

Orientation programme	1
In service training	2
Courses	3
Seminars, symposiums	4
Workshops	5
None	6
Other	7

51
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- 18.1 List the three (3) most important problems you experience in attending/offering educational programmes:

.....

58-59
 60-61
 62-63

19. Which of the following educational opportunities would you be interested to attend? (Indicate all applicable)

Orientation programme	1
Inservice training	2
Courses	3
Seminars, symposiums	4
Workshop	5
None	6
Other	7

64
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 70

20. Do you have professional contact (regarding patient problems, referrals) with midwives outside of your service?

Yes	1
No	2

71

21. How often do you have professional contact (regarding patient problems, referrals) with any other member of the multi-disciplinary team, e.g. doctor, dietician?

Daily	1
Weekly	2
Monthly	3
On request/emergency	4
Never	5

72

22. How often do you read professional journals?

Never	1
Weekly	2
Monthly	3
Annually	4

73

23. Are you furthering your education at present?

Through a distance learning program (e.g. UNISA)	1
Part-time	2
Full-time	3
No	4

74

23.1 If no, specify why not:

.....

75-76

24. Would you be interested in an advanced diploma in midwifery and neonatology:

Yes	1
No	2
Not sure	3

77

25. If an advanced diploma in midwifery and neonatology were to be developed and offered, would you register for it?

Yes	1
No	2
Yes, but ...	3
Not sure	4

78

26. If you answered NO, motivate (indicate all applicable factors):

Not interested/Not relevant to my work	1
Already qualified as an advanced midwife	2
Competent enough	3
Too close to retirement	4
Would interfere with current studies	5
Would interfere with family commitments	6
Financial reasons	7
Study leave problems	8
No time	9

79
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Other (Specify)	
--------------------------	--

FOR OFFICE USE

<input type="checkbox"/>	88
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27. Do you feel a continuing education programme (formal post basic programme) should be made compulsory for registered nurses working in midwifery services?

Yes	1
No	2
Not sure	3

<input type="checkbox"/>	89
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28. Which type of course do you prefer:

Full-time (e.g. you take study leave)	1
Part-time course (e.g. night classes)	2
Distance learning programme (e.g. selfdirected learning package and contact sessions)	3

<input type="checkbox"/>	90
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CHECKLIST B

FOR OFFICE USE

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1-5

PLEASE ANSWER ALL THE FOLLOWING QUESTIONS
EVEN IF YOU DON'T OFFER MIDWIFERY SERVICES

RATE YOURSELF

General

1. How competent are you in the following nursing related actions:

	POOR	REA- SON- ABLE	GOOD	VERY GOOD	EX- CEL- LENT	
Performing urinary catheterisation	1	2	3	4	5	6
Performing vulva swabbing	1	2	3	4	5	7
Commencing an intravenous line	1	2	3	4	5	8
Setting up an infusion pump (IVAC)	1	2	3	4	5	9
Adult resuscitation	1	2	3	4	5	10
Administering blood transfusions	1	2	3	4	5	11
Preparing a patient for obstetric diagnostic procedures	1	2	3	4	5	12
Performing endotracheal intubation	1	2	3	4	5	13
Administering intravenous infusions	1	2	3	4	5	14
Administering oxygen (in different percentages e.g. 40%)	1	2	3	4	5	15
Facilitating the healing of wounds	1	2	3	4	5	16
Obtaining blood samples	1	2	3	4	5	17
Taking a history	1	2	3	4	5	18
Performing physical assessments:						
• assessing hydration status	1	2	3	4	5	19
• general	1	2	3	4	5	20
• speculum examination	1	2	3	4	5	21
• vaginal examination	1	2	3	4	5	22
Identifying physical needs	1	2	3	4	5	23
Identifying psychological needs	1	2	3	4	5	24
Identifying educational needs	1	2	3	4	5	25

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Formulating a nursing diagnosis	1	2	3	4	5
Establishing a therapeutic relationship with:					
• patients	1	2	3	4	5
• family	1	2	3	4	5
• nursing staff	1	2	3	4	5
Co-ordinating health care regimes provided for the patient by other categories of health personnel	1	2	3	4	5
Formulating a community diagnosis	1	2	3	4	5
Prioritizing health risks	1	2	3	4	5
Interpreting vital statistics of populations:					
• growth rate	1	2	3	4	5
• birth rates	1	2	3	4	5
• maternal and child mortality	1	2	3	4	5
• fertility rates	1	2	3	4	5
Educating the community	1	2	3	4	5
Training community health workers	1	2	3	4	5
Conducting research	1	2	3	4	5
Writing a research report	1	2	3	4	5
Interpreting research findings	1	2	3	4	5
Planning preventive health programmes	1	2	3	4	5

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2. Score your knowledge:

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
On the following SANC regulations regarding midwives in the appropriate column:					
• Scope of practice (R.260 of 1991)	1	2	3	4	5
• Regulations regarding acts and omissions (R.2490 of 1990)	1	2	3	4	5
• Medication which the midwife may prescribe/administer (R.2418 of 1984)	1	2	3	4	5

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	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
• Conditions under which midwives may carry on their profession (R.2488 of 1990)	1	2	3	4	5
On cultural, traditional and customary beliefs and practices in:					
• Pregnancy	1	2	3	4	5
• Labour and birth	1	2	3	4	5
• Postpartum	1	2	3	4	5

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Ante natal

3. How competent are you in the following nursing actions:

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Assessing foetal well-being and uterine activity:					
• interpret and analyse fetal heart pattern	1	2	3	4	5
• do a non stress test	1	2	3	4	5
• do an oxytocin stress test	1	2	3	4	5
Assisting with an amniosynthesis	1	2	3	4	5
Interpreting the results of examinations/investigations in the antenatal period	1	2	3	4	5
Recognising dysrhythmias (ECG)	1	2	3	4	5
Making neurological observations	1	2	3	4	5
Identifying anaphylaxis	1	2	3	4	5
Planning a diet to meet specific health needs in pregnancy	1	2	3	4	5
Abdominal palpation	1	2	3	4	5
Pelvic assessment	1	2	3	4	5
The pregnant woman with:					
• a heart disease	1	2	3	4	5
• diabetes mellitus	1	2	3	4	5
• anaemia	1	2	3	4	5
• hypertension	1	2	3	4	5
• placenta previae	1	2	3	4	5
• trauma due to an accident	1	2	3	4	5

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	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
• a sexually transmitted infection	1	2	3	4	5
The battered pregnant woman	1	2	3	4	5
The pregnant woman practising substance abuse	1	2	3	4	5

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INTRAPARTUM

4. How competent are you:

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Monitoring a patient on:					
• Ipradol	1	2	3	4	5
• Magnesium sulphate	1	2	3	4	5
• Syntocinon	1	2	3	4	5
Setting up a cardiotocograph monitor	1	2	3	4	5
Analysing and interpreting cardiotocograph findings	1	2	3	4	5
Artificial rupturing of membranes	1	2	3	4	5
Performing an episiotomy	1	2	3	4	5
Delivering a baby vaginally	1	2	3	4	5
Detecting threatening uterine rupture	1	2	3	4	5
Assisting anaesthetist:					
• during administration of an epidural anaesthetic	1	2	3	4	5
Giving epidural topping up	1	2	3	4	5
Recognising spinal shock	1	2	3	4	5
Treating hypoglycemia	1	2	3	4	5
Treating hypotension	1	2	3	4	5
Treating uterine hyperactivity	1	2	3	4	5
Treating foetal distress	1	2	3	4	5
Diagnosing abruptio placentae	1	2	3	4	5
Administering Entonox	1	2	3	4	5
Applying a fetal scalp electrode	1	2	3	4	5

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	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Assisted delivery:					
• forceps	1	2	3	4	5
• vacuum extraction	1	2	3	4	5
• breech	1	2	3	4	5
• symphysiotomy	1	2	3	4	5
Manual removal of placenta	1	2	3	4	5
Examining the placenta	1	2	3	4	5
Repairing perineal tears	1	2	3	4	5
Scrubbing for caesarean sections	1	2	3	4	5

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5. How competent are you in giving patient information and advice regarding:

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Alternative methods of pain control	1	2	3	4	5
Alternative positioning during labour	1	2	3	4	5
Bonding	1	2	3	4	5
Breastfeeding	1	2	3	4	5

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Postnatal

6. How well can you execute the following actions:

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Identify involution of the uterus	1	2	3	4	5
Assessing hydration status	1	2	3	4	5
Facilitate breastfeeding	1	2	3	4	5
Operate a breast pump	1	2	3	4	5
Teach general hygiene	1	2	3	4	5
Provide comfort measures (emotional and physical)	1	2	3	4	5
Nurse a patient who has had an epidural anaesthetic	1	2	3	4	5
Reassuring the patient	1	2	3	4	5
Identifying patients at risk for postpartum depression	1	2	3	4	5
Identify postpartum haemorrhage	1	2	3	4	5

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	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Identify infection of the genital tract	1	2	3	4	5
Identify venous thrombosis	1	2	3	4	5

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7. With regard to family planning, how competent are you in:

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Determining the methods and side effects	1	2	3	4	5
Relationship counselling	1	2	3	4	5
Counselling for choice	1	2	3	4	5
Insertion/removal of an intra-uterine contraceptive device	1	2	3	4	5

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Neonatal

8. How well do you assess the newborn:

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Physically	1	2	3	4	5
Neurologically	1	2	3	4	5

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9. How well can you execute the following nursing actions regarding the newborn:

	POOR	REA-SON-ABLE	GOOD	VERY GOOD	EX-CEL-LENT
Diagnosis of asphyxia	1	2	3	4	5
Resuscitation	1	2	3	4	5
Identifying congenital abnormalities	1	2	3	4	5
Suctioning (nose, mouth and throat)	1	2	3	4	5
Nasogastric:					
• intubation	1	2	3	4	5
• feeding	1	2	3	4	5
Setting up an intravenous scalp line	1	2	3	4	5
Taking blood	1	2	3	4	5
Nurse the:					
• sick neonate	1	2	3	4	5
• premature neonate	1	2	3	4	5
• small for gestational age neonate	1	2	3	4	5
• respiratory distressed neonate	1	2	3	4	5

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	POOR	REA- SON- ABLE	GOOD	VERY GOOD	EX- CEL- LENT
• neonate with jaundice	1	2	3	4	5
• neonate with hyper/hypo- glycaemia	1	2	3	4	5
• neonate with hypothermia	1	2	3	4	5

Any comments

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THANK YOU FOR YOUR COOPERATION

FOR OFFICE USE

<input type="checkbox"/>	67
<input type="checkbox"/>	68
<input type="checkbox"/>	69

<input type="checkbox"/>	<input type="checkbox"/>	70-71
<input type="checkbox"/>	<input type="checkbox"/>	72-73
<input type="checkbox"/>	<input type="checkbox"/>	74-75

Mangaung - University OFS Community Partnership Programme



Geagte verpleegkundige

BEPALING VAN LEERBEHOEFTE VAN GEREISTREERDE VERPLEEGKUNDIGES IN DIE O.V.S. TEN OPSIGTE VAN VERLOSKUNDE EN NEONATOLOGIE

Primêre gesondheidsorg moet in Suid-Afrika gevestig word om in die gesondheidsbehoefte van die totale bevolking te voorsien. Die vroedvrou word in die verband as die sleutel figuur gesien om omvattende perinatale gesondheidsorg te vestig. Die veranderde fokus in die lewering van gesondheidsorg van kuratiewe na primêre gesondheidsorg vereis kundigheid van vroedvroue om aan die behoeftes van die gemeenskap te voldoen.

Die beskikbaarstelling van 'n Gevorderde Universiteitsdiploma in Verloskunde en Neonatologie wat deur die Departement Verpleegkunde, UOVS beplan word, vorm deel van 'n omvattende strategie om perinatale gesondheidsorg in die O.V.S. te bevorder.

Die Departement Verpleegkunde is van mening dat grondvlak betrokkenheid deur kliniese praktisyns in die ontwikkeling van die kurrikulum vir die kursus, wat in 1994 beplan gaan word, 'n vereiste is. Met inagneming hiervan word verpleegkundiges in die OVS betrek en toestemming vir die insameling van inligting in hierdie verband is reeds verkry. (Verwysing H5/20/2).

Aangeheg vind u 'n vraelys om die leerbehoefte van verpleegkundiges ten opsigte van verloskunde te bepaal. **Akkurate inligting is absoluut noodsaaklik om die samestelling van 'n kursus wat u leerbehoefte weerspieël, te verseker.** Dit neem ongeveer ± 15 minute om die vraelys te voltooi. U is welkom om met my te skakel, by 051 4012527, indien u enige probleme met die invul van die vraelys sou ondervind.

Die vraelys is anoniem en die inligting wat verkry word, word as vertroulik beskou.

U word dus versoek om:

1. die vraelys so akkuraat en eerlik as moontlik te voltooi ten einde 'n kursus te ontwikkel wat u leerbehoefte weerspieël,
2. binne 'n week vanaf ontvangs, die vraelys terug te stuur
3. in die koevert wat vir die doel ingesluit is.

Let asseblief op dat die vraelys in albei landstale beskikbaar is.

Baie dankie vir u samewerking.

Vriendelik die uwe

..... A Fichardt

**Mev Annali Fichardt
LEKTOR: DEPARTEMENT VERPLEEGKUNDE**

Contact Persons: Prof. S.J. Wessels, J. Mokoka
P.O. Box 23160, KAGISANONG, 9323
Tele: (051) 352902/352903 Fax: (051) 352841
Site: 19057 Singozo Street, Rocklands.



VRAELYS A

VIR KANTOOR GEBRUIK

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MAAK 'N KRUISIE(S) IN DIE TOEPASLIKE BLOKKIE(S).

1. Wat is u ouderdom:

20-29	1
30-39	2
40-49	3
50-59	4
60+	5

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2. Geslag:

M	v
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3. Beskik u oor 'n standerd 10 sertifikaat?

Ja	1
Nee	2

 8

4. Wat is u hoogste vlak van opleiding:

Diploma	1
Baccalaureate graad	2
Honeurs graad	3
Meestergraad	4
Doktoraal	5

 9

5. Dui **al** u professionele verpleegkundige kwalifikasies aan:

Algemene verpleegkunde	1
Verloskunde	2
Psigiatrie	3
Gemeenskapsverpleegkunde	4
Pediatriese, oftalmiese, ortopediese en/of beroepsgesondheid verpleegkunde	5
Intensiewe sorg	6
Teater tegniek	7
Gevorderde diploma in Verloskunde	8
Ander (Spesifiseer)	
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6. Hoe lank gelede het u, u basiese opleiding voltooi?
..... jare

 19-20

7. Hoe het u u basiese verloskundige kwalifikasie verwerf:

Na-basiese verloskunde	1
Geïntegreerde kursus	2
Enkel verloskundige kwalifikasie	3
Nie van toepassing	4

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8. Praktiseer u tans as verpleegkundige?

Ja	1
Nee	2

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9. Indien JA, waar werk u?

Kliniek	1
Gemeenskapsorgsentrum	2
Mobiele kliniek (Art. 30)	3
Gemeenskapshospitaal	4
Streekshospitaal	5
Akademiese hospitaal	6
Privaathospitaal	7
Vroedvroueenheid	8
Privaatpraktisyn (Tuis bevallings)	9
Tersiêre onderwysentrum	10
Ander (Spesifiseer)	
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10. Hoe lank bekleed u u huidige pos?..... jare

25-26

11. In watter streek (of dorp) van die Vrystaat praktiseer u? (Indien u nie praktiseer nie, waar woon u?)

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12. Oor hoeveel jaar beplan u om af te tree?
..... jare?

28-29

13. Het u al ooit verloskundige diens as 'n geregistreerde verpleegkundige gelewer?

Ja	1
Nee	2

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14. Indien JA, wanneer laas:

Tans	1
Afgelope 1-2 jaar	2
Afgelope 3-4 jaar	3
5 of meer jare	4

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15. In watter stadia verpleeg/het u pasiënte verpleeg:

Antenataal	1
Intrapartum	2
Postnataal	3
Nie van toepassing	4

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16. Kry/het u pasiënte, in u opinie, optimale verpleegsorg/gekry:

	JA	NEE	NEE SEKER
Pasgeborene	1	2	3
Pasiënt:			
• Antenataal	1	2	3
• Intrapartum	1	2	3
• Postnataal	1	2	3

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17. Dui al die **faktore** aan wat 'n negatiewe invloed op bogenoemde pasiëntsorg het in u situasie: (Die vraag kan meer as een antwoord hê.)

Administrasie, bv. papier werk, personeel tekort	1
Vervoer, bv. bus/ambulans diens	2
Gebrek aan 'n professionele ondersteuningsisteem	3
Gebrek aan 'n verwysingsisteem	4
Finansies, bv. tekort aan toerusting	5
Pasiënt samewerking, bv. bywoning van klinieke	6
Geregistreeerde verpleegkundige:	
• het 'n tekort aan kennis	7
• het 'n tekort aan kliniese vaardighede	8
• het 'n tekort aan motivering	9
• beskik nie oor interpersoonlike vaardighede	10
Ander (Spesifiseer)	11
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18. Watter van die volgende opvoedkundige geleenthede is vir u beskikbaar:

Oriënteringsprogramme	1
Indiensopleiding	2
Kursusse	3
Seminare, simposiums	4
Werkswinkels	5
Geen	6
Ander	7

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18.1 Dui die drie (3) belangrikste probleme wat u ervaar met die aanbieding/bywoning van opvoedkundige programme aan:

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19. Watter van onderstaande opvoedkundige geleenthede sal u belangstel om by te woon: (Dui al die toepaslike geleenthede aan.)

Oriënteringsprogramme	1
Indiensopleiding	2
Kursusse	3
Seminare, simposiums	4
Werkswinkels	5
Geen	6
Ander	7

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20. Het u professionele kontak (met betrekking tot pasiënt probleme, verwysings) met vroedvroue buite u diens?

Ja	1
Nee	2

71

21. Hoe dikwels het u professionele kontak (met betrekking tot pasiënt probleme, verwysings) met enige lid van die multidissiplinêre span, bv. geneesheer, dieetkundige?

Daaglik	1
Weeklik	2
Maandelik	3
Op aanvraag/nood	4
Nooit	5

72

22. Hoe dikwels lees u professionele tydskrifte?

Nooit	1
Weekliks	2
Maandeliks	3
Jaarliks	4

73

23. Is u tans besig om u opleiding te verbeter?

Deur 'n afstandsonderrigprogram (bv. UNISA)	1
Deeltyds	2
Voltyds	3
Nee	4

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23.1 Indien NEE, spesifiseer hoekom:

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24. Stel u belang in 'n gevorderde diploma in verloskunde en neonatologie:

Ja	1
Nee	2
Onseker	3

77

25. Indien 'n gevorderde diploma in verloskunde en neonatologie ontwikkel en aangebied word, sal u daarvoor registreer?

Ja	1
Nee	2
Ja, maar ...	3
Onseker	4

78

26. Indien NEE, motiveer (dui alle toepaslike faktore aan):

Stel nie belang nie/Nie van toepassing op my werk nie	1
Beskik alreeds oor gevorderde verloskunde	2
Beskik oor genoegsame vaardigheid	3
Te naby aan aftrede	4
Meng in met huidige studies	5
Meng in met gesinsverpligtinge	6
Finansiële redes	7
Studieverlof probleme	8
Geen tyd	9

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Ander (Spesifiseer)	
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27. Voel u dat 'n voortgesette opleidingsprogram (formele na-basiese program) verpligtend vir geregistreerde verpleegkundiges wat 'n verloskundige diens lewer moet wees?

Ja	1
Nee	2
Onseker	3

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28. Watter tipe kursus verkies u:

Voltyds (bv. u neem dus studieverlof)	1
Deeltyds (bv. aandklasse)	2
Afstandsonderrig (bv. selfdoenmodules en kontakssessies)	3

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VRAELYS B

VIR KANTOOR GEBRUIK

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ANTWOORD ASSEBLIEF AL DIE VOLGENDE VRAE, SELFS AL LEWER U NIE TANS 'N VERLOSKUNDIGE DIENS NIE.

EVALUEER U SELF

Algemeen

1. Hoe vaardig is u in die volgende verpleegkundig verwante aksies:

	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND	
Urinêre kateterisasie	1	2	3	4	5	<input type="checkbox"/> 6
Dep	1	2	3	4	5	<input type="checkbox"/> 7
Begin 'n intraveneuse lyn	1	2	3	4	5	<input type="checkbox"/> 8
Opstel van infuus pomp	1	2	3	4	5	<input type="checkbox"/> 9
Volwasse resussitasie	1	2	3	4	5	<input type="checkbox"/> 10
Dien bloed toe	1	2	3	4	5	<input type="checkbox"/> 11
Berei 'n pasiënt voor vir 'n obstetriese diagnose prosedure	1	2	3	4	5	<input type="checkbox"/> 12
Voer endotracheale intubasie uit	1	2	3	4	5	<input type="checkbox"/> 13
Dien intraveneuse vog toe	1	2	3	4	5	<input type="checkbox"/> 14
Dien suurstof toe (in verskillende persentasies, bv. 40%)	1	2	3	4	5	<input type="checkbox"/> 15
Bevorder die herstel van wonde	1	2	3	4	5	<input type="checkbox"/> 16
Trek bloedmonster	1	2	3	4	5	<input type="checkbox"/> 17
Neem 'n geskiedenis	1	2	3	4	5	<input type="checkbox"/> 18
Fisieke beraming:						
• bepaal hidrasie status	1	2	3	4	5	<input type="checkbox"/> 19
• algemeen	1	2	3	4	5	<input type="checkbox"/> 20
• spekulum ondersoek	1	2	3	4	5	<input type="checkbox"/> 21
• vaginale ondersoek	1	2	3	4	5	<input type="checkbox"/> 22
Identifiseer fisieke behoeftes	1	2	3	4	5	<input type="checkbox"/> 23
Identifiseer psigologiese behoeftes	1	2	3	4	5	<input type="checkbox"/> 24
Identifiseer leer behoeftes	1	2	3	4	5	<input type="checkbox"/> 25

	SWAK	RE-DELJK	GOED	BAIE GOED	UIT-STE-KEND
Formuleer verpleeg diagnoses	1	2	3	4	5
Stig 'n terapeutiese verhouding met:					
• pasiënte	1	2	3	4	5
• familie	1	2	3	4	5
• verpleegkundiges	1	2	3	4	5
Koördineer gesondheidsorg regimens vir die pasiënt wat verskaf word deur ander kategorieë gesondheidspersoneel	1	2	3	4	5
Formuleer 'n gemeenskapsdiagnose	1	2	3	4	5
Gesondheidsrisiko's in prioriteitsvolgorde plaas	1	2	3	4	5
Interpreteer lewensstatistiek van die populasie:					
• groei koers	1	2	3	4	5
• geboortesyfer	1	2	3	4	5
• moeder en kind mortaliteit	1	2	3	4	5
• fertiliteit	1	2	3	4	5
Die gemeenskap onderrig	1	2	3	4	5
Gemeenskapsgesondheidswerkers oplei	1	2	3	4	5
Navorsing uitvoer	1	2	3	4	5
'n Navorsingsverslag skryf	1	2	3	4	5
Navorsingsbevindinge interpreteer	1	2	3	4	5
Voorkomende gesondheidsprogramme beplan	1	2	3	4	5

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2. Evalueer u kennis ten opsigte van:

	SWAK	RE-DELJK	GOED	BAIE GOED	UIT-STE-KEND
Die volgende SARV regulasies betreffende vroedvroue in die toepaslike kolom:					
• Bestek van praktyk (R.260 van 1991)	1	2	3	4	5
• Regulasie met betrekking tot handeling en versuime (R.2490 van 1990)	1	2	3	4	5
• Medikasie wat die vroedvrou mag voorskryf/toedien (R.2418 van 1984)	1	2	3	4	5

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	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
• Voorwaardes waaronder die vroedvrou die beroep mag beoefen (R.2488 van 1990)	1	2	3	4	5
Kulturele of tradisionele gewoontes en praktyke in:					
• Swangerskap	1	2	3	4	5
• Kraam en verlossing	1	2	3	4	5
• Postpartum	1	2	3	4	5

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Antenataal

3. Hoe vaardig is u in die volgende verpleegaksies:

	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
Bepaal fetale welstand en uteriene aktiwiteit:					
• interpreteer en analiseer fetale hart patroon	1	2	3	4	5
• 'n non-stres toets uitvoer	1	2	3	4	5
• 'n oksitosien toets uitvoer	1	2	3	4	5
Assisteer by 'n amnionsintese	1	2	3	4	5
Interpreteer die resultate van ondersoeke in antenatale periode	1	2	3	4	5
Erken disritmieë (EKG)	1	2	3	4	5
Neurologiese observasies maak	1	2	3	4	5
Anafilakse identifiseer	1	2	3	4	5
Beplan 'n dieet vir spesifieke gesondheidsbehoefte in swangerskappe	1	2	3	4	5
Abdominale palpasië	1	2	3	4	5
Pelviëse beraming	1	2	3	4	5
Die swanger vrou met:					
• 'n hartsiekte	1	2	3	4	5
• diabetes mellitus	1	2	3	4	5
• anemie	1	2	3	4	5
• hipertensie	1	2	3	4	5
• placenta previae	1	2	3	4	5
• trauma weens 'n ongeluk	1	2	3	4	5

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	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
• 'n seksuele oordraagbare siekte	1	2	3	4	5
Die mishandelde vrou	1	2	3	4	5
Die swanger vrou wat substansie misbruik	1	2	3	4	5

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INTRAPARTUM

4. Hoe vaardig is u:

	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
In monitor van 'n pasiënt wat behandel word met die volgende medikasie::					
• Ipradol	1	2	3	4	5
• Magnesium sulphate	1	2	3	4	5
• Syntocinon	1	2	3	4	5
'n Kardiotokograaf monitor opstel	1	2	3	4	5
Kardiotokograaf bevindinge analiseer en interpreteer	1	2	3	4	5
Kunsmatige ruptuur van vliese	1	2	3	4	5
Episiotomie knip	1	2	3	4	5
Baba vaginaal verlos	1	2	3	4	5
Identifiseer dreigende uterus ruptuur	1	2	3	4	5
Assistering van die narkotiseer:					
• tydens die uitvoer van 'n epidurale narkose	1	2	3	4	5
Byvoeging van epidurale middel ("top up")	1	2	3	4	5
Identifisering van spinale skok	1	2	3	4	5
Behandeling van hipoglukemie	1	2	3	4	5
Behandeling van hipotensie	1	2	3	4	5
Behandeling van uteriene hiperaktiwiteit	1	2	3	4	5
Behandeling van fetale nood	1	2	3	4	5
Diagnosering van abruptio placentae	1	2	3	4	5
Toediening van Entonox	1	2	3	4	5
Inplasing van 'n fetale kopvel-elektrode	1	2	3	4	5

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	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
Uitvoering van 'n gekompliseerde verlossing:					
• tange	1	2	3	4	5
• suierverlossing	1	2	3	4	5
• stuit	1	2	3	4	5
• simfisiotomie	1	2	3	4	5
Manuele verwydering van die plasenta	1	2	3	4	5
Ondersoek van die plasenta	1	2	3	4	5
Herstel van perineale skeure	1	2	3	4	5
Skrop vir keisersnitte	1	2	3	4	5

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5. Hoe vaardig is u in die gee van pasiënt voorligting en advies met betrekking tot:

	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
Alternatiewe metodes van pynverligting	1	2	3	4	5
Alternatiewe posisies tydens kraam	1	2	3	4	5
Binding	1	2	3	4	5
Borsvoeding	1	2	3	4	5

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Postnataal

6. Hoe goed kan u die volgende aksies uitvoer:

	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
Identifiseer involusie van die uterus	1	2	3	4	5
Bepaal hidrasie status	1	2	3	4	5
Fasiliteer borsvoeding	1	2	3	4	5
'n Borspomp hanteer	1	2	3	4	5
Voorligting gee ten opsigte van algemene higiëne	1	2	3	4	5
Gemak bevorder (emosioneel en fisiek)	1	2	3	4	5
'n Pasiënt wat 'n epidurale narkose gehad het, verpleeg	1	2	3	4	5
Gerustelling van 'n pasiënt	1	2	3	4	5
Identifisering van die pasiënt met 'n risiko vir postpartum depressie	1	2	3	4	5
Identifiseer postpartum bloeding	1	2	3	4	5

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	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
Identifiseer genitale stelsel infeksies	1	2	3	4	5
Identifiseer veneuse trombose	1	2	3	4	5

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7. Met betrekking tot gesinsbeplanning, hoe vaardig is u in die:

	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
Bepaling van metodes en ne-we-effekte	1	2	3	4	5
Berading in die verhouding	1	2	3	4	5
Gee van leiding vir die uitoe-fening van keuses	1	2	3	4	5
Insit/Verwydering van intra-ute-riene kontraseptiewe toestelle	1	2	3	4	5

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Neonataal

8. Hoe goed beraam u die pasgeborene:

	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
Fisiek	1	2	3	4	5
Neurologies	1	2	3	4	5

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9. Hoe vaardig is u ten opsigte van die volgende verpleegaksies met betrekking tot die pasgeborene:

	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
Diagnoseer van asfiksie	1	2	3	4	5
Resussiteer	1	2	3	4	5
Identifiseer kongenitale abnor-maliteite	1	2	3	4	5
Suiging (neus, mond en keel)	1	2	3	4	5
Nasogastriese:					
• intubasie	1	2	3	4	5
• voeding	1	2	3	4	5
'n Kopvel infuus begin	1	2	3	4	5
Bloedtrek	1	2	3	4	5
Verpleeg die:					
• siek neonaat	1	2	3	4	5
• premature neonaat	1	2	3	4	5
• klein-vir-datum neonaat	1	2	3	4	5
• neonaat met respiratoriese nood	1	2	3	4	5

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	SWAK	RE-DELIK	GOED	BAIE GOED	UIT-STE-KEND
• neonaat met geelsug	1	2	3	4	5
• neonaat met hiper/hipoglukemie	1	2	3	4	5
• neonaat met hipotermie	1	2	3	4	5

Enige opmerkings

.....

.....

.....

BAIE DANKIE VIR U SAMEWERKING

VIR KANTOOR GEBRUIK

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ANNEXURE F

Mangaung - University OFS Community Partnership Programme



REMINDER

DETERMINATION OF LEARNING NEEDS OF REGISTERED NURSES IN THE O.F.S. REGARDING MIDWIFERY AND NEONATOLOGY

Dear colleague

Your contribution towards the planning of this programme is indispensable.

A pink questionnaire was distributed to you during April 1994. I hereby wish to remind you to complete the questionnaire and return it to the above address as soon as possible.

In the case of misplacement or if you did not receive the questionnaire in the first instance, please contact me at (051) 4012813 or Diana du Plessis at (051) 314016 (after hours).

Remember the questionnaire is anonymous and the information given will be regarded as confidential.

The questionnaire is available in both English and Afrikaans.

Yours sincerely

A Fichardt

(Mrs.) Annali Fichardt
LECTURER: DEPARTMENT OF NURSING
/eg

I would like to thank you if you have already send the questionnaire back.



AANDAG

**BEPALING VAN LEERBEHOEFTE VAN GEREGETREERDE
VERPLEEGKUNDIGES IN DIE O.V.S. TEN OPSIGTE VAN
VERLOSKUNDE EN NEONATOLOGIE**

Beste kollega

U insette is onontbeerlik in die ontwikkeling van die program wat beplan word.

'n Pienk vraelys is gedurende April 1994 aan u gepos. Indien u nagelaat het om dit te voltooi, wil ek u vriendelik daaraan herinner om dit so gou moontlik te voltooi.

Indien u nie so 'n vraelys ontvang het nie of indien dit weggeraak het, kontak my asseblief dringend, by (051) 4012813 of vir Diana du Plessis by (051) 314016 (na ure).

Onthou die vraelyste is anoniem is en die inligting wat verkry word, word as vertroulik beskou.

Die vraelyste is in Afrikaans en Engels beskikbaar.

Baie dankie vir u samewerking.

Vriendelike die uwe

A Fichardt

(Mev.) Annali Fichardt
LEKTOR: DEPARTEMENT VERPLEEGKUNDE
/eg

Indien ek reeds u vraelys terugontvang het, ignoreer hierdie brief en ontvang my dank

Contact Persons: Prof. K C Househam, Mr. J Mokoka
Dept of Paediatrics and Child Health, UOFS
P O Box 339 (G69), Bloemfontein, 9300 Tel: (051) 405 3181 fax (051) 482 125

ANNEXURE G



DIREKTIEF VIR DIE GEVORDERDE DIPLOMA IN VERLOSKUNDE

1. Inleiding
2. Programdoelstellings
3. Kursusinhoud en getal periodes
4. Leerervaringe
5. Kliniese praktika
6. Evalueringstrategieë
7. Eksamen
8. Kwalifikasies van Lektore

DIRECTIVE FOR THE ADVANCED DIPLOMA IN MIDWIFERY

1. Introduction
2. Programme objectives
3. Course content and number of periods
4. Learning experiences
5. Clinical practica
6. Evaluation strategies
7. Examination
8. Qualifications of lecturers

Regulasienommer
Regulation Number

R 1665

03/08/1979

Wysigings
Amendments

R 2197

31/10/1980

R 52

22/01/1982

R 1442

01/07/1983

R 2564

15/11/1985

1. INLEIDING

FILOSOFIE VAN DIE RAAD

(1) Oogmerke van die Suid-Afrikaanse Raad op Verpleging

Die oogmerke van die Suid-Afrikaanse Raad op Verpleging word in artikel 3 van die Wet op Verpleging, Wet no. 50 van 1978 bepaal.

"3. Die oogmerke van die Raad is -

- (a) om behulpsaam te wees met die bevordering van die gesondheidsstandaard van die inwoners van die Republiek;
- (b) om behoudens die bepalings van die Wet op Chiropraktisyns, 1971 (Wet no. 76 van 1971)*, die Wet op Homeopate, Naturopate, Osteopate en Kruidkundiges, 1974 (Wet no. 52 van 1974)*, die Wet op Aptekers, 1974 (Wet no. 53 van 1974), die Wet op Geneesher, Tandartse en Aanvullende Gesondheidsdiensberoepe, 1974 (Wet no. 56 van 1974), alle aangeleenthede rakende die onderrig en opleiding van en die wyse van uitoefening van die praktyke gevolg deur geregistreerde verpleegkundiges, vroedvroue, ingeskrewe verpleegkundiges en verpleegassistente, te beheer en gesag ten opsigte daarvan uit te oefen;
- (c) om skakeling van die onderrig en opleiding en die wyse van uitoefening van die praktyke bedoel in paragraaf (b), in die Republiek sowel as elders, en die standaarde van sodanige onderrig en opleiding en die wyse van uitoefening van sodanige praktyke in die Republiek te bevorder;
- (d) om die Minister van advies te bedien aangaande enige aangeleentheid wat binne die bestek van hierdie Wet val;
- (e) om inligting aan die Minister oor te dra aangaande aangeleenthede van openbare belang wat deur die Raad in die loop van die verrigting van sy werksaamhede kragtens hierdie Wet ingewin word."

(2) Definisie van verpleegkunde

"Verpleegkunde is 'n kliniese gesondheidswetenskap wat die kennis-inhoud vorm vir die praktyk van persone wat as verpleegkundiges of vroedvroue onder die Wet op Verpleging geregistreer of ingeskryf is.

Binne die grense van verpleegkundige filosofie en etiek, is verpleegkunde gemoeid met die ontwikkeling van kennis vir die verpleegkundige diagnose, behandeling en gepersonaliseerde gesondheidsorg van diegene wat blootgestel is aan, ly aan, of herstel van fisiese of geestesongesteldheid. Dit behels die studie van

* Vervang deur die Wet op Geassosieerde Gesondheidsdiensberoepe, 1982 (Wet no. 63 van 1982).

voorkomende, bevorderende, kuratiewe en rehabilitatiewe gesondheidsorg vir individue, gesinne, groepe en gemeenskappe en dek die mens se lewensloop van voor geboorte af."

(3) Onderwys in verpleging

Die Raad beklemtoon dat die onderrig en opleiding spesifiek gerig moet wees op die ontplooiing en ontwikkeling van die verpleegkundige op persoonlike en professionele vlak en dat die beginsels van leer gehandhaaf word, naamlik dat leer lei tot verandering van gedrag in die kognitiewe, affektiewe en psigomotoriese aspekte, deur die aktiewe betrokkenheid van die student.

Die ontwikkeling van die vermoë tot analitiese krities-evaluerende en skeppende denke en die stimulering van die uitoefening van selfstandige beoordeling van wetenskaplike gegewens is van die aller grootste belang.

BELEID TEN OPSIGTE VAN DIE OPVOEDKUNDIGE TAAK VAN DIE RAAD

(1) Die Raad ondersteun die konsep van 'n deurlopende omvattende gesondheidsdiens, soos ondersteun deur die Wet op Gesondheid, (Wet no. 63 van 1977).

'n Omvattende gesondheidsdiens sluit in voorkomende, bevorderende, kuratiewe en rehabilitatiewe dienste wat voorsien in die mens se gesondheidsbehoefte oor sy lewensloop van voor geboorte tot die dood.

Met kontinuïteit word bedoel dat die verskillende komponente¹ nie as afsonderlike entiteite gesien word nie, maar as subsysteme² van dieselfde oorkoepelende diens wat deur inligtingsuitruiling en koördinasie aaneengeskakel word.

Om, in ooreenstemming met hierdie siening, die geregistreerde studentverpleegkundige voor te berei om in al die behoeftes van die gemeenskap, binne of buite gesondheidsinrigtings, te kan voorsien, moet sy onderrig word in algemene, psigiatriese en gemeenskapsverpleegkunde en verloskunde.

(2) Die Raad aanvaar verpleegkunde as 'n menskundige kliniese gesondheidswetenskap

Dit is 'n studiegebied waarin 'n objektiewe, sistematiese benadering van probleemidentifisering en probleemoplossing toegepas moet word in alle gesondheidsorgsituasies met rekordhouding as die instrument waarmee en deur middel waarvan die verpleegkundige verantwoording doen vir haar handeling as stelselmatige, wetenskaplike handeling wat binne die bestek van die wet uitgevoer word. Die wetenskaplike benadering in die verpleegkunde word ook na verwys as die verpleegproses.

- (3) Die Raad beklemtoon dat daar 'n wesenlike behoefte is om die geregistreerde verpleegkundige bewus te maak van die sosiaal-kulturele implikasies in die voorsiening van omvattende verpleging in die Suid-Afrikaanse gemeenskap.

Die bevordering van die gesondheidsstandaarde van al die inwoners van die Republiek is deur die Wet op Verpleging, no. 50 van 1978 aan die Raad opgedra.

- (4) Die Raad sien die neerlê van minimum onderwysstandaarde vir registrasie as verpleegkundiges as die belangrikste vereiste om veilige, doeltreffende verpleging vir die gemeenskap te verseker.

Hierdie funksie is deur die Wet op Verpleging, no. 50 van 1978 aan die Raad opgedra.

Minimum standaarde word deur die Raad altyd drieledig uitgestip, naamlik, eerstens ten opsigte van die opleidingskool, tweedens ten opsigte van die opleidingsprogram en derdens ten opsigte van die individuele student.

- (5) Aangesien dit die Raad se funksie is om standaarde van verpleegonderwys en -opleiding en verpleegpraktyk te bevorder, word innovasie deur opleidingsowerhede en navorsing op hierdie gebiede aangemoedig en ondersteun.

- (6) Die Raad stel nuwe kursusse in of wysig bestaande kursusse slegs op grond van feitelike gegewens en die bepaling van die gesondheidsbehoefte van die bevolking van die Republiek van Suid-Afrika.

- (7) Die Raad aanvaar die beginsel van spesialisering om standaarde van verpleegonderwys, -opleiding en verpleegpraktyk te bevorder.

Hierdie kennis en vaardigheid moet onderskeibaar wees van dit wat in 'n basiese kursus vereis word.

- (8) Wat die leerproses in verpleegkunde betref, beklemtoon die Raad dat die onderrig en opleiding spesifiek gerig moet wees op die ontplooiing en ontwikkeling van die verpleegkundige op persoonlike en professionele vlak en dat die beginsels van leer gehandhaaf word, naamlik, dat leer lei tot verandering van gedrag in die kognitiewe, affektiewe en psigomotoriese aspekte, deur die aktiewe betrokkenheid van die student. Die ontwikkeling van die vermoë tot analitiese, kritiese en skeppende denke en van selfstandige beoordeling van wetenskaplike gegewens, is van die allergrootste belang.

'n Student kan slegs leer indien 'n doeltreffende verskeidenheid van leeraktiwiteite ten opsigte van elke vaardigheid voorsien word, bo en behalwe die duidelike neerlegging van die verwagte standarde. Om te verseker dat die praktika van die begin af deur die student as noodsaaklike leerervaring raakgesien en benader word, is behoorlike bekendstelling met en oriëntering van die student met betrekking tot die leerdoelstellinge noodsaaklik. 'n Leerervaring³ vind plaas in 'n leersituasie wat deur die persoon wat die leerstof aanbied, geskep word en deur die student⁴ benut word om beide program- en persoonlike doelstellings⁴ te bereik.

Aangesien effektiewe praktykbeoefening in verpleging afhang van vaardigheid op al drie bogenoemde gebiede, (kognitiewe, affektiewe en psigomotoriese) vereis die Raad dat al drie gebiede geëvalueer word om 'n veilige standaard van verpleegpraktyk te verseker.

Om te verseker dat leerervarings en evaluering by opleidingskole in ooreenstemming met hierdie beleidsriglyn is, moet elke skool oor 'n geskrewe kurrikulum vir elke program beskik.

- (9) Die Raad se beleid ten opsigte van kliniese praktika is dat die student by die aanvang van haar opleiding met bepaalde verantwoordelikhede vir pasiëntesorg as lid van die gesondheidspan funksioneer. Hierdie vlak van funksionering moet in ooreenstemming wees met die stadium- en terminale doelstellings van die program.

Kliniese praktika is die leerervaring wat die student toelaat om onder toesig van geregistreeerde verpleegkundiges in die gesondheidsdiens te praktiseer. Die kliniese praktika moet in aaneenlopende eenhede gerangskik wees sodat dit 'n sinvolle leerervaring is. Dit hoef nie deurlopend te wees nie.

VERDUIDELIKENDE OPMERKINGS

- 1 'n Komponent is 'n strukturele onderafdeling van 'n sisteem: verdelings word dus bloot gemaak op grond van geografiese of owerheidskeiding.
- 2 'n Subsisteem is 'n funksionele onderafdeling van 'n sisteem: verdelings word dus gemaak op grond van funksionele ver= skille.
- 3 'n Leerervaring sluit byvoorbeeld lesings, projekte, kliniese onderrig, kliniese praktika en veldwerk in.
- 4 'n Doelstelling is 'n spesifieke beskrywing van meetbare gedrag wat op 'n gegewe stadium van iemand verwag word. Stadiumdoelstellings is doelstellings wat op bepaalde tye gedurende 'n program bereik moet word. Die program kan byvoorbeeld in stadia van een jaar eik verdeel word; stadium-een-doelstellings stipuleer dan wat die student aan die einde van die eerste jaar moet kan doen. Terminale (of program-) doelstellings is die algemene doelstellings vir die totale program en dit word deur die Suid-Afrikaanse Raad op Ver= pleging in die regulasies voorgeskryf.

2. PROGRAMDOELSTELLINGS

Die geregistreeerde vroedvrou op die gebied van gevorderde verloskunde en neonatale verpleegkunde moet aan die einde van die kursus oor kennis en vaardigheid beskik wat sy ten opsigte van die volgende kan toepas:

- (1) Die algemene toestande wat met swangerskap, kraam en die puerperium verband hou en daaraan toegeskryf word en die toestande en afwykings wat die foetus en die neonaat beïnvloed, wat algemeen in die Republiek van Suid-Afrika aangetref word.
- (2) Insig hê in die psigo-sosiale, kulturele en wetlike implikasies van toestande en afwykings wat met verloskunde verband hou.
- (3) Oor die nodige interpersoonlike, diagnostiese, terapeutiese en spesifieke bestuursvaardighede beskik wat die vroedvrou in staat stel om:
 - die algemene toestande wat met swangerskap verband hou en daaraan toegeskryf word, te diagnoseer, behandel (insluitende farmakologie) of te verwys
 - om die toestand van die foetus voor geboorte en tydens geboorte te bepaal
 - alle hoë-risiko-pasiënte te identifiseer en hanteer (insluitende farmakologie) tydens kraam
 - krisistoestande (noodtoestande) betreffende die pasgeborene te monitor, voorsien en hanteer
 - die algemene afwykings van die neonaat te monitor, voorsien en hanteer
 - abnormale puerperale toestande te identifiseer en hanteer (insluitende farmakologie)
- (4) Volle verantwoordelikheid behou vir alle onafhanklike funksies wat uitgevoer word, met inbegrip van die voorskryf van medisyne en die beplanning van die hantering van verloskundige en neonatale toestande.
- (5) Die proses van navorsing verstaan en navorsingsgegewens en -verslae deur middel van hierdie kennis interpreteer en gebruik en betekenisvol aan navorsingsprojekte deelneem.
- (6) Navorsingsgegewens met betrekking tot die voorkomende en bevorderende aspekte van verloskunde en neonatologie gebruik.
- (7) Administratiewe beginsels gebruik om nuwe verloskunde en/of verwante dienste in te stel en om bestaande dienste te evalueer en te herorganiseer.
- (8) As konsultant, voorligter en kliniese spesialis op die gebied van verloskunde en neonatologie op te tree.

3. KURSUSINHOUD EN GETAL PERIODES

(1) Wetenskaplike grondslae van die verloskundige en neonatale verpleegprosesse

gelykstaande aan 120 periodes.

Die biofisiese, biochemiese, anatomiese, pato-fisiologiese, mikrobiologiese, farmakologiese, psigo-sosiale aspekte van die verloskundige en die neonatale verpleegprosesse.

(2) Voorkomende en bevorderende gesondheidsorg ten opsigte van die verloskundige en neonatale verpleegprosesse

gelykstaande aan 120 periodes.

Gesondheidsvoorligting en gesondheidsorg ten opsigte van die swanger vrou, die vrou in baring, die pasgeborene met besondere verwysing na:

- gesondheidsdienste en ander gemeenskapsdienste ten opsigte van verloskunde en neonatale sorg
- die gesin as die terapeutiese gemeenskap
- ouerkunde
- genetika en genetiese raadgewing
- voorgeboortelike en nageboortelike sorg
- verskaffing van toereikende fasiliteite vir kraam en vir die vroeë prosesse na kraam
- die pasgeborene - insluitende die hoë-risiko-suigeling, die vroeggeborene, die suigeling wat klein is vir die swangerskaps tyd, die suigeling wat weens swangerskap, kraam en neonatale omstandighede en fisiese en sosiale abnormaliteite aan risiko blootgestel is
- gesondheidsvoorligting en gesondheidsorg van die fisiese, geestes- en sosiaal-gestremde moeders
- voedingsaspekte van swangerskap, die moeder wat gekraam het en die pasgeborene
- epidemiologiese aspekte van obstetrie en neonatologie
- professionele praktykaspekte van verloskunde en neonatale sorg en van primêre gesondheidsorg, met inbegrip van die wette wat betrekking het op die versorging van die moeder en die maatskaplike beskerming van die kind.

(3) Verloskunde en neonatologie en die verloskundige en neonatale verpleegprosesse

gelykstaande aan 120 periodes.

Normale en abnormale verloskunde en die modaliteite van behandeling en sorg. Neonatologie en die modaliteite van behandeling en sorg. Die geïndividualiseerde omvattende verloskundige en neonatale verpleegprosesse in hospitale, klinieke en tuissorg-omstandighede.

(4) Die psigo-sosiale aspekte en dinamika van verloskunde en die neonatale verpleegprosesse

gelykstaande aan 120 periodes.

- psigologiese ondersteuning van en raadgewing aan die moeder
- die psigo-sosiale beperkinge in die gesinsituasie
- maatskaplike patologiese situasies, met inbegrip van die mishandelde moeder en die ongetroude moeder
- regsaspekte en kulturele invloede, insluitende aspekte soos aborsies en sterilisering
- gesinsbeplanning as 'n bydraende faktor wat die gesondheid van die moeder en die pasgeborene bevorder
- gemeenskapsgesondheidsdienste en gemeenskapsbetrokkenheid in die verskaffing van ondersteunende dienste
- die gesin in omstandighede waar die moeder of die pasgeborene te sterwe kom en in omstandighede waar die baba doodgebore word of met aangebore gebreke gebore word
- maatskaplike neigings in die gemeenskap wat tot verloskundige probleme bydra en wat verloskunde en neonatologie beïnvloed
- mediese neigings en mediese tegnologie en veranderinge in die modaliteite van behandeling wat verloskunde en neonatologie beïnvloed
- verandering in die aard van verpleegkundige ingrepe
- kliniese navorsingmetodes.

4. LEERERVARINGE

"Periodes van onderrig" behels nie net formele lesingperiodes nie maar sluit kliniese groepsbesprekings en -demonstrasies, seminare, simposiums, groepsbesprekings, paneelprojekte, tutoriale, auto-tutoriale tegnieke en groepsprojekwerk in die lesingkamer, in die gemeenskap en in pasiënt=sorg in.

L W (i) Formele onderrig moet so na as moontlik verband hou met die kliniese onderrig van studente in die sale en afdelings van die skool en in gemeenskapsgesondheidsdienste. Die behoefte aan voortdurende raadpleging en samewerking tussen al die persone wat aan die onderwys van studente op sowel teoretiese as kliniese vlak deelneem, kan nie oorbeklemtoon word nie.

(ii) 'n Periode van onderrig duur minstens 40 minute.

5. KLINIESE PRAKTIKA

Dit moet oor minstens 960 uur strek en moet ondervinding bied in genees-
tiese raadgewingsdienste, voorkomende en bevorderende gesondheidsorg,
dienste met besondere verwysing na voor- en nageboortesorg; beheer van
eerste, tweede en derde stadiums van kraam en neonatale sorg in inrigting
en tuistes en in alle hedendaagse modaliteite van behandeling en sorg.

6. EVALUERINGSSTRATEGIEË

Die evaluering van die student moet gelyktydig met beroepsbeoefening in
die kliniese praktikasituasie en in die formele programme van doseer en
leer plaasvind.

In die kliniese situasie moet dit direk gemoeid wees met die werklike ver-
sorging wat die student doen en moet dit nie deur middel van 'n reeks kuns-
matig-georganiseerde prosedures gedoen word nie.

Evaluering in die kliniese situasie moet gedurende die daaglikse toesig=
houdende aktiwiteite van streeksmatrones, saalsusters en kliniese dosente
onderneem word, deur middel van gevalstudies, deur die vaardigheid in die
direkte versorging van pasiënte te toets in die hoofaspekte van verlos=
kunde en neonatale sorg.

Verloskunde-verpleegpreseptors, kindergeneeskundiges en verloskundiges
moet by hierdie evaluering betrek word.

Hierdie begrip is van toepassing op evaluering in beide die komponente
van praktika.

7. EKSAMEN

(a) Skriftelike gedeelte

Die vraestelle sal min of meer soos volg opgestel word:

Vraestel I Verloskunde en Neonatale Verpleegkunde

Vraestel II Verloskunde, Neonatologie en Gesondheidsorgsisteme

L W Dit word beklemtoon dat die vraestelle oor die
leerplan in sy geheel gestel word.

(b) Praktiese gedeelte

Die praktiese gedeelte van die eksamen bestaan uit 'n evaluering volgens die doelstellings soos in paragraaf 2 op bladsy 5 uiteengesit en word deur die skool afgeneem.

8. KWALIFIKASIES VAN LEKTORE

Kwalifikasies van persone wat met die onderwysprogram gemoeid is, word nie gespesifiseer nie, maar die volgende kategorieë kan bydra tot die onderwysprogram:

Kindergeneeskundiges, verloskundiges en vroedvrouverpleegkundiges, verpleeg-administrateurs en verpleegkunde-opvoedkundiges, aptekers, sielkundiges, psigiaters, maatskaplike werkers en paramediese personeel.

L W Aangesien die meeste van die leerstof van die vereiste basiese wetenskappe, saaladministrasie, kliniese onderrig, geskiedenis en etos van verpleging nou in die leergange vir basiese kursusse ingesluit is, moet hierdie vakke nie in kliniese na-registrasie kursusse ingesluit word nie.

Studente moet verlang word om hulle kennis in hierdie vakke deur middel van selfstudie by te bring. Hulle kennis van hierdie vakke moet deur die skool getoets word.

1. INTRODUCTION

PHILOSOPHY OF THE COUNCIL

(1) Objects of the South African Nursing Council

The objects of the South African Nursing Council are determined in section 3 of the Nursing Act, Act No. 50 of 1978.

"3. The objects of the Council shall be -

- (a) to assist in the promotion of the health standards of the inhabitants of the Republic;
- (b) subject to the provisions of the Chiropractors Act, 1971 (Act No. 76 of 1971)*, the Homeopaths, Naturopaths, Osteopaths and Herbalists Act, 1974 (Act No. 52 of 1974)*, the Pharmacy Act, 1974 (Act No. 53 of 1974), and the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act No. 56 of 1974), to control, and to exercise authority in respect of, all matters affecting the education and training of, and the manner of the exercise of the practices pursued by, registered nurses, midwives, enrolled nurses and nursing assistants;
- (c) to promote liaison of the education and training, and the manner of the exercise of practices, referred to in paragraph (b), both in the Republic and elsewhere, and to promote the standards of such education and training and the manner of the exercise of such practices in the Republic;
- (d) to advise the Minister on any matter falling within the scope of this Act;
- (e) to communicate to the Minister information on matters of public importance acquired by the Council in the course of the performance of its functions under this Act."

(2) Definition of Nursing Science

"Nursing Science is a clinical health science that constitutes the body of knowledge for the practice of persons registered or enrolled under the Nursing Act, as nurses or midwives.

Within the parameters of nursing philosophy and ethics, it is concerned with the development of knowledge for the nursing diagnosis, treatment and personalized health care of persons exposed to, suffering or recovering from physical or mental ill-health. It encompasses the study of preventive, promotive,

* Substituted by Associated Health Service Professions Act, 1982 (Act No. 63 of 1982).

curative and rehabilitative health care for individuals, families, groups and communities and covers man's life-span from before birth."

(3) Education in Nursing

Council emphasizes that the education and training shall be directed specifically at the development of the nurse on a personal and a professional level and that the principles of learning be observed, namely that learning leads to behaviour change in the cognitive, affective and psychomotor aspects, through active involvement of the student.

The development of the ability for analytical, critical, evaluative and creative thinking and the stimulation of the exercise of independent judgement of scientific data are of the utmost importance.

POLICY CONCERNING THE EDUCATIONAL TASK OF THE SOUTH AFRICAN NURSING COUNCIL.

(1) Council supports the concept of a continuous comprehensive health service, as supported by the Health Act, (Act No. 63 of 1977).

A comprehensive health service includes preventive, promotive, curative and rehabilitative services which provide for all man's health needs, from before birth until death.

Continuity implies that the various components¹ are not seen as separate entities but as sub-systems² of the same comprehensive service linked through the exchange of information and co-ordination.

In order to prepare the registered student nurse, in accordance with this view, to provide for all the needs of the community in institutional and non-institutional services, she should be instructed in general, psychiatric and community nursing science and midwifery.

(2) Council accepts nursing science as a human clinical health science.

It is an area of study in which an objective, systematic approach to problem identification and problem solving should be applied in all health care situations with record keeping as the instrument with which and through which the nurse accounts for her actions as being systematic, scientific and within the framework of the law. The scientific approach in nursing is also referred to as the nursing process.

- (3) Council emphasizes that there is a fundamental need to create an awareness in the registered person of the socio-cultural implications in the provision of comprehensive nursing in the South African community.

The promotion of the health standards of all the inhabitants of the Republic is entrusted to the Council in terms of the Nursing Act, No. 50 of 1978.

- (4) Council considers the stipulation of minimum educational standards for registration as nurses as the most important requirement to ensure safe, effective nursing for the community.

This function is entrusted to Council in terms of the Nursing Act, No. 50 of 1978.

Minimum standards are always stipulated in threefold by Council, namely, in the first instance in respect of the training school, secondly in respect of the training programme and thirdly in respect of the individual student.

- (5) Since it is the function of Council to promote standards of nursing education and training and nursing practice, innovation by training authorities and research in these fields are encouraged and supported.
- (6) Council institutes new courses or amends existing courses only on the grounds of factual evidence and the identification of the health requirements of the population of the Republic of South Africa.
- (7) Council adopts the principle of specialisation to promote standards of nursing education, training and nursing practice.

It must be possible to differentiate between this knowledge and skill and that required in a basic course.

- (8) With regard to the learning process in nursing science, Council emphasises that the education and training shall be directed specifically at the development of the nurse on a personal and a professional level and that the principles of learning be observed, namely that learning leads to behaviour change in the cognitive, affective and psychomotor aspects, through active involvement of the student. The development of the ability for analytical, critical and creative thought and independent evaluation of scientific data are of the utmost importance.

A student can learn only if an effective variety of learning activities is provided in respect of each skill, apart from the clear exposition of the standards which are required. To ensure that the student considers practica an essential learning experience and approaches it as such from the beginning, proper introduction and orientation of the student with regard to the learning objectives are essential. A learning experience³ occurs in a learning situation created by the person presenting the learning material and which is utilised by the student to achieve the programme and personal objectives⁴.

Since effective practice in nursing depends upon skill in all three of the above-mentioned fields, the Council requires that all three fields (cognitive, affective and psychomotor) shall be evaluated to ensure a safe standard of nursing practice.

In order to ensure that learning experiences and evaluation at training schools are in accordance with this policy guide, each school shall have a written curriculum for each programme.

- (9) Council's policy in respect of clinical practica stipulates that the student shall function as a member of the health team with certain responsibilities for patient care from the commencement of her training. This level of functioning shall be in accordance with the stage and terminal objectives of the programme.

Clinical practica is the learning experience of the student in health service under the supervision of registered nurses.

The clinical practica shall be arranged in consecutive units in order to constitute a meaningful learning experience. It need not be continuous.

EXPLANATORY NOTES:

- 1 A component is a structural sub-section of a system: divisions are therefore made merely on the ground of geographical or government boundaries.
- 2 A sub-system is a functional sub-section of a system: divisions are therefore made on the ground of functional differences.
- 3 A learning experience includes, for example, lectures, projects, clinical education, clinical practica and field work.
- 4 An objective is a specific description of measurable behaviour required from somebody at a given stage. Stage objectives are objectives which should be achieved at various periods during a programme. The programme may, for instance, be divided into stages of one year each; stage-one objectives would then stipulate what the student should be able to do at the end of the first year. Terminal (or programme) objectives are the general objectives for the entire programme and they are prescribed by the South African Nursing Council in the regulations.

2. PROGRAMME OBJECTIVES

The registered midwife in the field of advanced midwifery and neonatal nursing science must, at the end of the course have knowledge and the skill to apply it in respect of the following:

- (1) The common conditions associated with, and due to pregnancy, labour and the puerperium and the conditions and deviations that affect the foetus and the neonate which are commonly found within the Republic of South Africa.
- (2) Have insight into the psycho-social, cultural and legal implications of conditions and deviations associated with midwifery.
- (3) Possess the necessary interpersonal, diagnostic, therapeutic and specific managerial skills to enable the midwife to:
 - diagnose, treat (including pharmacology) or refer the common conditions associated with and due to pregnancy
 - determine the foetal status prenatally and intrapartally
 - identify and manage (including pharmacology) all at-risk patients in labour
 - monitor, anticipate and manage crisis (emergency) conditions regarding the newborn
 - monitor, anticipate and manage the common deviations of the neonate
 - identify and manage (including pharmacology) abnormal puerperal conditions
- (4) Retain full responsibility for all independent functions carried out, including the prescribing of medications and planning management for midwifery and neonatal conditions.
- (5) Understand the process of research, and interpret and use research data and reports by means of this knowledge and participate meaningfully in research projects.
- (6) Utilise research data in the preventive and promotive aspects of midwifery and neonatology.
- (7) Utilise administrative principles to institute/establish new midwifery and/or related services and to evaluate and reorganise existing services.
- (8) Act as consultant, educator and clinical specialist in the field of midwifery and neonatology.

3. COURSE CONTENT AND NUMBER OF PERIODS

(1) Scientific foundations of the midwifery and neonatal nursing processes

equivalent to 120 periods.

The biophysical, biochemical, anatomical, patho-physiological, microbiological, pharmacological, psycho-social aspects of the midwifery and the neonatal nursing process.

(2) Preventive and promotive health care in respect of the midwifery and neonatal nursing processes

equivalent to 120 periods.

Health education and health care in respect of the pregnant woman, the parturient woman, the neonate, with special reference to:

- health services and other community midwifery and neonatal services
- the family as the therapeutic community
- parent craft
- genetics and genetic counselling
- antenatal and post-natal care
- provision of adequate facilities for the labour and early post-delivery processes
- the newborn - including the high risk infant, the pre-term, the small for gestational period infant, the infant at risk through pregnancy, labour and neonatal circumstances and physical and social abnormalities
- health education and health care of the physically, mentally and socially handicapped mothers
- nutritional aspects in pregnancy, the post-parturient and the neonate
- epidemiological aspects of obstetrics and neonatology
- professional practice aspects of midwifery and neonatal care and of primary health care, including the laws relating to care of the mother and the social protection of the child.

(3) Obstetrics and neonatology and the midwifery and neonatal nursing processes

equivalent to 120 periods.

Normal and abnormal obstetrics and its modalities of treatment and care. Neonatology and the modalities of treatment and care. The individualised comprehensive midwifery and neonatal nursing processes in hospitals, clinics and homecare situations.

(4) The psycho-social aspects and dynamics of midwifery and the neonatal nursing processes

equivalent to 120 periods.

- psychological support and counselling of the mother
- the psycho-social constraints in the family situation
- social pathological situations, including the battered mother and the unmarried mother
- legal aspects and cultural influences, including such aspects as abortions and sterilisation
- family planning as a contributory factor in promoting mother and new-born infant health
- community health services and community involvement in providing supportive services
- the family in situations where death of the mother or the infant occurs and in situations where the infant is still-born or born with congenital defects
- social trends in the community which contribute to midwifery problems and which affect midwifery and neonatology
- medical trends and medical technology and changes in the modalities of treatment which affect midwifery and neonatology
- changes in the nature of nursing intervention
- clinical research methods.

4. LEARNING EXPERIENCES

"Periods of instruction" do not only imply formal lecture periods but include group clinical discussions and demonstrations, seminars, symposiums, group discussions, panel projects, tutorials, auto-tutorial techniques and group project work both in the class-room, in the community and in patient care.

N B (i) Formal teaching should be related as closely as possible to the clinical instruction of students in the wards and departments of the school and in the community health services. The need for constant consultation and co-operation among all those who participate in the education of students in both the theoretical and the clinical fields, cannot be over-emphasised.

(ii) A period of instruction extends over at least 40 minutes.

5. CLINICAL PRACTICA

This shall be of not less than 960 hours duration and shall provide experience in genetic counselling services, preventive and promotive health care, services with particular reference to ante- and post-natal care; control of first, second and third stages of labour and neonatal care in institutions and in homes and in all contemporary modalities of treatment and care.

6. EVALUATION STRATEGIES

Evaluation of the student shall take place concurrently with performance in the clinical practica situation and in the formal teaching/learning programme.

In the clinical field it shall be directly concerned with the actual care the student provides and should not be done by means of a series of artificially organised procedures.

Evaluation in the clinical situation should be undertaken during the daily supervising activities by zonal matrons, ward sisters and clinical teachers by means of case assignments, by testing proficiency in the direct care provided in the main aspects of midwifery and neonatal patient care.

Nurse-midwife preceptors, paediatricians and obstetricians should be involved in this evaluation.

This concept applies to evaluation in both the components of practica.

7. EXAMINATION

(a) Written portion

The question papers will by and large be set as follows:

Paper I Midwifery and Neonatal Nursing Science

Paper II Midwifery, Neonatology and Health Care Systems

N B It is stressed that question papers are set on the curriculum in its entirety.

(b) Practical portion

The practical portion of the examination consists of an evaluation according to the objectives set out in paragraph 2 on page 5 and shall be conducted by the school.

8. QUALIFICATIONS OF LECTURERS

Qualifications of persons involved in the teaching programme are not specified, but the following categories have a contribution to make to the teaching programme:

Paediatricians, obstetricians and nurse-midwives, nurse administrators and nurse educators, pharmacists, psychologists, psychiatrists, social workers and paramedical personnel.

N B As most of the material of the required basic sciences, ward administration, clinical teaching, history and ethos of nursing have now been included in the curricula for basic courses, these subjects should not be included in post-registration clinical courses.

Students should be required to up-date their knowledge in these subjects through self-study. Their knowledge of these subjects should be tested by the school.

AUGUST 1983
WJR5e/PBASC1

ANNEXURE H

FREE STATE REGIONS

1. BLOEMFONTEIN-REGION

2. SOUTH FREE STATE-REGION

- Aliwal-Noord
- Bethulie
- Boshoff
- Botshabelo
- Clocolan
- Dewetsdorp
- Edenburg
- Exelsion
- Fauresmith
- Jacobsdal
- Jagersfontein
- Kimberley
- Koffiefontein
- Ladybrand
- Petrusburg
- Phillipolis
- Reddersburg
- Rouxville
- Smithfield
- Trompsburg
- Tweespruit
- Wepener
- Zastron

3. BETHLEHEM-REGION

- Bethlehem
- Ficksburg
- Fouriesburg
- Frankfort
- Harrismith
- Lindley
- Marquard
- Qwa-Qwa
- Reitz
- Senekal
- Vrede
- Vredefort

4. KROONSTAD-REGION

- Heilbron
- Koppies
- Kroonstad
- Parys
- Petrus Steyn
- Sasolburg
- Steynsrus
- Vanderbijlpark
- Vereeniging
- Viljoenskroon
- Villiers
- Vredefort
- Winburg

5. WELKOM-REGION

- Allanridge
- Bothaville
- Brandfort
- Bultfontein
- Hennenman
- Hoopstad
- Odendaalsrus
- Theunissen
- Ventersburg
- Virginia
- Welkom
- Wesselsbron
- Winburg

ANNEXURE I

**DEPARTMENT OF NURSING
UNIVERSITY OF THE ORANGE FREE STATE**

**Proposed advanced university diploma in clinical
nursing**

INTRODUCTION

The Advanced University Diploma in Clinical Nursing is presented for approval by the Department of National Education.

MOTIVATION

The changed focus in the delivery of health care from curative to primary health care, demands the training of nurses who were not trained in the new dispensation. This is particularly relevant in the rural areas where the majority of primary health care services are delivered in the absence of doctors. The shortage of staff training programmes exacerbates this skills deficit.

The Department of Nursing has received a number of requests from the Medical Faculty of the UOFS (Departments of Obstetrics and Gynaecology and Psychiatry) in the past three years, for the institution of advanced university diplomas in these disciplines.

These requests were followed by a needs assessment among nurses in the Free State in 1991 and 1992. The findings supported the requests.

As regards training in advanced midwifery and perinatal nursing, the S.A. Nursing Council has accepted the recommendations of various researchers and ad hoc committees for continuing professional training programmes for practising midwives, because the skill of the midwife in the absence of a doctor in emergency situations is regarded as an indicator of perinatal mortality.

The introduction of these diplomas was negotiated with the Nursing College of the Orange Free State, the Provincial Administration of the Orange Free State, the Departments of National Health and Population Development, local authorities and community representatives. These institutions support the programmes.

The recommended diploma is not offered by the Nursing Colleges in the Free State and does not at present figure in their planning for the future.

OFFICIAL NAME

Advanced University Diploma in Clinical Nursing (ADCN)

The projected year of implementation is 1995.

ADDITIONAL STAFF AND FACILITIES

No additional facilities or staff are envisaged. Members of the Departments of Nursing, Obstetrics and Gynaecology, Psychiatry, Community Health and others will be responsible for teaching.

NUMBER OF REGISTRATIONS

Ten to twenty students per diploma per year.

The diploma will only be presented if a minimum of five students per speciality register.

QUALIFICATIONS OF STAFF INVOLVED IN TRAINING

The present staff who are responsible for student training, are in possession of master's and doctoral degrees, have published in approved journals and are team members of ongoing research projects in the Department of Nursing. The obstetric and gynaecology, psychiatry and community health lecturers are the authors and co-authors of various text books.

EVALUATION OF THE TEACHING PROGRAMMES

In addition to the summative and continuing evaluation of the diplomas that will be conducted by the Department of Nursing on an annual basis, the S.A. Nursing Council inspects the activities of the department in which the diplomas will be offered every five years. The curricula of the diplomas have also been compiled in terms of the requirements of the Council.

CURRICULUM: ADVANCED UNIVERSITY DIPLOMA IN CLINICAL NURSING

PROGRAMME OBJECTIVES

After successful completion of the course the student will:

- maintain a high standard of ethical and professional behaviour and practise in a legally accountable manner;
- demonstrate knowledge of and insight in the comprehensive health care, social changes and changing health care needs of the policy-making structures (also community structures) in South Africa;

- analyze and interpret the morbidity and mortality profile of the population in order to effect the necessary changes in nursing practice;
- act as a clinical specialist and consultant, educator and coordinator of inservice training programmes for all levels of the health care team, including members of the community and community care workers;
- effectively manage a health service unit;
- evaluate and reorganize clinical practice, the health care unit and the effect of health on the community;
- initiate nursing research, make a positive contribution to research in progress and interpret and apply research findings in clinical practice;
- be able to assess the health status of patients and to implement appropriate nursing interventions for the treatment of patients.

ADMISSION REQUIREMENTS

- At least a Standard 10 certificate
and
- an appropriate university diploma or any other relevant qualification regarded as equivalent to a university diploma by the Senate of the University;
and
- proof of registration with the S.A. Nursing Council in the discipline of the proposed advanced university diploma
and
- meets the selection requirements laid down by the UOFS
and
- one year's appropriate experience.

DURATION OF THE COURSE

- A minimum period of one academic year equal to 44 weeks full time study.

CURRICULUM

Details of semester courses:

CORE CURRICULUM

1. Health care dynamics

One semester
One paper of 3 hours

National health policy and contemporary policy-making structures
Demographic trends
Epidemiological aspects
Applied research
Principles of health service management

2. Professional practice and clinical instruction

One semester
One paper of 3 hours

Characteristics of a profession and problems of contemporary nursing
Various philosophic premises of clinical ethics and ethical questions in nursing.
Interpersonal skills
Clinical instruction to individuals, groups and communities.

3. Anthropology

One semester
One paper of 3 hours

Ethnographic study of a number of cultural changes
The underlying principles and processes of cultural change
Cultural and ethnic trends in South Africa and future scenario's
Ethnography of cities
Selected questions in the medical domain

CURRICULUM OF SPECIALISATION FIELD

Nursing

One package is selected from packages A, B or C:

A. MIDWIFERY AND NEONATAL NURSING

1. Normal midwifery and neonatal nursing

Two semester courses

One paper of 3 hours in each semester course

FIRST SEMESTER

Antepartum and intrapartum:

- Comprehensive nursing care of the mother and neonate in family and community context, at the primary, secondary and tertiary levels of prevention and service
- Genetics and genetic counselling
- Nutritional aspects
- Social pathological aspects

Anatomy, physiology and pharmacology are appropriately integrated

SECOND SEMESTER

Postpartum and neonatology:

- Comprehensive nursing care of the mother and child in the context of the family and community at the primary, secondary and tertiary levels of prevention and service
- Nutritional aspects

Anatomy, physiology and pharmacology are appropriately integrated.

2. Abnormal midwifery and neonatal nursing

One semester

One paper of 3 hours

Antepartum, intrapartum, postpartum and neonatology:

- Modalities of comprehensive treatment and care

Anatomy, physiology and pharmacology are appropriately integrated.

3. Midwifery and neonatal nursing practical

One year

On going and summative evaluation

ANNEXURE J

**Approval by the Department of
Education and Culture for the
Advanced University Diploma in
Clinical Nursing**

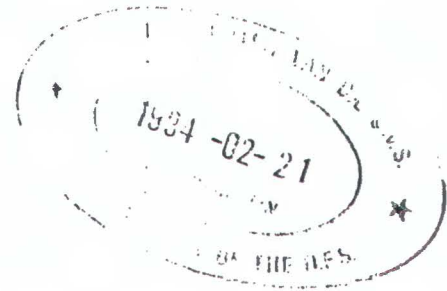


Navrae: Dr J Vermeulen
Enquiries: 14/3/21/7/1
Verw:
Ref:
Tel.: (012) 200526

Privaatsak X55
Private Bag X55
Pretoria
0001

15 Februarie 1994

Die Registrateur
Universiteit van die Oranje-Vrystaat
Posbus 339
BLOEMFONTEIN
9300



Geagte Heer

UITBREIDING VAN AKADEMIESE WERKSAAMIËDE

U skrywe 13/13/2 van 16 Julie 1993 verwys.

Graag deel ek u mee dat die Minister van Onderwys en Kultuur goedkeuring verleen het vir die instelling van die volgende diploma en graad:

- (a) Die Gevorderde Universiteitsdiploma in Kliniese Verpleegkunde; en
- (b) Die interdisiplinêre graad Magister in Omgewingsbestuur.

Vriendelike groete

1 SUPERINTENDENT-GENERAAL

NVDL0284/SK

ANNEXURE K

**DEPARTMENT OF NURSING OF THE UNIVERSITY
OF THE ORANGE FREE STATE**

**Application for the approval by the S.A. Nursing
Council of the curriculum of the**

**Advanced University Diploma in Clinical Nursing
(Speciality: Midwifery and Neonatology)**

GENERAL INFORMATION

The Department requests the SANC to recognize and register the course as an additional qualification in midwifery and neonatology.

The theoretical component of the course will extend over one academic year, equal to 44 weeks of full time study, or two academic years equal to 88 weeks of part time study (See p.6 for duration of practical component).

Admission requirements

- A Standard 10 certificate
- An appropriate university diploma or any other relevant qualification regarded by the Senate of the University as equivalent to a university diploma
- Proof of registration with the S.A. Nursing Council of an additional qualification in midwifery
- Meet the selection requirements as laid down by the Department of Nursing in collaboration with the Bureau of Student Support of the UOFS
- One year's appropriate experience

Requirements for admission to the examinations

- The semester/year mark for a course is based on the student's written and practical work during the semester/year, calculated in a manner determined by the department/faculty.
- A minimum semester mark of 50% per course is required for admission to the examination.

Requirements to pass

- A combined mark (semester/year mark and examination mark) of 50% is required to pass a course, and a subminimum examination mark of 40% must be obtained in each paper.
- In order to pass the practical part of the course, 100% attendance at practical sessions is required as well as the completion of a workbook, proven competency in selected skills and passing the OSCE examination.
- A combined mark of at least 75% is required to pass a course with distinction.
- In order to pass the diploma with distinction the student must meet the criteria set by the UOFS or those specified in the faculty regulations.
- Re-evaluation takes place as specified by the UOFS regulations.

CURRICULUM

1. General aim

A midwife at this level is able to contribute meaningfully to the formulation of policy and the development of midwifery and neonatal nursing.

2. Objectives

After successful completion of the course the student will be prepared to:

- analyze and interpret the population and health profile at the national level;
- evaluate the midwifery and neonatal services at national level and to analyze the factors influencing them;
- identify and evaluate the factors that promote or threaten the health of the pregnant woman and fetus;
- identify and evaluate the factors that promote or threaten the health and life of mother and child during labour and the puerperium;
- evaluate the appropriateness of interventions and of diagnostic and treatment methods;
- analyze different viewpoints and express her own point of view about the practice of midwifery and neonatal nursing;
- practise midwifery and neonatal nursing using a scientific method within the scope of:
 - professional-ethical norms
 - legal provisions
- develop and implement standards of quality assurance;
- use and/or establish sources of referral.

DETAILS OF CURRICULUM

1. The curriculum contains a compulsory component common to all programmes in clinical nursing, and an elective component limited to the particular clinical field.
2. Definitions:
 - Academic year - a period of 44 weeks in a calendar year
 - Academic year course - equivalent to 90-120 periods of instruction
 - Capita selecta - parts of a larger discipline selected as appropriate to the nursing field of study
 - Period of instruction - a structured period of 50 minutes of direct/indirect contact, initiated by the lecturer, and including any adult method of instruction.

CORE CURRICULUM

The concepts "health care dynamics" and "professional practice and clinical instruction" refer to "nursing dynamics"

1. Objectives

After completion of the programme the student will be able to:

- acquire perspective about the philosophy of nursing regarding:
 - the foundations of nursing
 - a distinct professional task
 - factors presently influencing the development of the nursing profession;
- demonstrate understanding of the place and contribution of the nurse in the national health system and the factors that influence these;
- demonstrate assertiveness;
- demonstrate empathy;
- demonstrate proficiency in:
 - conflict and stress management
 - counselling
 - appropriate and creative teaching
 - written communication
 - first level management
 - ethical decision-making and moral reasoning
- acquire perspectives about research.

2. Contents

2.1 Professional practice and clinical instruction (120 periods)

The programme comprises one academic semester course:

- Professional task:
 - professionalisation of colleagues and students
 - the clinical nurse/midwife as a role model
 - evaluation and future development of nursing as a science
 - the midwife as independent professional practitioner within a team
- Factors presently influencing the development of the nursing/midwifery profession
- The foundations of nursing:
 - view of the world, life, humans and science
 - foundations of professional practice
 - ethical and legal provision for contemporary professional practice
- Communication and instruction:
 - stress theories, process and management
 - innovation
 - interpersonal skills and methods:
 - * assertiveness
 - * empathy and counselling
 - * conflict management and confrontation
 - * support
 - * conforming
 - * withdrawal
 - * ethical decision-making and moral reasoning
 - critical evaluation, interpretation and management of information
 - development of and criteria for alternative methods of nursing intervention and referral
 - written communication
 - applied teaching principles, health education and patient instruction
 - principles of community development

Duration of course: one academic semester course

Evaluation: 1 paper of 3 hours.

2.2 Health care dynamics (120 periods)

- National population and health profile
- Demographic trends and epidemiological aspects
- Policy:
 - policy-making structures at macro- and micro-level
 - national policy
- Service:
 - contemporary factors that influence service at a national level
 - socio-economic implications of service

- Principles of health service management regarding:
 - health service environment
 - standards of nursing practice
 - staff management
 - principles of financial management
 - management principles for private practice
- Research (applied):
 - principles of research
 - research methods
 - research in a team context

2.3 Anthropology (120 periods)

The programme comprises one academic semester course.

At the end of the course the student will demonstrate perspective regarding:

- ethnographic study of cultural change in chosen cultural aspects
- the underlying principles and processes of cultural change
- cultural and ethnic trends in South Africa and future scenario's
- ethnography of cities
- selected questions in the medical domain

3. Curriculum of field of specialisation

Programme of choice: Midwifery and Neonatal nursing

The programme consists of 3 academic semester courses:

- Midwifery and neonatal nursing

3.1 General aim

A midwife at this level must be able to make a meaningful contribution to the formulation of policy and the development of midwifery and neonatal nursing.

3.2 Objectives

The student must be able to:

- analyze and interpret the population and health profile at the national level;
- evaluate the midwifery and neonatal services at the national level and analyze the factors that influence them;
- identify and evaluate the factors that promote or threaten the health of the pregnant woman and fetus;
- identify and evaluate the factors that promote or threaten the health and life of mother and child during labour and the puerperium;
- evaluate the appropriateness of interventions and diagnostic and treatment methods;
- analyze different viewpoints and defend her own point of view of the practice of midwifery and neonatal nursing;

- practice midwifery and neonatal nursing in terms of a scientific method within the scope of:
 - professional-ethical norms
 - legal provisions
- develop and implement standards of quality assurance;
- use and/or establish sources of referral

3.3 Subjects

3.3.1 Midwifery and neonatal nursing (120 periods)

- a national, regional and local health profile of the mother and child population;
- policy-making structures at macro- and micro-level;
- national policy;
- approaches to the assessment of the health status of the pregnant woman, fetus, mother and neonate;
- contemporary factors that influence health and the delivery of health services;
- social, cultural and transcultural considerations regarding the health of the pregnant woman, fetus, mother and neonate;
- primary, secondary and tertiary prevention in midwifery and neonatal nursing;
- theories and interventions regarding the process of delivery;
- a systematic approach to the assessment of the health status of the pregnant woman and fetus, and appropriate nursing within the family, group and community context.

3.3.2 Midwifery and neonatal nursing (120 periods)

- views and approaches;
- professional-ethical norms and legal provision for professional practice;
- a systematic approach to the assessment of the health status of the mother and neonate and appropriate nursing within the context of the family, group and community;
- referral and sources of referral;
- quality assurance;
- the dynamics of midwifery practice.

The duration of Programmes 3.3.1 and 3.3.2 is three semesters within one academic year.

Evaluation: Formative and summative evaluation

3.3.3 Anatomy (capita selecta)

3.3.4 Physiology (capita selecta)

3.3.5 Pharmacology (capita selecta)

4. Midwifery and neonatal nursing practical

The aim of creating learning opportunities is to prepare the student to function effectively in hospital and in the community in this field of specialisation by the end of the programme. Skill is therefore required in ethical decision-making and moral reasoning.

4.1 Practice assignments

- Apply a systematic approach to women during pregnancy, labour and the puerperium. At least 20 women must be monitored, and the following aspects must be included:
 - a complete physical examination, including pelvic assessment
 - monitor and interpret fetal well-being by the use of available diagnostic aids
 - monitor and interpret the progress of labour
 - assess the psychosocial climate in the family by means of individual and group interviews during visits to the family
 - monitor and manage the patient during labour and the puerperium to identify risks and prevent complications by timely intervention.
- Apply a systematic approach to crisis intervention in regard to the child, of which at least 5 will be monitored for evaluation purposes and which include the following aspects:
 - a full physical examination with special emphasis on the diagnostic skills required to identify abnormalities in high-risk neonates
 - interpret results of investigations to identify high-risk neonates
 - provide and maintain a suitable therapeutic environment for critically ill neonates
 - restore fluid and electrolyte balance by oral and parenteral routes
 - resuscitate a neonate, including endotracheal intubation
 - nurse a neonate who is receiving artificial ventilation
 - nurse patients undergoing various types of surgery pre- and postoperatively.
- Act as a leader with expertise
- Design and present 3 educational programmes aimed at the following target groups:
 - teenagers
 - high-risk groups
 - pregnant women and their husbands
- Set standards for at least one mother and neonate nursing situation.
- Participate in at least one research project
- Design and present at least one clinically orientated inservice training programme for midwives
- Conduct 5 sessions in which midwives are counselled:
 - 1 (intrapersonal problems)
 - 1 (interpersonal problems)
 - 1 (personal problems of staff)
 - 2 (personal problems of patients)

- Carry out at least one situation analysis and formulate suggestions for health education in a specific community;
- Act as a primary midwife practitioner in a multidisciplinary team.
- Demonstrate skill in taking Pap smears, prescribing the correct family planning method in terms of the patient's needs, introduction of an intrauterine device.

5. Teaching methods and aids

Problem-based learning, group discussions, self study by distance teaching method, presentations, assignments and self study modules are used, taking adult learning principles into account. Aids include: slides, video's and computer programmes in multimedia venues.

6. Evaluation of practical

Mastery learning is practised.

Formative and summative evaluation:

- completed workbook
- mastery of skills
- OSCE

ANNEXURE L

**Approval of the curriculum of the
Advanced University Diploma in
Clinical Nursing: Midwifery and
Neonatology by the South African
Nursing Council**



U Verwysing
Your Reference
Ons Verwysing
Our Reference

S103

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☎ (012) 343-0121
✉ 'Nursraad'
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Die Departementshoof
Departement Verpleegkunde
Fakulteit Sosiale Wetenskappe
Universiteit van die Oranje-Vrystaat
Posbus 339
BLOEMFONTEIN
9300

1994-03-01

Geagte professor



AANSOEK OM GOEDKEURING VAN

- (1) GEVORDERDE UNIVERSITEITSDIPLOMA IN VERPLEEGADMINISTRASIE
- (2) GEVORDERDE UNIVERSITEITSDIPLOMA IN VERPLEEGONDERWYS
- (3) GEVORDERDE UNIVERSITEITSDIPLOMA IN KLINIESE VERPLEEGKUNDE
MET KEUSES:

GEMEENSAPVERPLEEGKUNDE
KINDERPSIGIATRIESE VERPLEEGKUNDE
VERLOSKUNDE EN NEONATALE VERPLEEGKUNDE

U brief van 10 Desember 1993, verwys.

Die bogenoemde aansoek is deur die uitvoerende komitee van die Raad goedgekeur.

Die uwe

A Welthagen
- ns REGISTRATEUR
AW/aeb

ANNEXURE M

DEPARTMENT OF
NURSING

UOFS



PROBLEM 8

Thandi, aged 19 years, is the wife of a labourer in a small village. She was 39 weeks pregnant when her husband brought her to the community hospital. She complained of being very tired for the last few weeks, and was worried because she became breathless carrying her shopping home from the market.

She had tachycardia, wide pulse pressure and ankle oedema.

She has one child 18 months old. He was very small at birth. She stopped breastfeeding her boy six months ago. She finds it difficult to obtain enough food for the family because she is always short of money. She eats mainly maize, beans and cassava and rarely gets any vegetables.

She is hospitalized and goes into labour a week later. Despite effective contractions, her cervix has been 6 cm dilated for the past 3 hours. With vaginal examination descent of the fetal head is confirmed. The midwife becomes worried and calls the doctor.

Later the baby is delivered by means of a caesarean section. The mother refuses to breastfeed the baby and doesn't want to look at the baby.

RESOURCES

BENETT, V.R. & BROWN, L.K. 1993. *Myles textbook for midwives*. 12th ed. Edinburgh: Churchill Livingstone, pp.79, 346-352, 399-401, 456-459, 498.

DU PLESSIS, D.W. & FICHARDT, A.E. 1994. *Module 1.1: Teenage pregnancy*.

DU PLESSIS, D.W. & FICHARDT, A.E. 1994. *Module 2.8: Medical conditions in pregnancy*.

JOHNSTON, P.G.B. 1994. *Vulliamy's The newborn child*. 7th ed. Edinburgh: Churchill Livingstone, p.22.

SIMULATION MODELS: *Dilated vaginal models, vaginal assessment model, male and female pelvis, fetus with umbilical birthing simulation station and placenta*.

VIDEO: *Anaemia in pregnancy*.

ANNEXURE N

QUESTION 1

A baby (32 weeks of pregnancy) is delivered by caesarean section in a community hospital. The baby has a heartrate of 90, apnea, moderate tone, blue extremities and shows minimal response.

- 1.1 Determine the Apgar score of the baby. (6)
- 1.2 Discuss the principles in the resuscitation of this baby in detail. (12)

After resuscitation and after five minutes the baby has a heartrate of 120, regular breathing, moderate tone, blue extremities and shows minimal response. The baby is transported to the neonatal intensive care unit of the Universitas Hospital.

- 1.3 Explain the principles in the transport of this baby to a tertiary hospital. (8)

[26]

ANNEXURE O

**UNIVERSITY OF THE ORANGE FREE STATE
DEPARTMENT OF NURSING
VRP500
OBJECTIVE STRUCTURED CLINICAL EXAMINATION
Student instruction for resuscitation of the newborn
baby**

- * A mother, 33 weeks pregnant, is in labour in a regional hospital.
- * All the necessary resuscitation apparatus is ready for immediate use.
- * A limp and pallid baby with poor muscle tone, a heart rate of 80 beats per minute and irregular breathing is delivered.

Demonstrate the resuscitation
of this baby.

**UNIVERSITY OF THE ORANGE FREE STATE
DEPARTMENT OF NURSING
VRP500
OBJECTIVE STRUCTURED CLINICAL EXAMINATION
Checklist for resuscitation of the newborn baby**

Date checklist is used

Time

	1	2	3	4	5	6
Student: Initials and surname						
Student number						

Actions

1.	Note time	A	<input style="width: 100%; height: 20px;" type="text"/>
2.	Position baby on flat, firm surface on back, neck slightly extended and thrust forward	A	<input style="width: 100%; height: 20px;" type="text"/>
3.	Prevent cooling	A	<input style="width: 100%; height: 20px;" type="text"/>
4.	Determine Apgar score	* A	<input style="width: 100%; height: 20px;" type="text"/>
5.	Ensure open airway	* A	<input style="width: 100%; height: 20px;" type="text"/>
	<ul style="list-style-type: none"> • Gently suction nose and pharynx • Do not exceed 10 cm water pressure in • Short 10 second periods • Using a laryngoscope • Avoid touching vocal cords 		
6.	Insert endotracheal tube 1-2 cm through vocal cords	A	<input style="width: 100%; height: 20px;" type="text"/>

7. Check that tube is correctly placed in trachea * A
- Observe for rise and fall of chest wall during ventilation
 - Auscultate chest for air
8. Start intermittent positive pressure ventilation A
- With 100% oxygen
 - Apply a few slow sustained puffs to expand the lungs
 - A maximum of 30 cm water pressure should be applied
9. Maintain ventilation A
- 20 cm or more water pressure
 - Do not exceed the oxygen flow rate of 2 l/minute
 - At a rate of 40 to 60 breaths/minute
10. Evaluate effectiveness of resuscitation * A
- Observe the start of spontaneous breathing
 - Observe the skin for a pink colour
 - Check the heart rate (it must increase to >100 beats/minute)
11. Leave endotracheal tube in place A
12. Transfer baby to neonatal unit A
- Average %

ANNEXURE P

OUTLINE OF A PAPER PROBLEM PACKAGE

Orientation modules for the theory of problem-based learning were developed for the staff of the Department of Nursing of the University of the Orange Free State. These modules are available to all members of the staff and are used in the orientation sessions for the implementation of problem-based learning. They also include a list of concepts relevant to problem-based learning. Orientation sessions are compulsory for all staff.

Modules for the orientation of students to problem-based learning are also available. Students are fully orientated in this regard from the commencement of the course.

In 1996 the academic staff of the Department of Nursing of the University of the Orange Free State decided that paper problem packages should consist of:

1. Objectives

The learning objectives for the problem concerned is fully set out.

2. Problem (Scenario)

An actual problem identified in the clinical situation by the staff, and researched for suitability, is set in terms of the guidelines set out in 3.6.

3. Tutor paper problem guide

This provides the tutor with additional information regarding the problem, guidance to students and achievement of the learning objectives.

4. Selected supplemental paper problem package material

This includes extended data regarding the problem, i.e., nursing assessment data (physical and social history, physiological examination) and medical chart data.

5. Learning resources list

A list suggesting individuals, communities, settings, reading material and audiovisual material.

6. Learning concepts grid

The grid assists the small group to identify relevant concepts and their application to the paper problem.

7. Evaluation methods, techniques and instruments

Relevant methods, techniques and instruments for the formative and summative evaluation of theory and clinical practicals are included.

