

A FORMATIVE MODEL FOR STUDENT NURSE DEVELOPMENT AND EVALUATION -

PART 1 - Developing the model

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ABSTRACT

Preparing student nurses for the profession is a complex task for nurse educators; especially when dealing with the development of personal and interpersonal skills, qualities and values held in high esteem by the nursing profession and the community they serve. These researchers developed a model for formative evaluation of students by using the principles of inductive and deductive reasoning. This model was implemented in clinical practice situations and evaluated for its usefulness.

It seems that the model enhanced the standards of nursing care because it had a positive effect on the behaviour of students and they were better motivated; the model also improved interpersonal relationships and communication between practising nurses and students.

The fact that students repeatedly use the model as a norm for self evaluation ensures that they are constantly reminded of the standards required of a professional nurse.

OPSOMMING

Die voorbereiding van studentverpleegkundiges vir die verpleegprofessie is 'n komplekse taak, veral met betrekking tot die ontwikkeling van persoonlike en interpersoonlike vaardighede, kwaliteite en waardes wat hoog deur die verpleegprofessie en die gemeenskap geag word. Die navorsers het na aanleiding hiervan deur die proses van induktiewe en deduktiewe redenering 'n model vir die vormende evaluering van studentverpleegkundiges ontwikkel. Die model is in die kliniese praktyk geïmplementeer en vir sy bruikbaarheid geëvalueer.

Dit blyk dat die model oor die lange duur die volgende invloed het: dit bevorder die standaard van verpleegsorg aangesien die houding van studente jeens verpleging positief beïnvloed word en hulle is meer gemotiveerd, die interpersoonlike verhoudings en kommunikasie tussen studente en praktiserende verpleegkundiges word ook bevorder.

Die feit dat studente herhaaldelik die model as norm gebruik om hulself te evalueer, verseker dat hul deurlopend van professionele standaarde bewus gemaak word.

1. BACKGROUND TO THE PROBLEM

Preparing student nurses for the profession of nursing is a complex task for nurse educators; when dealing with development by students of abstract personal and interpersonal skills, qualities and values held in high esteem by the nursing profession and the communities they serve, such a preparation is vital.

According to Beauchamp and Childress (1989:11)¹ professions are inclined to

¹ In view of the fact that the model was developed during the eighties, the literature references are relatively outdated.

stipulate "primary responsibilities and obligations and thus seek to ensure that people who enter into relationships with their member will find them competent and trustworthy". The nursing profession is no exception, but nurse educators struggle to prepare (develop) students for these major responsibilities and obligations.

Role norms are often vague and ill-defined; and many educators "secretly" hope that students will develop these normative skills through a process of diffusion during four years of undergraduate or basic diploma education!

Carter (1985) advocated the development of a new and integrated approach to professional education - where, for example, the development of affective and personal qualities become part of the curricula. For the nurse educators participating in this research project, Carter's taxonomy became instrumental in viewing the desert of abstract professional competencies as a challenging oasis.

1.1 Analysis of current situation

After analysis of the approach of the local health services and nursing schools to the evaluation of clinical and professional competence, it was clear to the researchers that:

No structured approach was available to develop the student in totality; personal qualities and ethical behaviour tended to be ignored.

A developmental approach was seldom used during the process of evaluation.

Mainly psycho-motor skills, and to a lesser extent cognitive and interpersonal skills, were evaluated.

The formulation and evaluation of ethical standards was often vague and or limited.

Students had no opportunity to participate in their own and fellow student's evaluations - they were not allowed to write down their own "positive and or negative incidents".

A negative attitude seemed to be fostered by both student nurse and professional nurse regarding the ongoing evaluation of professional competence.

The writing of critical incidents generally was viewed as time consuming and worthless.

2. REVIEW OF THE LITERATURE

2.1 Spectrum of competence

The evaluation of psychomotor, affective and cognitive skills are referred to throughout the nursing literature (Ewan & White, 1984:204;

Field *et al.*, 1984:284-293; Kehoe & Harker, 1979:25; Kilmon, Rowell & Whitman, 1980:37-41; Reilly, 1980:51-72; Rhode, Kauchak & Eggan, 1980:27-35 and Schweer, 1981:5-14). A number of taxonomies have been developed to classify these acts from the simple to the more complicated or advanced, and from the concrete to the more abstract (Krüger, 1980:59).

Carter (1985:136), a lecturer in engineering at the University of Lancaster, believed that three main spheres were not comprehensive enough to address the entire spectrum of professional competence. He developed the following exhaustive taxonomy around the three main areas of knowledge (what the student knows), skills (what the student can do) and personal qualities (what the student is).

Carter's taxonomy is illustrated in Figure 1 which makes clear that the taxonomy encompasses the total spectrum of knowledge, skills and personal characteristics which a professional nurse practitioner should possess.

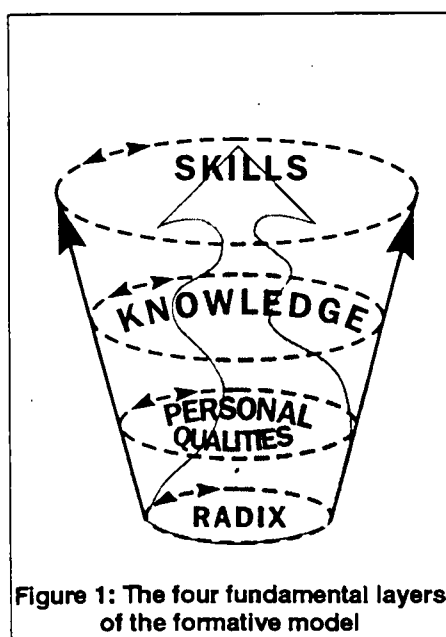


Figure 1: The four fundamental layers of the formative model

2.2 Approaches to evaluation

A review of the literature shows that one or both of the following approaches to judging a student's competencies may be used:

2.2.1 Formative versus summative evaluation

Formative evaluation is the ongoing judging of a student's competencies with the sole aim of identifying problems at an early stage. This gives both the student and the evaluator feedback about the effectiveness of the teaching process (Uys, 1982:74; Friesner, 1977:14). Formative evaluation is also referred to as process evaluation in the literature (Steele, 1978:52; Calitz *et al.*, 1982:73). It implies that a student be evaluated throughout the term/semester/year to ascertain

to what extent aims and objectives have been met, which competencies have been mastered and/or whether orthodidactic and remedial action is required. Formative evaluation therefore is not the end phase of the teaching-learning process. It is not a unilateral occasional event, but a daily interaction between judge and student during which the student is moulded as a professional and expert nurse.

Summative evaluation (Steele, 1978:52; Calitz *et al.*, 1982:73) judges the effectiveness of the teacher, student or curriculum after learning or teaching has taken place at the end of the course.

Compared with summative evaluation, formative evaluation has the following characteristics:

It is usually a more reliable evaluation method since the student is evaluated repeatedly over a period of time, as well as throughout the entire learning experience (Friesner, 1977:16; Sommerfeld & Accola, 1978:433).

It is aimed at assessing the student's learning status with the purpose of diagnosing learning problems and therefore is a highly effective approach to the individualization of teaching.

The student should receive feedback about his strong and weak points from the evaluator. Friesner (1977:16) shows that feedback has a threefold effect on student behaviour i.e.

It serves as a pointer as it provides information about competencies that require improvement.

It provides learning opportunities through the remedial action instituted by the evaluator.

It motivates students because it provides information about goal achievement, which may serve as positive reinforcement.

Formative evaluation can provide students with experience in self-evaluation and norm group evaluation.

2.3 Participants in the evaluation process

Four possible evaluators are discussed in the literature, i.e. the nurse educators or staff of the training school; fellow students; the student herself and the professional nurse practitioner. For the purposes of this research only the last two possibilities will be discussed:

2.3.1 The student (self-evaluation)

If the principle is accepted that students are responsible for their own learning, they must be given the opportunity to monitor their own progress. The results of such evaluations will not be used normally for promotion purposes.

Fivars and Gosnell (1969:133) point out that objectivity of student self-evaluation can be

improved by special training of the students. A number of educationists believe that a conference should be held after an evaluation, during which students and teachers compare evaluations and discuss divergent views (Irby, *et al.*, 1978:22 and Woolf, 1984:79).

Abbot and his co-workers (1988:219-223) proved empirically that teachers and students have more positive than negative experiences of self-evaluation. In contrast to the literature and the opinion of teachers, students do not view self-evaluation as a factor that can promote professional development. The same authors believe student self-evaluation is a skill that develops gradually. Students must be given time to develop understanding of the process and to become more comfortable with expectations of success. Independent self-evaluation by students must be viewed as a long term goal.

Advantages of student self-evaluation

It helps students to be more critical in assessing their own competence. Self-evaluation is a valuable addition to the student's personal development, emotional maturation and development of self-worth (Stevens, 1970:1310; Litwack *et al.*, 1972:91; Woolley, 1977:311; Woolf, 1984:78-80).

Evaluation becomes a positive learning experience. Students approach it with an open mind instead of a defensive attitude (Smith, 1978:193). It also contributes to the establishment of a life long pattern of self-evaluation.

It encourages independence in students and helps them to assume responsibility for their own decisions and actions (Sommerfeld and Accola, 1978:435; Fuhrmann and Weissburg, 1978:139).

It facilitates communication between teacher and student.

It helps teachers to take final decisions about student progress (Abbot *et al.*, 1988:222).

Disadvantages of student self-evaluation

Students experience self-evaluation negatively which causes anxiety.

Students are inclined to underestimate their own abilities.

Learning the skill of self-evaluation takes a great deal of time (Abbot *et al.*, 1988:222).

Students who are poor achievers are inclined to judge themselves unrealistically (Woolf, 1984:79).

2.3.2 The professional nurse practitioner

Schneider (1977:88) strongly disapproves of the use of registered nurse practitioners as evaluators. He believes it is not sound practice from either an educational or philosophic

point of view unless the practitioner is relieved of her administrative duties. If not, the objectives of service and education may clash.

On the other hand Kehoe and Harker² (1979:43), Kane (1980a:22), Mellish and Johnston (1986:30), Anderson and Knuteson (1990:42-43) believe that practitioners have an important role to fulfil as evaluators.

Kehoe and Harker (1979:50 and 51) write that:-

"We maintain that the Ward Sister should be a nurse, a manager and a teacher. An absolutely inseparable part of her teaching role must be the assessment of the learner's progress. No one else is more knowledgeable about the clinical situation, an area which includes the patients and all members of ward staff. No one is better placed to maintain standards or care for future generations of patients and nurses."

They offer two main reasons why the registered nurse should be the chief evaluator of a student nurse's practical skills. These are:-

- She is in the best position to ensure the validity of the assessment, especially when the assessment of skills is an ongoing process.
- It is in the interest of the nursing profession to involve clinical practitioners in the responsibility of setting and maintaining standards of care.

3. DEVELOPMENT OF AN ALTERNATIVE APPROACH

The participants in this research project embarked on developing a theoretical frame of reference to enhance and guide student development in key areas of professional competence. The taxonomy developed by Carter (1985) was used as a point of departure. The participants opted for an in depth and critical process of model development using the principles of inductive and deductive reasoning.

The objectives therefore were threefold:

- to construct a model for formative evaluation of student nurses;
- to implement; and
- evaluate the model in the clinical practice situation.

The research project members had a wide variety of clinical and educational experience and expertise and consulted widely with other members of the nursing profession. An

extensive literature review was done and critically discussed. The participants then developed a frame of reference to try and incorporate all facets of self-development and evaluation such as involvement of the student, feedback and remedial action. The need to move away from the historical triad of cognitive, psychomotor and interpersonal skills was supported by a wide spectrum of nurses involved in clinical practice and nursing education.

Workshops, seminars and numerous small group meetings were arranged to discuss, analyze and construct the model and supporting documents and essentially a qualitative process of discussion, analysis and consensus was used. The process products were:

- a conceptual model illustrating the layers, key categories and elements.
- a concept list carefully defining the layers, categories and elements; and providing guidelines for practitioners and students.
- a criterion or norm list stipulating specific items to guide application - an excerpt (example) is provided later in the article (the complete norm list is available on request from the researchers).
- data sheet for use in nursing practice (based on the principles of a critical

incident report) (example available from researchers).

The practical feasibility and applicability of this model was evaluated in a collaborative research project. Research subjects included undergraduate and basic diploma students, registered nurses in clinical practice and clinical tutors of a university and a college of nursing (see second article).

3.1 Basic requirements postulated for the formative model for student nurse development and evaluation

The model should:

Address the unique nature of nursing care and mirror national and international codes of practice and ethics.

Delineate the key (essential) norms for professional nursing care and behaviour - also remembering the consequences of the behaviour.

Not be bound to a single school of nursing or a single philosophical position (wide/broad application).

Not lose sight of fundamental human rights and values.

Also incorporate the abstract skills; for example critical thinking skills.

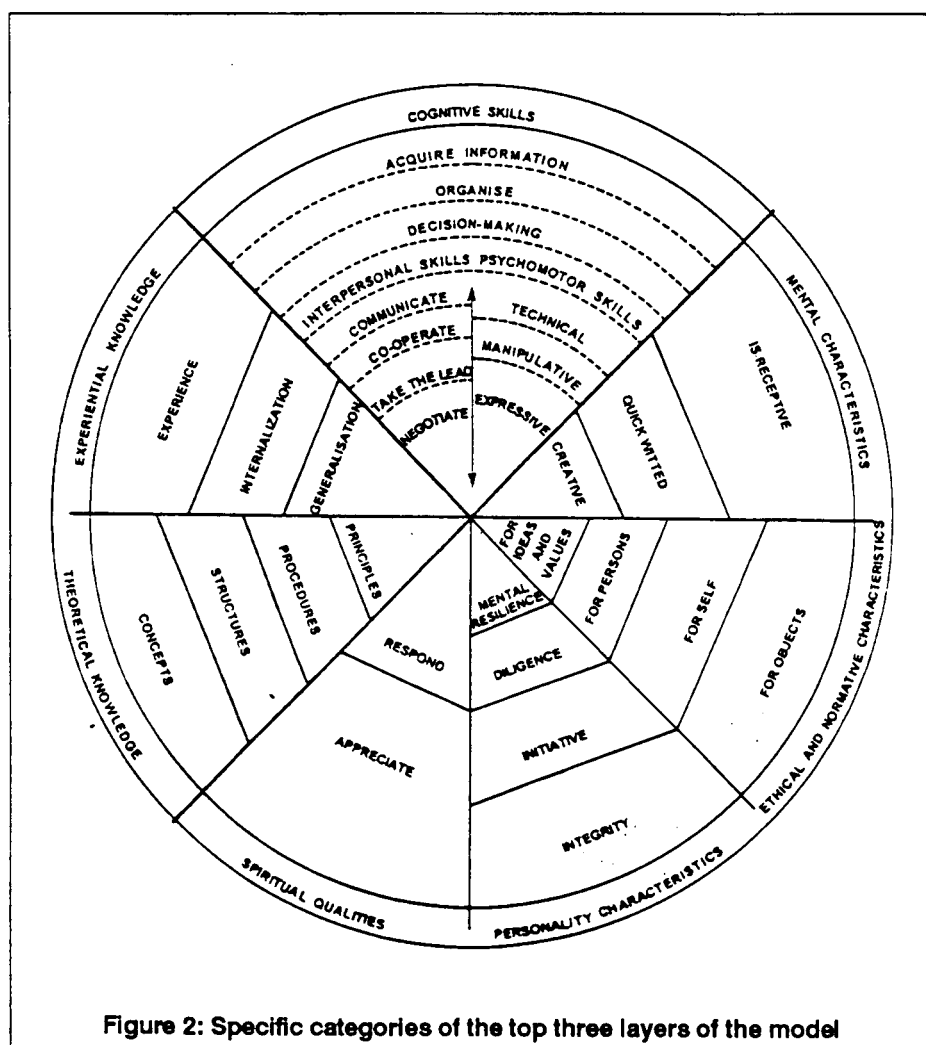


Figure 2: Specific categories of the top three layers of the model

² The fact that Kehoe and Harker differ from the American, Schneider, may be because students in Britain are not supernumerary, but full members of the nursing team.

Guide the professional behaviour of both student and qualified practitioner.

Involve students in their own development and evaluation.

Be user-friendly to students, clinical practitioners and educators. This incorporates the idea of formulating categories and items as close as possible to the reality of everyday human existence; and to define these concepts as clearly as possible (see Table 1).

Be applicable in different health care settings such as community, clinic or hospital as well as in the formal educational situation.

Make provision for the incremental development of student nurses as they progress from neophyte (first year) to senior (final year) nursing student.

3.2 Key elements of the model

The four fundamental layers of the model are dimensionally illustrated in Figure 1. Specific categories of the top three layers (labelled personal qualities, knowledge and skills) are illustrated in Figure 2.

Although the model displays the following four layers it needs to be acknowledged that there is constant interaction between the different layers and categories, and that this interactional relationship is inherently dynamic and fluid:

3.2.1 Radix or heart

The religious inclination of a person which harbours the fundamental "pre-existent" attitude towards life, and which influences all behaviour overtly or covertly. This inclination in bare essence struggles with questions concerning the origin and meaning of life as well as our final destination.

Although DeGroot (1988) called this variable a general philosophical orientation or world view dealing with the nature of human beings, the nature of knowledge and truth, and the nature of (nursing) science, Troost (1983) preferred to use the concept ethos when referring to the basic attitude towards life.

Dooyeweerd (1979) uses the concept ground motive - in essence a more collective (communal) term to deal with the cultural forces that influenced major historical shifts in the western world; for example the spirit of ancient civilization, Christendom and modern humanism.

When studying the mission statements (often called philosophies) of different schools of nursing and of health services, it might be possible to identify the radix or heart overtly or covertly, depending on the willingness of and/or ability of the institution to convey these very "personal" or "deep" statements.

TABLE 1: An example from the model to illustrate the relationship between the different categories and the items listed in each category

LEVEL 2: PERSONAL QUALITIES

Category

Items

Ethical (moral)

For things (objects):

Uses according to guidelines

- Keeps clean
- Stores in correct place
- Uses according to purpose
- Understands functioning
- Keeps in working order
- Ensure adequate life span
- Instructs concerning storing of/functioning of/caring for
- Takes ethically accountable views concerning use

For self:

Realizes own professional values in behaviour

- Establishes personal professional appearance
- Uses scientific and pure language
- Applies principles of a healthy life style to self
- Applies ethically accountable viewpoints to self

For others:

Accepts notwithstanding their status or situation

- Develops a positive view of fellow human beings
- Supports as needed
- Handles feedback (criticism and compliments acceptably)
- Applies ethically accountable viewpoints to self and others

For ideas and values

Cares for patients irrespective of values and religious inclination

- Applies health values in daily practice
- Applies ethically accountable viewpoints to self, others, ideas and values

For the purpose of this study it was accepted that:

The radix or heart will influence all the following layers and thus be visible indirectly in the layers that follow; it cannot be measured directly; and basic and universal human values, rights and responsibilities be taken as the norm, for example goodness, justice, freedom, equality and respect for human beings (Packard & Ferrara, 1988).

Because of the unique nature of a person, the human being (as an individual or as a collective) is able to differentiate logically between right and wrong and thus function in the normative aspects (modalities) of life (Uys & Smit, 1985).

3.2.2 Personal qualities

These qualities form an integral part of every person but are very hard to identify and define. They relate to what the person is (Carter, 1985) and are either hereditary or acquired during life's journey. It remains educationally difficult to "develop" and foster these qualities in a would-be professional; reliable and valid evaluation of these qualities is also difficult. This should, however, not stop the educationist from becoming involved in the development and measurement of these qualities.

Such qualities can be divided into the following categories:

Mental - related to the ability of the human being to plan and execute mental or cognitive actions and which can be linked to receptiveness or open-mindedness, being quick on the uptake, and being creative;

Personality - focuses on unique and observable characteristics present in an individual over time and encompasses qualities such as integrity, initiative, diligence, and resilience; and

Ethical or moral - this category refers to the inherent ability of every human being to love and respect and to make responsible choices based on a certain framework:

- Objects (for example apparatus or the belongings of a client),
- The self (as a person and individual),
- The fellow person(s), and for other people
- Ideas or values.

Spiritual - moving from appreciation to responding to happenings and phenomena greater or more than human understanding and control, for example the birth of a human being.

3.2.3 Knowledge

Knowledge refers to information or data which the student already has assimilated and stored and which will be available for application in different situations.

The two main categories of knowledge are:

Theoretical or factual (where the student deals with concepts, structures, procedures and principles); and

Experiential - dealing with the processes of experiencing, internalizing and generalization of affective knowledge. The student for example will verbalize her experience(s) and/or apply them to different situations.

3.2.4 Skills

The ability to apply knowledge (more than just "knowing" on an experiential or theoretical level) is central to the practice of nursing.

Skills identified were:

High level cognitive (for example gathering and organizing data, as well as decision-making. These skills will be used especially (but not only) for interpersonal and psychomotor skills.

Interpersonal - moving from communicating to functioning together (partnership); and onto leading and client advocacy.

Psychomotor - here the student moves from a mere technical skill to a manipulative competency in a complex situation; and lastly to an expressive skill which is more than just functional, but also aesthetically pleasing.

4. IMPLEMENTATION OF THE MODEL

The researchers accepted the following guidelines in applying this model in practice:

All students and staff to be oriented thoroughly in different aspects of the model and application (for example in workshops, support groups, mentoring and individual discussions).

Students to become familiar with the model and application from their first year onwards.

To be used in all subdisciplines of nursing (General, Psychiatric and Community Health Nursing and Midwifery) and in both clinical and classroom settings.

Accepting the educational principle of moving from the simple to the complex where applicable (for example during skills development).

Accepting that students themselves, their peers, colleagues and professional nurses (educators, administrators and clinicians) can record incidents.

Students to be facilitated in the principles of report-writing on an ongoing basis.

The recording of incidents to make provision for:

Biographical data

- Date
- Classification of the incident (according to the criterion list)
- A description of the incident
- The result(s) of the intervention (incident)
- An indication whether or not the intervention was observed by its author (where applicable)
- An indication whether the intervention was conducted independently (without any direct or indirect involvement of another health worker) or dependently (with direct or indirect involvement of another health worker).
- Appropriate signatures

Students to be given an opportunity to discuss, defend and contest the incident report verbally and/or in writing -this opportunity would take place within a formative framework.

The incidents will be evaluated in a qualitative manner. The documentation to be translated onto an individual graph for each student (continuously from first to fourth year) to identify strong and weak areas in the different levels and categories (for developmental and remedial action) - this documentation can be computerized and analyzed at the responsible educational institution.

PART 2 IMPLEMENTING AND EVALUATING THE MODEL

In order to implement and evaluate the model the following information was obtained from professional and student nurses working in clinical practice:

- sociobiographical data;
- their opinion of the orientation course and workshop they attended to familiarize them with the model;
- their opinion of the use of the model;
- problems they experienced during the implementation of the model and recommended solutions;

- their opinion about the positive and negative influences of the model on clinical practice.

2. ASSUMPTIONS OF THE RESEARCH

- a) The questionnaires of the study were completed honestly, objectively and without prejudice.
- b) The orientation course and a workshop enabled the professional practising nurses and students to implement the model and to express their opinions about various aspects of the model.

3. RESEARCH DESIGN AND METHODOLOGY

A descriptive study in the form of a survey was carried out.

3.1 Unit of analysis

A decision was made in consultation with the chief nursing service manager and nursing service managers, to carry out the research in three training hospitals. Two surgical, two medical, two psychiatric and one obstetric ward and one community health clinic were selected in these hospitals. The existing staff (practising nurses and students) on day duty in the selected units were used as samples over a period of three months. The respondents varied from month to month because of staff changes. The student nurses were those following either the bridging programme or the four year basic diploma or degree course in nursing. The researchers decided to use the percentage of questionnaires received back from the total population of all the practising nurses and students working in the selected wards, as the unit of analysis.

4. RESEARCH TECHNIQUES

4.1 The data were collected during May, June and July of 1992.

4.2 Data collection instrument

Structured questionnaires were used as the nature of the data did not require penetrating interviews.

Questionnaire 1: applied to the practising nurses working in the selected units

Questionnaire 2: applied to the student nurses working in the same units.

4.2.1 Validity of the questionnaires

The researchers took the following steps to comply with the demands of content and face validity:

- The 9-member research committee was divided into two subcommittees who compiled a number of questions relating to the composition of the

questionnaires. Two preliminary questionnaires were constructed from these which were evaluated by the sub-committees.

- A combination of open-ended and closed questions was used.
- The questionnaires were completed in the selected units by the subjects in April 1992. These data were considered to be a pilot study. The respondents involved in the pilot study were asked to judge the questions for ambiguity and specificity. After studying the responses the wording and/or construction of a few questions were altered.

4.2.2 Reliability of the questionnaires

After the pilot study the researchers checked the questionnaires and unclear or ambiguous questions were corrected.

- The respondents remained anonymous, but units were identified by a code at the top of each questionnaire. The fact that the authorities had given written permission for the research also reassured respondents.

4.3 Data analysis

The SPSSx2 computer programme was used to determine unimodal and binomial frequency distributions.

5. PROGRESSION OF THE RESEARCH

The research consisted of a number of phases.

Phase 1

All interested parties such as senior nursing personnel from the training hospitals and the deputy director of nursing services in the Free State were orientated to the:

- problem areas of the present evaluation method;
- theoretical and philosophical foundation of the proposed model;
- contents of the model;
- manner in which the model was to be tested; and
- roles of the mentor and the student in this research project.

Phase 2

Two committee members were allocated to the selected units and in two cases only one committee member, in order to, serve as liaison, monitor the progress of the research and orientate and train the students and new staff members at the beginning of each month.

AGE IN YEARS	NUMBER OF RESPONSES		
	May (N=22) f (%)	June (N=29) f (%)	July (N=34) f (%)
17-24 year	6(27,3)	5(17,2)	2(5,9)
25-32 year	8(36,4)	13(44,8)	14(41,2)
33-40 year	7(31,8)	7(14,1)	11(32,4)
40 year	1(4,5)	4(13,8)	7(20,6)

The committee members had decided details of the training and orientation of the practising nurses and students. This was essential to ensure that everyone received the same information during orientation and workshops and contributed to validity and reliability of the research. Guidelines for writing incident reports were discussed in the workshop and skill in writing them was practised.

Phase 3

All practising nurses working in the selected wards were orientated also to the aspects in Phase 1. Since everyone was not available at the same time, three workshops were held and the following was emphasised:-

- the contents of the model;
- their role as evaluators of the students;
- the attitude with which evaluation and feedback should be conducted to enable the student to view it as a constructive experience;
- the factors that influence evaluator reliability and objectivity;
- writing incident reports; and
- the value to students of discussing their incident reports with them.

Evaluators were given opportunity in the workshop to write incident reports which were then discussed and were introduced to the committee members assigned to their wards.

Phase 4

Students allocated to the selected units were trained to evaluate themselves by the committee members at the beginning of each month. They were often guided in the wards. During the workshop they were orientated to the aspects set out in Phase 1. Great emphasis was again laid on:

- the attitude in which evaluation and feedback should be conducted to enable the student to view it as a constructive experience;
- the student's role as self-evaluator and the value of self-evaluation;

- the value to the student of discussing her incident report with a practising nurse.

Phase 5

The practising nurses and students assessed effectiveness of formative model as an evaluation method by means of structured questionnaires at the end of each month for three months. The wards were visited frequently by the research committee to clear up problems.

II DATA ANALYSIS

SECTION A: PRACTISING NURSES

1. SOCIOBIOGRAPHIC DATA

Age profile is shown in Table 2. The average age of each month's sample was between 24 and 41 years.

Professional registrations

Not all practising nurses in every month had all four basic professional qualifications. Only one respondent in June and July respectively had a qualification in nursing education.

Years of practice

The profile of years of practice in Figure 3 shows that more than half the respondents in every month had practised for more than four years after basic training. In May and June respectively only four respondents had practised for less than a year and in July only two.

Previous experience of evaluation

The graphic data in Figure 4 reflect that more than 65% of the respondents in the different months had had previous experience of evaluation. This experience was gained as part of their brief in the health care system in which they were employed.

2. OPINION OF PRACTISING NURSES OF THE ORIENTATION COURSE

According to Table 3 most of the practising nurses, with the exception of a few who were neutral, viewed the orientation course in the use of the model as a success.

3. USEFULNESS OF THE MODEL

Identification of appropriate incidents

Analysis of graphic data in Figure 5 shows that more than 55% of respondents every month found it easy to identify appropriate incidents about which to write anecdotal reports. This may be relevant to the fact that almost all of them had more than a year's experience in practice and that more than half of them had had previous experience of evaluation. Respondents who indicated that they had problems gave the following reasons:

- lack of experience of the use of the model (3 respondents)
- time constraints (7 respondents)
- negative attitude to evaluation (2 respondents).

Respondents suggested the following solutions to the problems mentioned:

- increasing experience in the use of the model;
- practising nurses should identify potential incidents with the student nurses;
- ongoing training in using the model.

Writing positive and negative reports

Ninety percent of the respondents every month wrote positive incident reports. Very few wrote negative reports (May: 3[13,6%], June: 8[27,6] and July: 9[27,2%]).

The reasons given for the small number of negative incident reports were:

- uncertain whether the incident was critical enough to report;

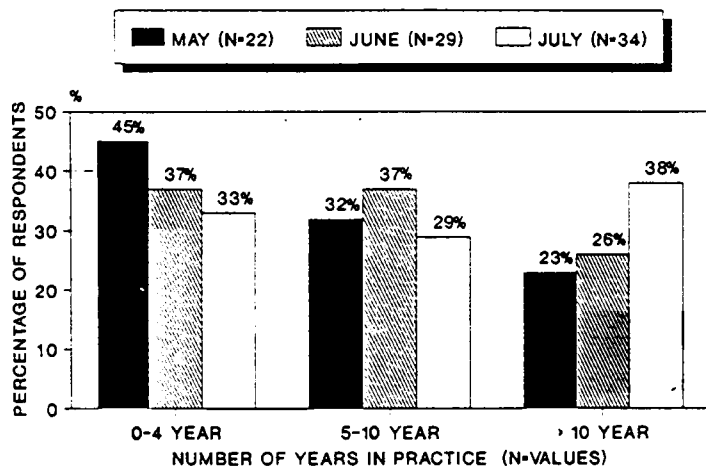


FIGURE 3: Graphic representation of the number of years in practice of practising nurses since completion of training

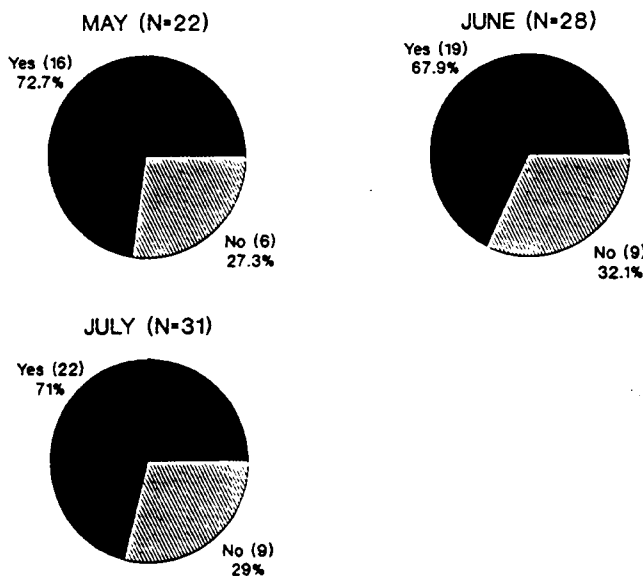


FIGURE 4: Practising nurses' experience of evaluation

TABLE 3: Practising nurses' opinions of the orientation course

OPINION OF THE ORIENTATION COURSE	N	Strongly agree 1 f(%)	Agree 2 f(%)	Neutral 3 f(%)	Disagree 4 f(%)	Strongly disagree 5 f(%)	Mo ^a	Me ^a
1. Aim of the project was clearly spelled out:								
• May	21	7(33,3)	13(61,9)	1(4,8)	—	—	2	2
• June	28	10(35,7)	16(57,1)	2(7,1)	—	—	2	2
• July	33	15(45,5)	16(48,5)	2(6,1)	—	—	2	2
2. Theoretical background contributed to understanding of the model								
• May	21	7(33,3)	13(61,9)	1(4,8)	—	—	2	2
• June	28	10(35,7)	16(57,1)	2(7,1)	—	—	2	2
• July	33	15(45,5)	16(48,5)	2(6,1)	—	—	2	2
3. Felt competent to write incident reports after the workshop								
• May	22	8(36,4)	14(63,6)	—	—	—	2	2
• June	28	8(28,6)	19(67,9)	1(3,6)	—	—	2	2
• July	33	10(30,3)	20(60,6)	3(9,1)	—	—	2	2

^aThe value of Median or Mode corresponds with the value of the response categories.

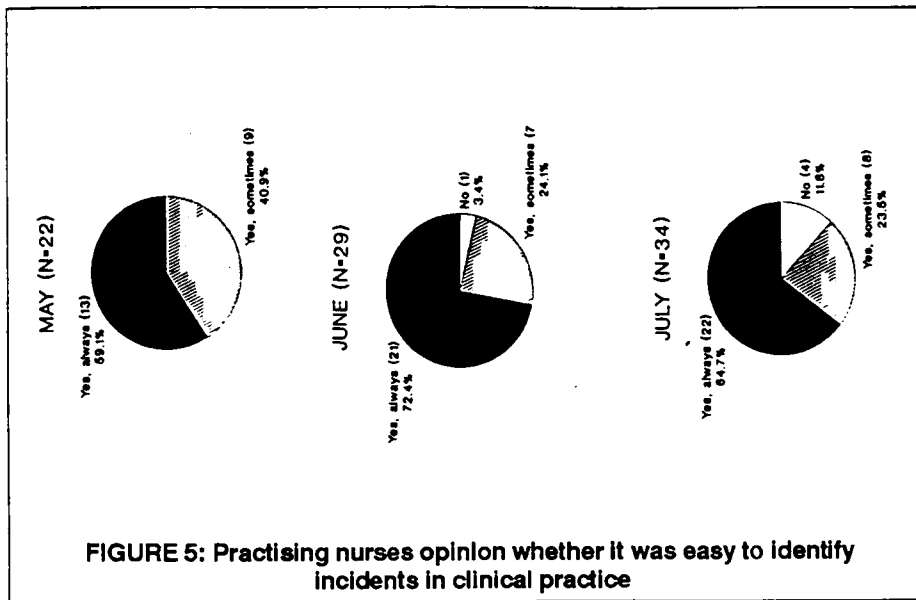


FIGURE 5: Practising nurses opinion whether it was easy to identify incidents in clinical practice

- preferred to avoid conflict with the student;
- unsure of the consequences to the student;
- unwilling to damage relationship of trust with the student;
- first discusses the incident with the student and documents it only if it is repeated;
- no negative incidents occurred.

Time spent writing incident reports

Writing an incident report took an average of six to ten minutes (May: 19[86,3%], June: 18[64,3%] and July: 24[70,6%]. No respondents in May, 4[14,3%] in June, and 5[14,7%] in July took longer than 15 minutes to write an incident report.

Time spent on feedback

An average of six to ten minutes were spent each month on feedback to a student.

Number of incident reports written and feedback given

Over the period of three months practising nurses wrote an average of two incident reports a week and gave feedback on them. An average of one report per student per week was written each month.

Clarity of concepts

Figure 6 shows that ongoing use of the norm list contributed to the fact that concepts became progressively more understandable.

The influence of the model

The practising nurses thought that implementation of the model influenced clinical practice to a greater or lesser degree. The researchers identified several spheres of influence from the responses to this

open-ended question and classified opinions accordingly. The research findings are summarized in Table 4.

Organization of unit

Table 4 shows some of the respondents indicated that using the model was time-consuming. However, previous data showed that only six to ten minutes were spent on an incident report and that an average of two reports a week were written. Feedback to the student took an average of six to ten minutes. This means that 12 to 20 minutes a week were spent on writing a report and giving feedback and perception of the time spent therefore does not correlate with the actual time.

Nursing care of patients in the ward

In the first two months more than fifty percent of the respondents indicated that the model had no influence on the nursing care of patients. However, more than fifty percent of the respondents in July thought that implementation of the model had enhanced standards of nursing care. It seems that

repeated use of the model made the practising nurses aware of its positive effect on nursing care.

Influence on student behaviour

It is evident from the data that the practising nurses thought that the model had a positive effect on the behaviour of students, in the sense that their attitude to nursing care improved, they were better motivated and evinced a better self-image and better behaviour. Most of the respondents every month indicated that the model had no negative influence on student behaviour.

Interpersonal relationships

In May and June an average of 60% respondents indicated that the model improved interpersonal relationships and communication between practising nurses and students. In July 80% of the respondents confirmed this trend. The fact that the model improved communication ensures a positive psychosocial climate within which the professional development of students can take place.

Problems with the implementation of the model

An average of 60% of respondents per month indicated that they had no problems with the implementation of the model. In June and July respectively only one person stated that there were always problems with the implementation. The rest of the respondents sometimes experienced problems (May 9[39,2%], June 6[20,6%] and July 10[29,4%]). The problem referred to was that the model was difficult to use because it was strange.

Solutions recommended by students

Solutions recommended for the problem were that:

- students be taught to use the model to evaluate themselves from their first year;

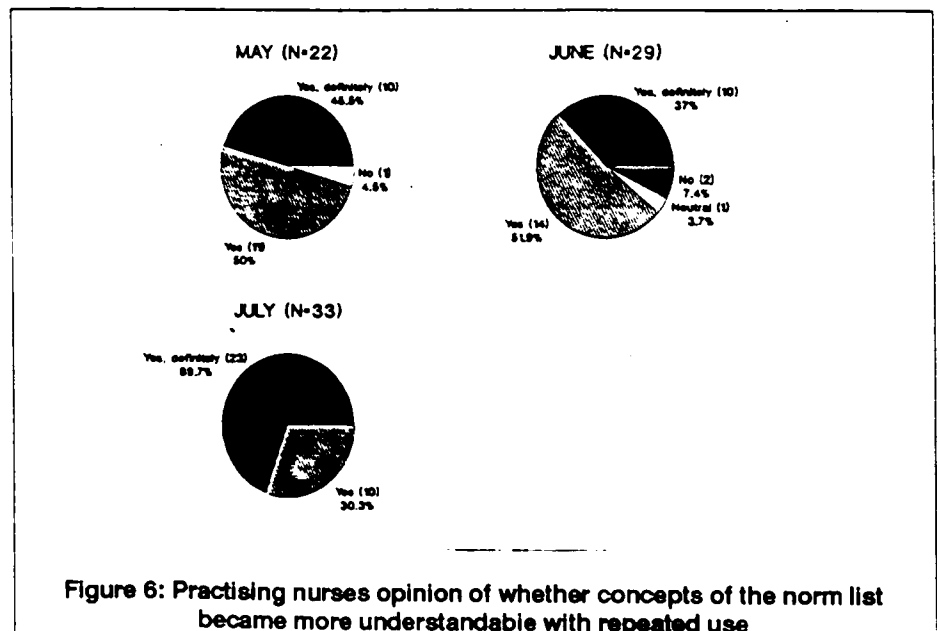


Figure 6: Practising nurses opinion of whether concepts of the norm list became more understandable with repeated use

TABLE 4: Practising nurses' opinion of the influence of the model

SPHERE OF INFLUENCE	NUMBER OF RESPONSES		
	May (N=22) f(%)	June (N=29) f(%)	July (N=34) f(%)
4.1 Organization of the unit			
Positive:			
• Optimizes planning of nursing care	1(4,6)	1(4,6)	6(22,2)
• Improves working conditions	1(4,6)	7(33,3)	5(18,6)
Neutral:			
• No influence/little influence	9(42,8)	8(38,1)	9(33,3)
Negative:			
• Time-consuming	8(38)	5(24)	6(22,2)
• Students do not cooperate	2(10)	1(3,7)	
4.2 Nursing care of patients in wards			
Positive:			
• Standard improved	5(25)	11(42,3)	18(64,29)
Neutral:			
• No influence	12(60)	15(57,7)	10(35,71)
• Not familiar enough with model to evaluate influence	3(15)	—	—
4.3 Positive influence on student behaviour			
Positive:			
• Shows good behaviour/better motivation/selfimage improved	7(29,2)	12(32,43)	15(35)
• Attitude improved	9(37,5)	10(27,04)	14(33)
• More willing to evaluate herself	5(20,8)	11(29,72)	8(18)
Neutral:			
• No influence	3(12,5)	4(10,81)	6(14)
4.4 Negative influence on student behaviour			
Neutral:			
• No influence	9(40,9)	17(58,62)	17(58,62)
Negative:			
• Students unwilling to evaluate themselves	7(31,8)	5(17,24)	8(27,6)
• Students feel threatened/deny negative incidents	2(9,1)	7(24,14)	3(10,34)
• Limited insight into model	4(18,2)	1(3,44)	
4.5 Relationship between students and practising nurses			
Positive:			
• Good/improved communication/improved atmosphere	14(87,5)	20(76,92)	28(96,6)
• Everyone gets a chance to put their case	—	1(3,85)	1(3,4)
• Students try to correct their mistakes	1(6,25)	2(7,7)	—
Neutral:			
• No influence	1(6,25)	3(11,53)	—

- students be motivated in order to obtain their cooperation;
- the model be used on an ongoing basis to improve skill and insight.

**SECTION B:
STUDENT NURSES**

1. BIOGRAPHIC DATA

Age profile

Table 5 shows that the average age of the respondents each month varied between 17 and 24 years. In May and June respectively there was only one student older than 24 and in July five students fell into this category.

TABLE 5: Age profile of student nurses

AGE IN YEARS	NUMBER OF RESPONSES		
	May (N=32) f(%)	June (N=41) f(%)	July (N=38) f(%)
17-24 year	31(96,9)	40(97,6)	33(86,8)
25-32 year	1(2,4)	3(7,9)	
33-40 year	1(3,1)	1(2,6)	
40 year	1(2,6)		

Previous experience of evaluation

The graphic data in Figure 7 show that more than 30% of the students had had previous experience of evaluation.

2. OPINION OF STUDENT NURSES OF THE ORIENTATION COURSE

Table 6 shows that, with the exception of a few students, most thought that the orientation course on the use of the model was a success. A minority group indicated that they understood the model but do not feel competent to write incident reports. Only one student in May indicated that the aim of the project was not clearly spelled out. A striking feature was that, in contrast to the practising nurses, more students were neutral regarding the question of whether the orientation course was successful. It seems that students require more guidance in the orientation course, particularly about writing incident reports.

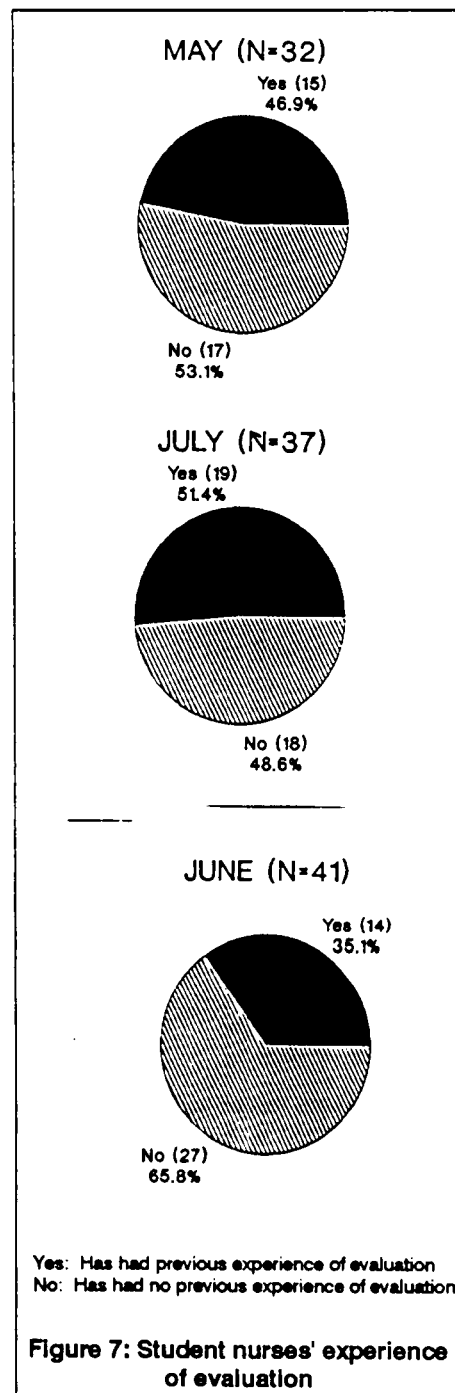
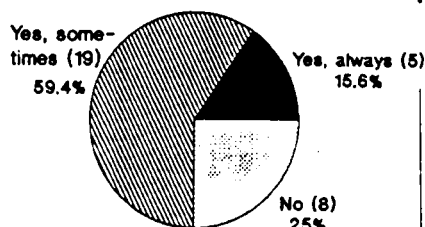


TABLE 6: Students' opinion of the orientation course

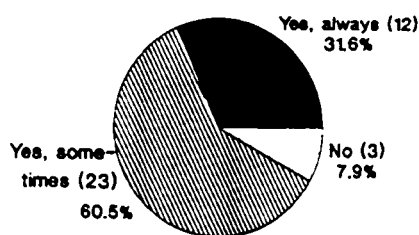
OPINION OF THE ORIENTATION COURSE	N	Strongly agree 1 f(%)	Agree 2 f(%)	Neutral 3 f(%)	Dis-agree 4 f(%)	Strongly disagree 5 f(%)	Mo ^a	Me ^a
1. Aim of the project was clearly spelled out:								
• May	32	15(46,9)	13(40,6)	3(9,4)	1(3,2)	—	1	2
• June	40	16(40)	22(55)	2(5)	—	—	2	2
• July	37	16(43,2)	18(48,6)	3(8,1)	—	—	2	2
2. Theoretical background contributed to understanding of the model								
• May	32	9(28,1)	19(59,4)	4(12,5)	—	—	2	2
• June	40	9(2,5)	22(55)	8(20)	1(2,5)	—	2	2
• July	38	11(28,9)	18(47,4)	8(21,1)	1(2,6)	—	2	2
3. Felt competent to write incident reports after the workshop								
• May	32	2(6,3)	20(62,5)	8(25)	2(6,3)	—	2	2
• June	40	5(12,5)	21(52,5)	10(25)	4(10)	—	2	2
• July	38	7(18,4)	20(52,6)	9(23,7)	2(5,3)	—	2	2

^aThe value of Median or Mode corresponds to the value of the response categories

MAY (N=32)



JULY (N=38)



JUNE (N=40)

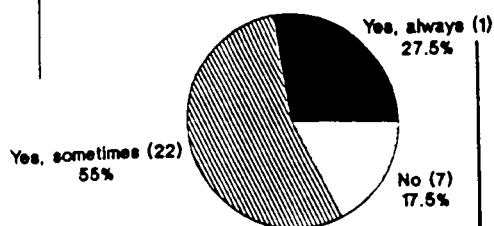


FIGURE 8: Student nurses' opinion of whether it is easy to identify incidents in clinical practice

According to Abbot and his co-authors (1988:219-223) student self-evaluation is a skill that develops gradually and independent self-evaluation must, therefore, be viewed by students as a long term goal.

3. USEFULNESS OF THE MODEL

Identifying appropriate incidents

Analysis of the graphic data in Figure 8 indicates that it was not always easy for students to identify appropriate incidents in clinical practice. This information confirms Abbot's findings that self-evaluation skills develop gradually in students.

Reasons given by students include inability to identify incidents, limited experience of self-evaluation and confusion regarding an extraordinary versus an ordinary incident.

Students recommended the following solutions:-

- the student should assume responsibility to obtain help from nurses/colleagues/lecturers, and a staff member should be allocated to students to help them in this regard.

Writing positive and negative incidents

More than 55% of the students every month wrote positive incidents. Negative reports were reflected as follows: May 11(34,4%); June 6(15%) and July 12 (32,4%). It appears that only certain students were prepared to document negative reports about themselves.

The reasons given by other students for not writing negative reports were that it was not easy to evaluate themselves negatively and no negative incidents occurred.

Time spent writing incident reports

At least 80% of students took less than ten minutes to write an incident report. Over 3 months, only 6 students took more than 15 minutes.

More than 50% of all students every month discussed their reports with a practising nurse. Lack of time was the most important reason why reports were not discussed with practising nurses. On the other hand more than 75% of students each month indicated that it took no longer than 10 minutes to discuss an incident report.

Over the period of three months students wrote an average of one incident report per week about themselves.

Experience and feedback

Table 7 shows that most students found feedback from practising nurses to be a positive experience. Only one student in May and two in July felt that the experience was negative. Some students received no feedback, and they experienced this negatively which concurs with Abbot *et al.*, (1988:222) who found that students prefer to receive feedback.

Students suggested the following to ensure that feedback is received:

- schedule a specific time for feedback;
- the practising nurse and lecturer should assume responsibility for feedback and the student should also accept responsibility in this regard.

Lucidity of concepts

Table 8 shows that constant use of the norm list contributed to the fact that the students

Generally speaking the students believed that the model improved interpersonal relationships and communication between them and the practising nurses. Only two students indicated that relationships were negatively influenced.

III RECOMMENDATIONS

Orientation

All practising nurses and students must be thoroughly orientated to the formative model and writing incident reports should receive special attention.

All those involved must be told that ongoing use of the model brings insight so that abstract concepts become clearer. This may result in the implementation of the model taking less time in the future.

The fact that students repeatedly use the formative model as a norm for self-evaluation ensures that they are reminded of the standards required of a professional nurse. The positive value of feedback to students must be brought to the attention of practising nurses. They must also be made aware of the importance of

TABLE 6: Students' experience of feedback by practising nurses on incident reports

EXPERIENCES	NUMBER OF RESPONSES		
	May (N=27)	June (N=27)	July (N=30)
	f(%)	f(%)	f(%)
Positive	11(40,7)	20(74,1)	23(76,7)
Negative	1(3,7)	2(6,7)	
Instructive	4(14,8)	2(7,4)	3(10)
Neutral	1(3,7)	1(3,3)	
No feedback received	10(27,1)	5(18,5)	1(3,3)

TABLE 7: Students' opinion of whether the concepts of the norm list became more lucid after repeated use

OPINION	NUMBER OF RESPONSES		
	May (N=30)	June (N=40)	July (N=37)
	f(%)	f(%)	f(%)
Yes definitely	3(10)	12(30)	11(29,7)
Yes	20(66,7)	19(47,5)	17(45,9)
Neutral	6(20)	9(22,5)	7(18,9)
No	1(3,3)	2(5,4)	
Definitely not	—		

found the concepts progressively more understandable. Compared with the practising nurses, students were more uncertain about the matter. A few indicated that this was not the case.

Problems with the implementation of the model

In May and June an average of 25% and in July 31% of students indicated that they sometimes experienced problems with the model. In May only one and in June two students stated that they always had problems with it.

The students recommended that they should be given more help with the implementation of the model and that the norm list should be more clearly described.

The influence of the model on student behaviour

Table 9 shows that the students thought that the model influenced their behaviour in the sense that their performance improved because their minds were more critically focused on their work. A contributing factor was the fact that they could take part in their evaluation, thereby improving their knowledge of themselves.

In contrast with the practising nurses the students believed that the model also had negative influences. The most important of these were that they found self-evaluation a negative experience, were too critical of themselves and that implementation of the model was time-consuming.

TABLE 8: Students' opinions about the influence of the model

SPHERE OF INFLUENCE	NUMBER OF RESPONSES		
	May (N=22) f(%)	June (N=29) f(%)	July (N=34) f(%)
1 Positive influences on student	(N=49)	(N=53)	(N=39)
* Improved service and performance	9(18,3)	10(18,9)	3(7,7)
* Self-evaluation/view personal performance critically	12(24,5)	10(18,9)	13(33,3)
* Can make personal contributions/state viewpoints/accept responsibility	5(10,2)	9(16,9)	6(15,4)
* Improved self-image	5(10,2)	4(7,5)	6(15,4)
* Given credit for work well done	7(14,3)	3(5,7)	1(2,6)
* Enriching/learn from experience	9(18,3)	13(24,5)	8(20,5)
* Promotes job satisfaction	1(2,1)	1(1,9)	2(5,1)
* Improves integration of theory and practice	1(2,1)	3(5,7)	—
2 Negative influences on student			
* Time-consuming	7(28)	14(43,7)	3(11)
* Tend to be too self-critical	2(8)	1(3,2)	13(48,1)
* Experience self-evaluation negatively	9(36)	8(25)	1(3,8)
* Feel that all incidents do not merit documentation	2(8)	2(6,3)	8(29,7)
* Feel they are constantly watched	1(4)	3(9,3)	2(7,4)
* Should not be forced to write	2(8)	—	—
* Encourages dishonesty	2(8)	4(12,5)	—
3 Relationship between students and practising nurses			
Positive:			
* Fosters goodwill and cooperation	12(44,5)	19(73,3)	20(66,7)
* Fosters communication	4(14,9)	1(3,8)	3(10)
Negative:			
* Tense	2(7,4)	2(7,6)	—
* Received no feedback from practising nurse	9(33,2)	4(15,4)	7(23,3)

evaluating a student negatively if the occasion arises. They must be thoroughly acquainted with the consequences of negative evaluation and the progress of a student and how important it is for the training school to obtain a reliable profile of a student's progress. A course in assertiveness may be offered to give practising nurses who express a need for it more self-confidence to discuss negative feedback with students.

Practising nurses must be made aware of how essential feedback to students is and they must be encouraged to give it preferably within a week. Positive and negative feedback must be given on an ongoing basis to promote students' personal development. By the same token students must be encouraged to discuss their reports with a practising nurse within a week. If necessary the student, in cooperation with the practising nurse, should consider remedial actions and set a deadline. Feedback to the student and the discussion that follows ensure that evaluation becomes a developmental process thus justifying the model as a formative instrument.

A consultant should be allocated to every ward as a consultant in implementation of the model.

The researchers recommend that more than one practising nurse should be assigned to evaluate each student as this enhances the reliability of evaluation. To ensure reciprocal feedback between students and practising nurses, a specific time should be set aside for the purpose every week. Uninterrupted training in the use of the formative model must be offered to first year students and new practising nurses. Workshops must be offered regularly to bring the skills and knowledge of all evaluators up to date and to keep them motivated.

Further utilization of the model

The strong and weak points of each individual student can be visually represented on a positive and negative diagram by, for instance, colouring in appropriate squares. Appropriate information can be visually represented month after month on the same diagram by using different matrixes. In this way a student's strong and weak points can be easily identified over a period of time. The visual representation may be done by means of a computer programme.

IV LIMITATIONS OF THE STUDY

Since no individual student or practising nurse was assigned a code, it was not possible to ascertain how the opinion of a particular person who used the model repeatedly, changed over a period of three months.

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