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Critical thinking: A two-phase framework

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Summary This article provides a comprehensive review of how a two-phase framework can promote and engage nurses in the concepts of critical thinking. Nurse education is required to integrate critical thinking in their teaching strategies, as it is widely recognised as an important part of student nurses becoming analytical qualified practitioners. The two-phase framework can be incorporated in the classroom using enquiry-based scenarios or used to investigate situations that arise from practice, for reflection, analysis, theorising or to explore issues.

This paper proposes a two-phase framework for incorporation in the classroom and practice to promote critical thinking. Phase 1 attempts to make it easier for nurses to organise and expound often complex and abstract ideas that arise when using critical thinking, identify more than one solution to the problem by using a variety of cues to facilitate action. Phase 2 encourages nurses to be accountable and responsible, to justify a decision, be creative and innovative in implementing change.

Introduction

To deal effectively with rapid change nurses need to become skilled in higher-level thinking and reasoning. Critical thinking is relevant to nursing practice and can be used when situations or problems arise whereby there is no definitive answer or make it easier to find solutions. There is not always theoretical evidence to support practice, therefore, nursing needs to incorporate into its practise critical thinking processes to provide new answers to practical questions, which may not be answered with traditional research methods. Everyday nurses sift through an abundance of data and information to assimilate and adapt knowledge for problem clarification in an attempt to find solutions. Nurses needs to be able to come up with solutions, make decisions, solve unique and complex problems.

Critical thinking is essential and plays an important part of developing qualified nurses; lecturers need to interpret the often-complex issues in

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relation to practice. The explanations of critical thinking processes outlined in the literature are often complex. However, through analysing them from the stance of a two-phase framework may facilitate nurses' understanding of critical thinking and facilitate integration of concepts with other forms of knowledge, experience and use it to enhance patient care.

Inter-relating concepts in critical thinking

Rodgers (1989) suggested that when a definition or attributes of a concept are not clear, the ability of the concept to assist in fundamental tasks is greatly impaired. The concepts that inter-relate with critical thinking are critical, analysis, thinking, synthesis and creative. Explanations of these inter-relating concepts can be viewed in Table 1. Articles on critical thinking are often written in a language, which most nurses find inaccessible or they use complex language or jargon, and are not easily understood by many practising nurses. By using a two-phase process of critical thinking provides the practical perspective that nurse's find useful, relevant and enable them to start to view the links between the various concepts (e.g. critical, thinking and creative) under scrutiny.

The difficulties of critical thinking

The difficulties related to implementation and use of critical thinking in practice situations are the differing concepts used to explain it, the inclusion of models, mind maps and cycles and the complexity of terms used in the literature.

The variety of concepts used to explain critical thinking

The experts and critical thinking theorists, such as Watson and Glaser (1980), McPeck (1981), Facione (1990), Boychuck Duchscher (1999) and Simpson and Courtney (2002), all generally define critical thinking as including analysis, evaluation, and inference. In addition, Bitner and Tobin (1998) used interpretation, explanation, and self-regulation as central to critical thinking. The nursing literature discusses clinical decision-making, therapeutic judgement, diagnostic reasoning,

Table 1 Definition of the concepts in critical thinking

Concept	Definition
Critical	• Often associated with faultfinding, criticism, exercising negative judgement • Uncovering hidden assumptions, individual values and beliefs, opinions. • Positive role to enhance the position of an argument • Situations, practices and innovations can be interpreted, judged and preferred choices determined to bring about change
Thinking	• A mental process whereby all the sorting and organising of information takes place • The formation of patterns is logically assembled, in the mind or on paper • It is not a method that can be learned, but a process, an orientation of the mind • It is the ability to consider all possible descriptions of a problem or situation and includes other people's perspectives • The thinking process considers individual assumptions and past experiences and then to expand perspectives by continual questioning
Analysis	• Breaking down of material into parts • Discovering the relationships between the parts • Searching for and identifying evidence, and interpreting that evidence following a detailed examination
Synthesis	• Once all sources have been identified, summarised and critiqued the abstract summaries begins to create a synthesised product. • Identify common ideas within selected areas • Sort all the ideas into reasonable divisions — conceptual thinking of ideas/solutions until they become organised • What might be the result of implementing the different ideas/solutions? • What changes could be made? • How would people adapt/cope?
Creative	• Creativity is drawn from all of the above and is the ability to generate from them new ideas by combining, changing, or making additions to existing ideas • Implementation of the decision/solution which may involve changing, refining or developing something new

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problem solving (Brigham, 1993) and reflective practice. The variety of differing concepts outlined in the literature leads to some confusion. These theorists tend to use critical thinking interchangeably with other terms that are components of critical thinking, but cannot be fully explained by them (Hickman, 1993).

Critical thinking has been explained as 'reflective thinking' by Brigham (1993), whereas others suggest that critical thinking is not reflective practice (Simpson and Courtney, 2002). Tanner (1993) proposed that critical thinking is often conceptualised as something that is not, such as reflective practice, but nor is it just problem solving or the nursing process.

Problem solving is a process to help find a problem and then resolve the problem. Critical thinking goes beyond this. Clinical decision-making sets about to resolve issues of a clinical nature, and as such does embrace a component of critical thinking. There is no doubt that skills nurses need to provide quality-nursing care include problem solving and decision-making (Raymond and Profetto-McGrath, 2005). The combination of knowledge and imagination is required for both and there is evidence of a natural marriage between problem-solving, decision-making and critical thinking.

However, the use of problem solving is not sufficient or representative of the broad range of critical thinking processes required. This confusion between critical thinking, reflective practice and decision-making may be one of the reason why critical thinking processes and models (Dreyfus and Dreyfus, 1985; Benner, 1984) are not applied to clinical practice.

Critical thinking in the literature is explained in many diverse ways. Clark-Birx (1993) outlined the processes of critical thinking. Walters (1986) identified four general characteristics of critical thinking. In comparison, Alfaro-LaFevre (1999) described critical thinking in nursing to include seven components. Daly (1998) reflected certain unique elements of critical thinking. All of these areas outlined by the various authors are summarised in Table 2.

There is a great diversity between the four scholars' views, but commonalties are apparent, yet the terms used are complex and not very explicit. A consequence of this diversity is a lack of consensus, which has contributed to the confusion, misunderstanding and misuse of critical thinking (Raymond and Profetto-McGrath, 2005). The construct of critical thinking is neither clearly understood nor systematically applied to clinical practice situations simply by using such terms and phrases. However, these differing concepts, characteristics, components, elements and processes used to explain critical thinking might serve to improve educators, practitioners and students' understanding of critical thinking.

The inclusion of mind maps and models

Kataoka-Yahiro and Saylor (1994) outlined a model in the form of a diagram to represent critical thinking for nursing judgement, which defines the out-

Table 2 The differing interpretations of critical thinking

Walters (1986) four characteristics	Alfaro-LaFevre (1999) seven components	Daly (1998) identifies elements	Clark-Birx (1993) outlined the processes
1. A method of problem solving 2. An essential component is analysis 3. Opinions or problems amenable to analysis 4. Purposeful mental activity that helps to formulate or solve problems, make decisions, or fulfil a desire to understand	1. Purposeful, outcome-directed thinking 2. Is driven by patient, family and community needs 3. Is based on principles of the nursing process and scientific method 4. Requires knowledge, skills and experience 5. Guided by professional standards and ethics 6. Requires strategies that maximise human potential and compensate for problems created by human nature 7. It is constantly re-evaluating, self-correcting, and striving to improve	• Associated with knowledge • Cognitive skills • Complex reasoning • Argumentation • Beliefs • Action • Problem identification • Evidence • Envisioning of alternative frames of references and possibilities	• An attitude of openness and inquiry, • knowledge and clinical experience in nursing, • Meta-cognition, meta-theoretical reflection • The integration of multiple levels of theory, • Perspective taking, empowerment

(Edwards, 2003).

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come of critical thinking to be that of clinical judgement. These could be relevant to nursing problems in a variety of settings. The model by Kataoka-Yahiro and Saylor (1994) underscores the view that the nursing process alone is not an adequate conceptualisation of critical thinking. In contrast to the use of a model Daley et al. (1999) described a study that implemented concept maps as a methodology to teach and evaluate critical thinking, whereas, Daly (1998) used a cycle as a method of interpreting critical thinking.

These models, mind maps and cycles could serve to significantly improve practitioners and students' critical thinking abilities, and could have implications for nurse education to facilitate the development of a students' capabilities (Edwards, 2003).

The complexity of the literature

One of the major difficulties of critical thinking is the literature in relation to it is generally considered too complex, theoretical and does not relate to clinical practice. This so-called theoretical rationality is often made up of language and jargon, which is often inaccessible to many practising nurses (Rolfe, 2000). Nursing research or theoretical articles on critical thinking are often written in a language, which most nurses find obscure (Edwards, 2003). The practical perspective that nurse's find useful, relevant and enables them to integrate theory into practice are comparatively little and few seem to fulfil this requirement.

Another difficulty is in the literature there is no single widely accepted view of critical thinking except in its value to nursing and clinical practice. There have been many writers who have contributed to the plenitude of definitions and interpretations of critical thinking (Facione, 1990; Boychuck Duchscher, 1999; DeYoung, 2003). There is increasing evidence to suggest that critical thinking is most likely to occur, and continue, when it is supported by others, repeatedly practised (Mottola and Murphy, 2001) and linked into the context of practice situations (Bandman and Bandman, 1988). Yet, some discrepancy exists as to whether or not critical thinking is an innate ability, progressive learning ability/skill (Daley et al., 1999), a scholastic attitude (Daly, 1998) or a collaborative process (Ulsenheimer et al., 1997).

The important first step of establishing a clear set of explicit concepts that encourages growth of critical analytical thinking in students and clinical practitioners has not yet been accomplished.

Developing critical thinking

The professional bodies in nursing are promoting the concept of nurses being analytical practitioners who are able to demonstrate critical thinking in the clinical setting (Robert and Ousey, 2004). Enquiry based learning (EBL) and problem based learning (PBL) are highly regarded and promoted as effective teaching and learning processes, two umbrella terms, under which a variety of teaching and assessment methods flow (Table 3). EBL and PBL are both necessary as not all nursing can be defined as a problem, it may just be simply an enquiry to find out more about a patient's condition. Therefore, it is suggested both EBL and PBL are essential to take nurse education forward (Wray et al., 2004).

Similarly, critical thinking is widely recognised as an important part of nursing and equally essential to nurse educators, students and practitioners. Indeed, lecturers are encouraged to use EBL/PBL to actively engage learners to participate in explor-

Table 3 Developing critical thinking using EBL and PBL techniques

Teaching styles and methods under the umbrella term — EBL	Assessment techniques under the umbrella term — EBL
• Computer simulation • Virtual reality • Discussion/debates • The use of triggers • Poetry/arts • Seminars • Critical incident analysis • Reflective practice/portfolios • Student determined case studies/scenarios/real life situations • Lecturer determined case studies/scenarios • Questioning in the classroom • Lecture	• Self and peer assessment/review • Poster presentations • Students setting own assessment / marking guidelines/criteria/exams for modules • Teaching sessions/presentations/workshops

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atory ways in their learning, to encourage new ideas, to assist students to attain the skills necessary to think critically, so that deep learning occurs (Roberts and Ousey, 2004). The two-phase framework presented facilitates incorporation of critical thinking and embraces the values of both EBL and PBL. A different type of practical framework embedded in its usefulness to students, practitioners and lecturers emerges.

A two-phase framework for critical thinking

This framework suggests that critical thinking includes all areas outlined in the literature, but for simplicity is split into two phases (a summary of the two phases with explanations is given in Table 4). Ultimately critical thinking needs to be cultivated, developed, learned and practised, all of which can be achieved through incorporating this two-phase framework, presented diagrammatically in Fig. 1.

Phase 1 attempts to bring to lecturers, students and practitioners a process that can be used to guide practice situations in the classroom encouraging students to make informed decisions and develop independent thinking and judgement. The framework can facilitate lecturers to guide students/practitioners to make sense of their nursing practice and for them take it away and incorporate critical thinking into their everyday practice.

Interpret and organise the information

The first part of this two-phase model emphases that the nurse initially should interpret and organise the information. Continuously give descriptions of the situation, problem or issue to be explored and begin to logically assemble the information in the mind or on paper using a concept or mind map starting with a broad concept linking words that are interrelated and connected. If possible at this stage the student should be encouraged to apply a systematic, organised and diligent approach to the situation (but equally a disorganised and abstract format is also satisfactory at this time).

Hidden assumptions

The second part of phase 1 is to decide what are the hidden assumptions. Individuals including patients/nurses hold beliefs, values and attitudes that are held solely by those individuals. These values may be opposite to your own beliefs or interests and therefore need to be expressed and aired (Edwards, 2003). It should never be assumed that there is always a match between the patient and nurse with regards to situations that occur in practice (Box 1 — Model case 1).

In this scenario Mildred might be using her cat as a shield to hide her fear and anxieties about her condition, but this will not be known for certain until after arrangements are made for feeding Misty.

Identifying hidden assumptions requires students to be critical, not just faultfinding, criticism or exercising negative judgement. Critical also includes use of a more positive role to enhance the position of an argument (Edwards, 1998). It is about being open-minded so that situations, practices and innovations can be interpreted, judged and preferred choices determined to bring about change.

Nursing knowledge (both objective and subjective)

The use of nursing knowledge involves looking for evidence, which may be either theoretical from other professions such as pharmacology; psychology or physiology often found in books or journal articles. Critical thinking according to Clark-Birx (1993) is an ongoing process in using theory to guide clinical practice.

It incorporates the use of empirical research, utilising both qualitative and quantitative approaches. There is no doubt that research needs to inform practice. This ability requires a nurse to be able to discriminate relevant from irrelevant, to consider multiple facts and data from a variety of sources, to analyse these facts, data and derive plausible consequences from them. This involves inductive reasoning an ability to consider all of the possibilities, and deductive reasoning the simultaneous 'weeding out' of possible solutions while obtaining data (Marks-Maran and Rose, 1997).

In addition, ethical knowledge is required. Ethical knowledge applies not just to life or death situations (about withdrawal of treatment or, when to and when not to resuscitate). Ethical knowledge is also about everyday issues (Neville, 2004) encountered in clinical practice (such as should you take the patient requesting to go to the toilet first, or change and clean the patient who has been incontinent in the bed). It is about moral knowledge, decision-making and prioritising. It includes what is good, right, and responsible, and involves confronting conflicting values. In ethical knowledge there may be no satisfactory answer to the dilemma.

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Table 4 A summary of the main areas outlined in the framework

Phase 1	
1. Interpretation and organisation of the information	• Descriptions of the situation or problem • Logically assemble the information in the mind or on paper • Use a concept or mind map starting with a broad concept with linking words that are interrelated and connected • If possible attempt to be apply a systematic, organised and diligent approach to the situation (disorganised and abstract is also satisfactory at this time)
2. Hidden assumptions	• What are these? • Values, attitudes and beliefs held by all those involved, are they opposite to your own beliefs or interests • Consider positive and negative judgements that might be included • Try to be open-minded
3. Nursing knowledge involved (both objective and subjective)	• Look for the evidence theoretical/research • The ethical principles involved • Knowledge from past experiences (personal or professional) • Practical knowledge/skills • What are your gut feelings about this use your intuition
4. Breakdown the situation/ information into parts	• Is there a relationship between the parts • How does one effect the other • Analysis – examination of the ideas/arguments and possible courses of action
5. Consider all of the options	• Include other people's views / perspectives • Continual questioning of the issues involved • Consideration of all of the possibilities • Flexibility – view the situation in many different ways with a variety of ideas • Be inquisitive curious, courageous about asking questions to obtain all of the information
6. Are there any conflicting issues	• What are they? • Nurse – patient • Professional – ethical • Nurse – nurse/doctor – nurse/other HCP – nurse • Air the concerns with each other • Team-working, communication, negotiation skills to resolve conflicts
7. Consider all of the options, again, synthesising of ideas	• Try to make sense of the muddle that is formulating in your mind or on paper • Put them in some type of order with the preferred solution and consider the consequences of one decision over another • Delete the ones that no longer apply or there are no resources, can never happen • What is the best way forward and why?
8. A decision has to be made	• A decision/solution/conclusion has to be reached • Self-confidence and trusting own reasoning when making decisions/solving problems
Phase 2	
9. Defending the decision	• A reason why that decision was made • How the decision was reached • Has to be explained how the decision was arrived at • Justification has to be given
10. Accountability and responsibility for the decision made	• Taking/accepting responsibility for the decision that has been made • Being accountable legally, ethically and professionally
11. Evaluation of the process	• Critical reflection/reflective practice • Self-regulation/changing practices in the light of new insight and knowledge • Correcting oneself if found to be wrong • Learning from the situation/process/action plan for future learning needs • Personal learning and continuous professional development (CPD)
12. Creativity and innovation	• Implementation of the decision/solution • Implementing change, doing things in a different way being creative and innovative (may go back to the start) • Changing, refining or developing new policies/procedures • Moving practice forward, doing things differently due to knowledge gained

Tanner (2000) proposed a way to think about and examine some of the central questions about the nature of the nurses role and knowledge needed to be effective in that role. This involves cognitive interpretation of problems using both objective and subjective data relating to care. Therefore,

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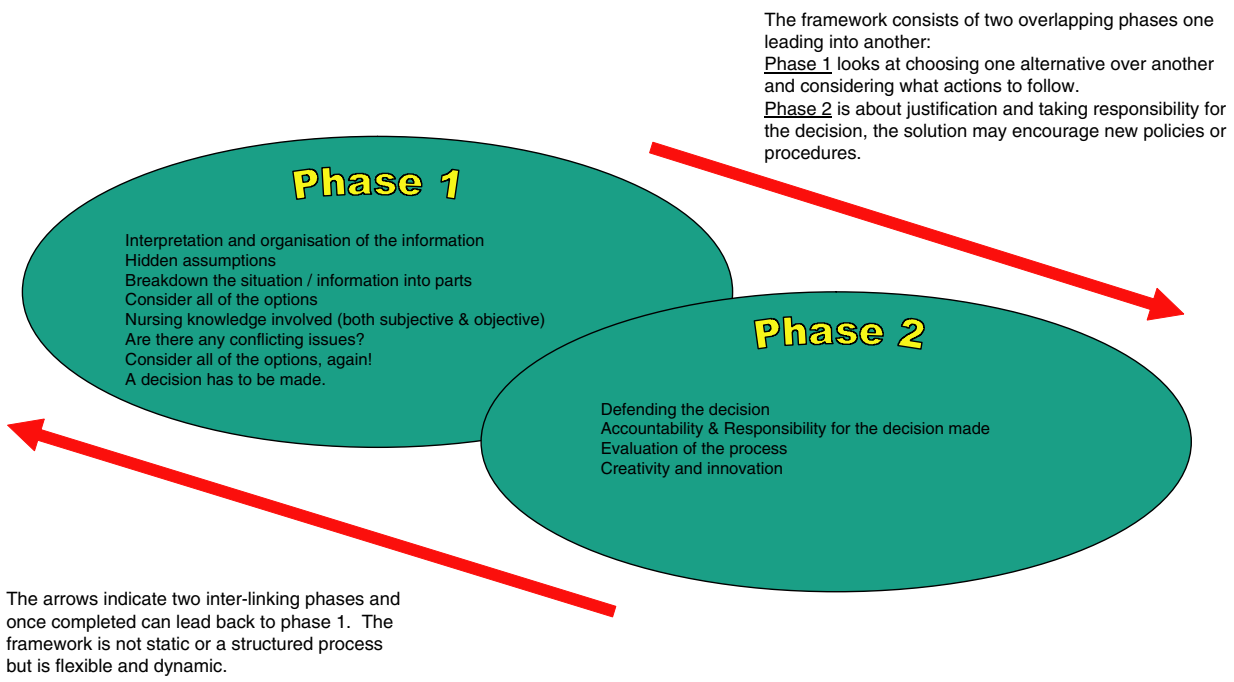

Figure 1 A Two frame work for critical thinking.

Mildred is a 62-year-old lady admitted to the ward for unstable angina. Her blood pressure is high and she is complaining of chest pain. Mildred is given sublingual GTN, which relieves the pain. She is very anxious which could increase her blood pressure, heart rate and consumption of oxygen. It is assumed that Mildred is concerned regarding her condition and the pain. After administering some analgesia, Mildred is interviewed about her social needs and life style to find out that she is not particularly concerned about her condition at all, but her cat at home. She needs to inform the neighbour quickly so that Misty can be fed while she is in hospital.

Box 1 Model case 1.

there are other types of knowledge that nurses can draw on when using critical thinking in addition to theory, research and ethical.

There is no doubt that nursing students not only need to understand the benefits of science but also need to see the value of their clinical practice skills, personal and professional experience (Clarke, 1999). The ability to think critically and come up with clinical decisions is a composite of cognitive, clinical skills and experience (Edwards, 2003). In Carper's (1978) article she identified ways of knowing that nurses and nursing depend on. She advocated that nursing needs to use a variety of ways of knowing when caring for patients. Carper (1978) incorporated personal, practical and intuitive knowledge and granted them equal to theory, research and ethical knowledge. Her ways of knowing compare with other authors explanations of nursing knowledge such as the 'know how', 'know that' and experiential knowledge outlined in Benner (1984) and Burnard's (1987) work. The view of using a variety of knowledge is incorporated and encouraged when using this two-phase framework.

This includes practical knowledge as part of critical thinking outlines the importance of expert practice and the motivation to care. Practical knowledge acknowledges the importance of the art of nursing (Rolfe, 2000). Nurses need to use experiential knowledge both personal and professional (Edwards, 2002). Experiential knowledge includes gaining inner personal meaning from life

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experiences. Nurses have personal experiences such as having a baby, bereavement or a close member spending a period of time ill in hospital. These experiences develop experiential learning, which can form part of an individual nurse's knowledge to draw on in clinical situations. It is also knowledge that is gained from the experience of professional practice. Nurses have many clinical experiences during their years in practice, and it is these that can inform future practices when similar situations are met.

Intuitive knowledge is also essential. It does not emanate from books, journals, lectures, or academic conferences. It is about 'we know more than we can say' (Polyani, 1966), or 'understanding without rationale' (Benner and Tanner, 1987). Intuition or tacit knowledge is widely accepted within nursing (Marks-Maran and Rose, 1997). Intuition has been cited as an integral part of nursing clinical practices (Benner and Tanner, 1987). It helps to develop creativity and often it is not directly communicable in language it is a hunch, gut feeling (Effken, 2001; King and Appleton, 1997).

The use of a variety of knowledge is necessary when using the two-phase framework. Through this framework a critical thinking nurse is encouraged to use practical, experiential and intuitive knowledge. It is rarely accorded the value it deserves, but it is a large part of nurses' own special skills, experiences and knowledge about nursing.

Breakdown the situation/information into parts

This part of phase 1 involves breaking down of the situation/problem/area of inquiry into parts. It involves analysis and an examination of ideas/arguments and possible courses of action. Discovering the relationships between parts. Searching for and identifying evidence, and interpreting that evidence following a detailed examination. How does one effect the other? (Box 2 — Model case 2).

What are the parts to this scenario? First, knowledge: identifying the evidence, literature, and your own intuition, practical experience. Second, will the experience cause the child long-term harm? The issues of do good and no harm are linked to this, allowing the child to visit could do her good and no harm, but equally do her no good and harm. Third, what are other people's views, ideas, and arguments for and against allowing the child to visit? A clearly thought out phase, in this way, will ensure a detailed examination of all issues.

Consider all of the options

In this part of the critical thinking framework it is important to be flexible and include other people's opinions, including the patients and relatives views/perspectives on the situation. What is required is an ability to view the situation in many different ways with a variety of ideas. In addition, continually question the issues involved, which is imperative. Ask yourself and others for confirmation or contradiction so other areas can be considered. This allows for all possibilities to be considered fully, be inquisitive and curious when asking questions. It should not matter at what level the individual is (medical consultant or director of nursing) and to whom the questions are being asked. This is about being courageous to obtain all the information.

Are there any conflicting issues

Conflict may arise in clinical practice for example giving a patient a prescribed brandy and that of health promotion and illness. It could be that conflict occurs between a professional and ethical principles (Edwards, 2003). These conflicts may also occur between professionals', e.g. nurse and doctor whose ethical principles and values may differ. There is always an issue of quality of care, which may in its self-create conflict. In these instances, one nurse may have to compromise his/her own beliefs. Sometimes the processes of critical thinking have to be undertaken quickly and

An incident occurred whereby a young 6-year child wanted to visit her mother who was immediately post operative and acutely ill on one of the wards. The hospital policy does not allow children under the age of 12 to visit 12 hours post-operatively. The child was in the visiting area crying, screaming, and very distressed at not being able to see her mother.

Box 2 Model case 2.

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decisively, the decision then has to be adhered to, despite it being opposite to your own beliefs or interests. In these types of conflict there has to be an element of trustworthiness in relation to caring and working as a member of a health care team.

The conflicts observed in the critical thinking process can be problematic, but need to be acknowledged. Critical thinking sometimes cannot resolve all issues, but a decision has to be made on sound ideas and firm arguments. In the end it comes down to good team-working, communication, and negotiation skills to resolve these conflicts

Making sense of the information

It is now important to try to make some sense of the increasing muddle that is formulating in the mind or on paper. Begin to put them in some type of order with the preferred solution and consider the consequences of one decision over another. Delete the ones that no longer apply or there are no resources for, or can never happen. What is the best way forward and why?

A decision has to be made

Many decisions are made in practice, which may not have been fully thought through. The two-phase framework of critical thinking dictates that on assessing all arguments a conclusion has to be reached (Tanner, 2000). The decision, solution/findings or conclusion may not change after going through the critical thinking process, however, the decision is clearer and more logically thought out and it is certain for everyone involved (including the patient) that it is the right decision as all the options have been discussed. At least a detailed process of thinking about the situation and issues involved has taken place. Those involved need to feel confident and learn to trust their own reasoning when making decisions/solving problems (Box 3 — Model case 3). Fig. 2 gives a mind map of phase 1 using the model case below.

Phase 2 of the framework is once the decision has been made it has to be defended the reasoning behind the decision explained as to how it has been arrived at? In addition, the use of creative thinking is incorporated. Creative thinking is the ability to generate new ideas by combining, changing, or reapplying existing ideas. Implementation of the decision/solution may involve change, such as changing, refining or developing something new.

Defending the decision

A reason why that decision was made and how the decision was reached has to be given. An explanation has to be available as to how the decision was arrived at and justification has to be known. Kurfiss (1988) acknowledges the process of justification in critical thinking in a definition:

'an investigation who's purpose is to explore a situation, phenomenon, question, or problem to arrive at a hypothesis or conclusion about it that integrates all available information and that can therefore be convincingly justified'.

Accountability and responsibility for the decision made

Another facet of critical thinking is that of accountability and responsibility for the decision made (Simpson and Courtney, 2002). Those involved in the decision have to take the consequences for that decision if found to be wrong. Taking/accepting responsibility for the decision that has been made and being accountable legally, ethically and professionally demonstrates the importance of ethical knowledge in critical thinking.

Evaluation of the process

When integrating critical thinking into practice (Clark-Birx, 1993; Conger and Mezza, 1996) the situation has to be evaluated (Oermann et al., 2000; Daley et al., 1999) expounding the trustworthiness

Jaya was a 25-year-old Philippine women admitted to critical care following a difficult birth of her baby girl. She developed a massive pulmonary embolism (PE) required intubation and later developed adult respiratory distress syndrome (ARDS). Her condition had been determined as critical, she was unconscious and not responding, she would not survive. Should her new-born baby be allowed to visit her before she died?

Box 3 Model case 3.

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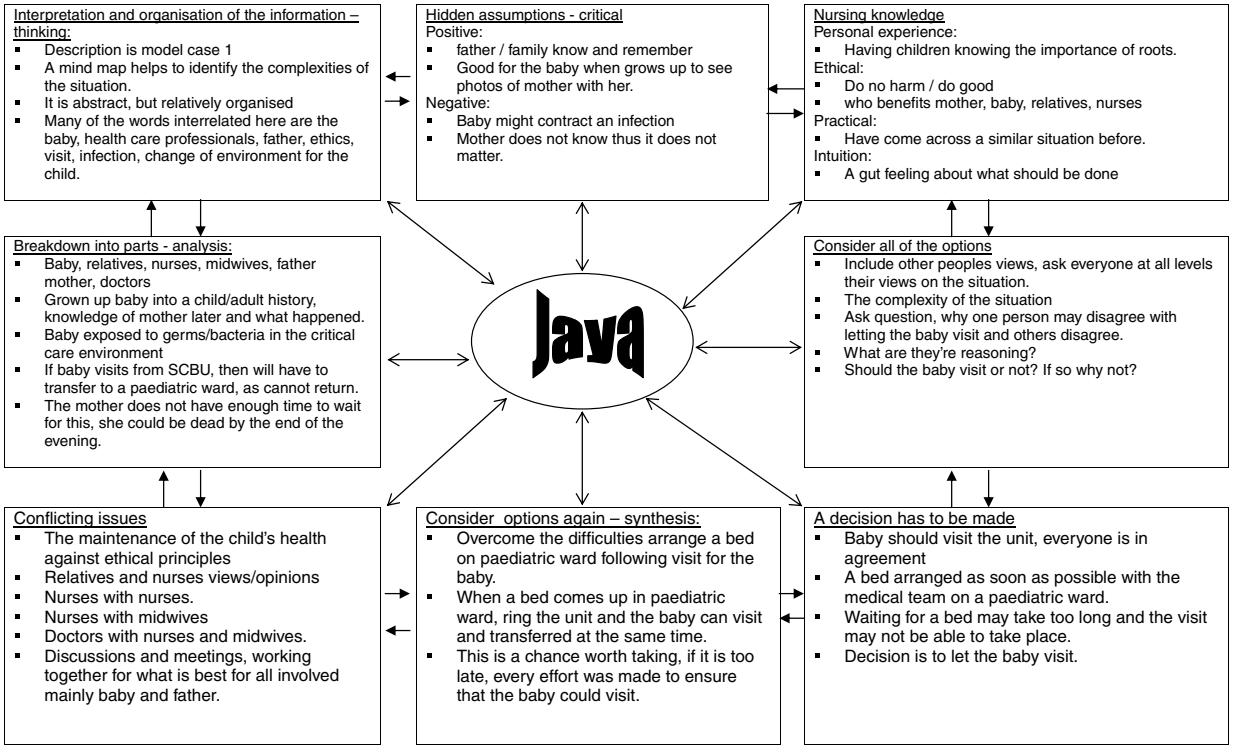

Figure 2 Example of using part 1 of the two-phase framework for critical thinking.

of colleagues, and relevance to the situation. Being a critical thinker demands evidence and application of reason, which might initially be abstract in the mind or on paper, but the two-phase framework later, facilitates organising the information and a diligent approach to solutions to problems or issues despite their complexity.

The process of evaluation encourages self-regulation, monitoring of own thinking — correcting oneself if found to be wrong, and can be where reflective practice overlaps into the critical thinking process (Baker, 1996). The evaluation process advocates learning from the situation and developing an action plan for future learning needs. It includes personal learning and continuous professional development (CPD).

Creativity and innovation

Implementation of the decision/solution may involve change, doing things in a different way, being creative and innovative (may even go back to the beginning or middle of phase 1). It may involve changing, refining or developing something new such as a policy or procedure. Creativity is the ability to generate new ideas by combining, changing, or reapplying existing ideas (Harris, 1998).

Critical and creative thinking can generate simple, good, practical ideas that no one seems to have thought of yet. It advocates that critical thinking is dynamic and serves to continually improve ideas and solutions by making gradual alterations. Ultimately, it is about moving practice forward and developing something new to us due to knowledge gained.

Critical thinking and the future

The development of these cognitive processes encourages the individual to become open-minded, consider alternative perspectives, and respect the right of others to hold different opinions (Clarke and Holt, 2001). It is about equipping nurses with the tools needed for independent and life-long learning.

The nurse in the 21st century needs to be inquisitive curious and enthusiastic, willing to seek the truth, be courageous about asking questions to obtain the best action for patients. It is not easy to challenge and question decisions, but it can be made possible if the question is thought through with all the arguments and rationale before the challenge takes place. Nurses are then in a better

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position to put forward the arguments and therefore influence change.

Critical thinking will not develop through this article alone or by being constantly supplied with complex and copious amounts of discipline content (Arangie, 1997). The reader needs to go away and actively practice the components (Bitner and Tobin, 1998). Nursing practice requires creative, personalised solutions to unpredictable client circumstances. This cannot be taught by rote.

It is not developed through attending one lecture or clinical placement; instead, critical thinking develops over time through varied experiences. Dealing with questions (Schell, 1998) of quality of life and death, the lived experiences of patients suffering, in pain, breathless, and healing nurses are continually weighing up the alternatives. They are looking at reasons for choosing one alternative over another in an open, flexible and attentive manner and considering what actions to follow.

Conclusion

In this paper, a two-phase framework for developing critical thinking has been presented. The framework may be useful in nurse education to encourage student nurses to critically think and for developing the analytical practitioners of the future. In nurse education the two-phase framework could be used to enable nursing students to understand the stages and processes of critical thinking. For students it brings into perspective a useful tool to explore critical thinking. Practice nurses could use the framework to investigate a specific patient issue/problem or identifiable area of existing practice. It could help to determine the nature and quality of all available evidence both objective and subjective.

The two-phase framework helps to give a more detailed understanding of the processes involved in critical thinking. It will enable nurses to become more critical and questioning of practices they observe. In addition, facilitate nurses to continuously question practice to maintain full scope of nursing care and use critical thinking when practice ideals are threatened.

Uncited references

Elliott (1996), Fowler (1998), Gopee (2002), Jones and Sheridan (1999), Weiss and Guyton-Simmons (1998).

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