



2 **Critical thinking: A two-phase framework**

3 **Sharon L. Edwards ***

4 *Buckinghamshire Chilterns University College, Faculty of Health Studies,*
 5 *Department of Pre-registration Nursing, Chalfont Campus, Newland Park,*
 6 *Gorelands Lane, Chalfont St. Giles, Buckinghamshire HP8 4AD, United Kingdom*

7 Accepted 26 September 2006

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24 **KEYWORDS**

25 Critical thinking;
 26 Creative;
 27 Nursing knowledge;
 28 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.

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29 **Introduction**

30 To deal effectively with rapid change nurses need
 31 to become skilled in higher-level thinking and rea-
 32 soning. Critical thinking is relevant to nursing prac-
 33 tice and can be used when situations or problems
 34 arise whereby there is no definitive answer or make
 35 it easier to find solutions. There is not always the-
 36 oretical evidence to support practice, therefore,

nursing needs to incorporate into its practise criti- 37
 cal thinking processes to provide new answers to 38
 practical questions, which may not be answered 39
 with traditional research methods. Everyday nurses 40
 sift through an abundance of data and information 41
 to assimilate and adapt knowledge for problem 42
 clarification in an attempt to find solutions. Nurses 43
 needs to be able to come up with solutions, make 44
 decisions, solve unique and complex problems. 45

Critical thinking is essential and plays an impor- 46
 tant part of developing qualified nurses; lecturers 47
 need to interpret the often-complex issues in 48

* Tel.: +44 1494 522 141; fax: +44 1494 603 182.
 E-mail address: sedwar02@bcuc.ac.uk.

49 relation to practice. The explanations of critical
50 thinking processes outlined in the literature are of-
51 ten complex. However, through analysing them
52 from the stance of a two-phase framework may
53 facilitate nurses' understanding of critical thinking
54 and facilitate integration of concepts with other
55 forms of knowledge, experience and use it to en-
56 hance patient care.

57 **Inter-relating concepts in critical**
58 **thinking**

59 **Rodgers (1989)** suggested that when a definition or
60 attributes of a concept are not clear, the ability of
61 the concept to assist in fundamental tasks is
62 greatly impaired. The concepts that inter-relate
63 with critical thinking are critical, analysis, think-
64 ing, synthesis and creative. Explanations of these
65 inter-relating concepts can be viewed in **Table 1**.
66 Articles on critical thinking are often written in a
67 language, which most nurses find inaccessible or
68 they use complex language or jargon, and are not
69 easily understood by many practising nurses. By
70 using a two-phase process of critical thinking pro-
71 vides the practical perspective that nurse's find

useful, relevant and enable them to start to view 72
the links between the various concepts (e.g. criti- 73
cal, thinking and creative) under scrutiny. 74

The difficulties of critical thinking 75

The difficulties related to implementation and use 76
of critical thinking in practice situations are the 77
differing concepts used to explain it, the inclusion 78
of models, mind maps and cycles and the complex- 79
ity of terms used in the literature. 80

The variety of concepts used to explain 81
critical thinking 82

The experts and critical thinking theorists, such as 83
Watson and Glaser (1980), McPeck (1981), Facione 84
(1990), **Boychuck Duchscher (1999)** and **Simpson** 85
and Courtney (2002), all generally define critical 86
thinking as including analysis, evaluation, and 87
inference. In addition, **Bitner and Tobin (1998)** 88
used interpretation, explanation, and self-regula- 89
tion as central to critical thinking. The nursing lit- 90
erature discusses clinical decision-making, 91
therapeutic judgement, diagnostic reasoning, 92

Table 1 Definition of the concepts in critical thinking

Concept	Definition
Critical	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

93 problem solving (Brigham, 1993) and reflective
94 practice. The variety of differing concepts outlined
95 in the literature leads to some confusion. These
96 theorists tend to use critical thinking interchange-
97 ably with other terms that are components of crit-
98 ical thinking, but cannot be fully explained by them
99 (Hickman, 1993).

100 Critical thinking has been explained as 'reflec-
101 tive thinking' by Brigham (1993), whereas others
102 suggest that critical thinking is not reflective prac-
103 tice (Simpson and Courtney, 2002). Tanner (1993)
104 proposed that critical thinking is often conceptua-
105 lised as something that is not, such as reflective
106 practice, but nor is it just problem solving or the
107 nursing process.

108 Problem solving is a process to help find a prob-
109 lem and then resolve the problem. Critical thinking
110 goes beyond this. Clinical decision-making sets
111 about to resolve issues of a clinical nature, and as
112 such does embrace a component of critical think-
113 ing. There is no doubt that skills nurses need to
114 provide quality-nursing care include problem solv-
115 ing and decision-making (Raymond and Profetto-
116 McGrath, 2005). The combination of knowledge
117 and imagination is required for both and there is
118 evidence of a natural marriage between problem-
119 solving, decision-making and critical thinking.

120 However, the use of problem solving is not suffi-
121 cient or representative of the broad range of criti-
122 cal thinking processes required. This confusion
123 between critical thinking, reflective practice and
124 decision-making may be one of the reason why crit-
125 ical thinking processes and models (Dreyfus and

Dreyfus, 1985; Benner, 1984) are not applied to 126
clinical practice. 127

128 Critical thinking in the literature is explained in
129 many diverse ways. Clark-Birx (1993) outlined the
130 processes of critical thinking. Walters (1986) iden-
131 tified four general characteristics of critical think-
132 ing. In comparison, Alfaro-LaFevre (1999)
133 described critical thinking in nursing to include se-
134 ven components. Daly (1998) reflected certain un-
135 ique elements of critical thinking. All of these
136 areas outlined by the various authors are summar-
137 ised in Table 2.

138 There is a great diversity between the four
139 scholars' views, but commonalties are apparent,
140 yet the terms used are complex and not very expli-
141 cit. A consequence of this diversity is a lack of con-
142 sensus, which has contributed to the confusion,
143 misunderstanding and misuse of critical thinking
144 (Raymond and Profetto-McGrath, 2005). The con-
145 struct of critical thinking is neither clearly under-
146 stood nor systematically applied to clinical
147 practice situations simply by using such terms and
148 phrases. However, these differing concepts, char-
149 acteristics, components, elements and processes
150 used to explain critical thinking might serve to im-
151 prove educators, practitioners and students'
152 understanding of critical thinking.

The inclusion of mind maps and models 153

154 Kataoka-Yahiro and Saylor (1994) outlined a model
155 in the form of a diagram to represent critical think-
156 ing 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
<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ul style="list-style-type: none"> • Associated with knowledge • Cognitive skills • Complex reasoning • Argumentation • Beliefs • Action • Problem identification • Evidence • Envisioning of alternative frames of references and possibilities 	<ul style="list-style-type: none"> • 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).

157 come of critical thinking to be that of clinical
158 judgement. These could be relevant to nursing
159 problems in a variety of settings. The model by *Kat-*
160 *aoka-Yahiro and Saylor (1994)* underscores the view
161 that the nursing process alone is not an adequate
162 conceptualisation of critical thinking. In contrast
163 to the use of a model *Daley et al. (1999)* described
164 a study that implemented concept maps as a meth-
165 odology to teach and evaluate critical thinking,
166 whereas, *Daly (1998)* used a cycle as a method of
167 interpreting critical thinking.

168 These models, mind maps and cycles could serve
169 to significantly improve practitioners and students'
170 critical thinking abilities, and could have implica-
171 tions for nurse education to facilitate the develop-
172 ment of a students' capabilities (*Edwards, 2003*).

173 The complexity of the literature

174 One of the major difficulties of critical thinking is
175 the literature in relation to it is generally consid-
176 ered too complex, theoretical and does not relate
177 to clinical practice. This so-called theoretical
178 rationality is often made up of language and jar-
179 gon, which is often inaccessible to many practising
180 nurses (*Rolfe, 2000*). Nursing research or theoret-
181 ical articles on critical thinking are often written
182 in a language, which most nurses find obscure (*Ed-*
183 *wards, 2003*). The practical perspective that
184 nurse's find useful, relevant and enables them to
185 integrate theory into practice are comparatively
186 little and few seem to fulfil this requirement.

187 Another difficulty is in the literature there is no
188 single widely accepted view of critical thinking ex-
189 cept in its value to nursing and clinical practice.
190 There have been many writers who have contrib-
191 uted to the plenitude of definitions and interpreta-
192 tions of critical thinking (*Facione, 1990; Boychuck*

Duchscher, 1999; DeYoung, 2003). There is increas- 193
ing evidence to suggest that critical thinking is 194
most likely to occur, and continue, when it is sup- 195
ported by others, repeatedly practised (*Mottola 196*
and Murphy, 2001) and linked into the context of 197
practice situations (*Bandman and Bandman, 198*
1988). Yet, some discrepancy exists as to whether 199
or not critical thinking is an innate ability, progres- 200
sive learning ability/skill (*Daley et al., 1999*), a 201
scholastic attitude (*Daly, 1998*) or a collaborative 202
process (*Ulsenheimer et al., 1997*). 203

The important first step of establishing a clear 204
set of explicit concepts that encourages growth 205
of critical analytical thinking in students and clini- 206
cal practitioners has not yet been accomplished. 207

208 Developing critical thinking

The professional bodies in nursing are promoting 209
the concept of nurses being analytical practitioners 210
who are able to demonstrate critical thinking in the 211
clinical setting (*Robert and Ousey, 2004*). Enquiry 212
based learning (EBL) and problem based learning 213
(PBL) are highly regarded and promoted as effec- 214
tive teaching and learning processes, two umbrella 215
terms, under which a variety of teaching and 216
assessment methods flow (*Table 3*). EBL and PBL 217
are both necessary as not all nursing can be defined 218
as a problem, it may just be simply an enquiry to 219
find out more about a patient's condition. There- 220
fore, it is suggested both EBL and PBL are essential 221
to take nurse education forward (*Wray et al., 222*
2004). 223

Similarly, critical thinking is widely recognised 224
as an important part of nursing and equally essen- 225
tial to nurse educators, students and practitioners. 226
Indeed, lecturers are encouraged to use EBL/PBL to 227
actively engage learners to participate in explor- 228

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
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Self and peer assessment/review • Poster presentations • Students setting own assessment / marking guide-lines/criteria/exams for modules • Teaching sessions/presentations/workshops

229 atory ways in their learning, to encourage new
230 ideas, to assist students to attain the skills neces-
231 sary to think critically, so that deep learning occurs
232 (Roberts and Ousey, 2004). The two-phase frame-
233 work presented facilitates incorporation of critical
234 thinking and embraces the values of both EBL and
235 PBL. A different type of practical framework
236 embedded in its usefulness to students, practitio-
237 ners and lecturers emerges.

238 A two-phase framework for critical thinking

239 This framework suggests that critical thinking in-
240 cludes all areas outlined in the literature, but for
241 simplicity is split into two phases (a summary of
242 the two phases with explanations is given in Table
243 4). Ultimately critical thinking needs to be culti-
244 vated, developed, learned and practised, all of
245 which can be achieved through incorporating this
246 two-phase framework, presented diagrammatically
247 in Fig. 1.

248 Phase 1 attempts to bring to lecturers, students
249 and practitioners a process that can be used to
250 guide practice situations in the classroom encour-
251 aging students to make informed decisions and de-
252 velop independent thinking and judgement. The
253 framework can facilitate lecturers to guide stu-
254 dents/practitioners to make sense of their nursing
255 practice and for them take it away and incorporate
256 critical thinking into their everyday practice.

257 Interpret and organise the information

258 The first part of this two-phase model emphasises
259 that the nurse initially should interpret and orga-
260 nise the information. Continuously give descrip-
261 tions of the situation, problem or issue to be
262 explored and begin to logically assemble the infor-
263 mation in the mind or on paper using a concept or
264 mind map starting with a broad concept linking
265 words that are interrelated and connected. If pos-
266 sible at this stage the student should be encour-
267 aged to apply a systematic, organised and diligent
268 approach to the situation (but equally a disorgan-
269 ised and abstract format is also satisfactory at this
270 time).

271 Hidden assumptions

272 The second part of phase 1 is to decide what are
273 the hidden assumptions. Individuals including pa-
274 tients/nurses hold beliefs, values and attitudes
275 that are held solely by those individuals. These val-
276 ues may be opposite to your own beliefs or inter-
277 ests and therefore need to be expressed and

aired (Edwards, 2003). It should never be assumed 278
that there is always a match between the patient 279
and nurse with regards to situations that occur in 280
practice (Box 1 – Model case 1). 281

In this scenario Mildred might be using her cat as 282
a shield to hide her fear and anxieties about her 283
condition, but this will not be known for certain un- 284
til after arrangements are made for feeding Misty. 285

Identifying hidden assumptions requires stu- 286
dents to be critical, not just faultfinding, criticism 287
or exercising negative judgement. Critical also in- 288
cludes use of a more positive role to enhance the 289
position of an argument (Edwards, 1998). It is 290
about being open-minded so that situations, prac- 291
tices and innovations can be interpreted, judged 292
and preferred choices determined to bring about 293
change. 294

295 Nursing knowledge (both objective and 296 subjective)

The use of nursing knowledge involves looking for 297
evidence, which may be either theoretical from 298
other professions such as pharmacology; psychol- 299
ogy or physiology often found in books or journal 300
articles. Critical thinking according to Clark-Birx 301
(1993) is an ongoing process in using theory to 302
guide clinical practice. 303

It incorporates the use of empirical research, 304
utilising both qualitative and quantitative ap- 305
proaches. There is no doubt that research needs 306
to inform practice. This ability requires a nurse 307
to be able to discriminate relevant from irrele- 308
vant, to consider multiple facts and data from a 309
variety of sources, to analyse these facts, data 310
and derive plausible consequences from them. 311
This involves inductive reasoning an ability to con- 312
sider all of the possibilities, and deductive reason- 313
ing the simultaneous 'weeding out' of possible 314
solutions while obtaining data (Marks-Maran and 315
Rose, 1997). 316

In addition, ethical knowledge is required. Eth- 317
ical knowledge applies not just to life or death sit- 318
uations (about withdrawal of treatment or, when 319
to and when not to resuscitate). Ethical knowledge 320
is also about everyday issues (Neville, 2004) 321
encountered in clinical practice (such as should 322
you take the patient requesting to go to the toilet 323
first, or change and clean the patient who has been 324
incontinent in the bed). It is about moral knowl- 325
edge, decision-making and prioritising. It includes 326
what is good, right, and responsible, and involves 327
confronting conflicting values. In ethical knowl- 328
edge there may be no satisfactory answer to the 329
dilemma. 330

Table 4 A summary of the main areas outlined in the framework*Phase 1*

- | | |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Interpretation and organisation of the information | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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) | <ul style="list-style-type: none"> • Look for the evidence theoretical/research • The ethical principles involved • Knowledge from past experiences (personal or professional) • Practical knowledge/skills |
| 4. Breakdown the situation/ information into parts | <ul style="list-style-type: none"> • What are your gut feelings about this use your intuition • Is there a relationship between the parts • How does one effect the other |
| 5. Consider all of the options | <ul style="list-style-type: none"> • Analysis – examination of the ideas/arguments and possible courses of action • 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 | <ul style="list-style-type: none"> • What are they? • Nurse – patient • Professional – ethical • Nurse – nurse/doctor – nurse/other HCP – nurse • Air the concerns with each other |
| 7. Consider all of the options, again, synthesising of ideas | <ul style="list-style-type: none"> • Team-working, communication, negotiation skills to resolve conflicts • 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 | <ul style="list-style-type: none"> • A decision/solution/conclusion has to be reached • Self-confidence and trusting own reasoning when making decisions/solving problems |

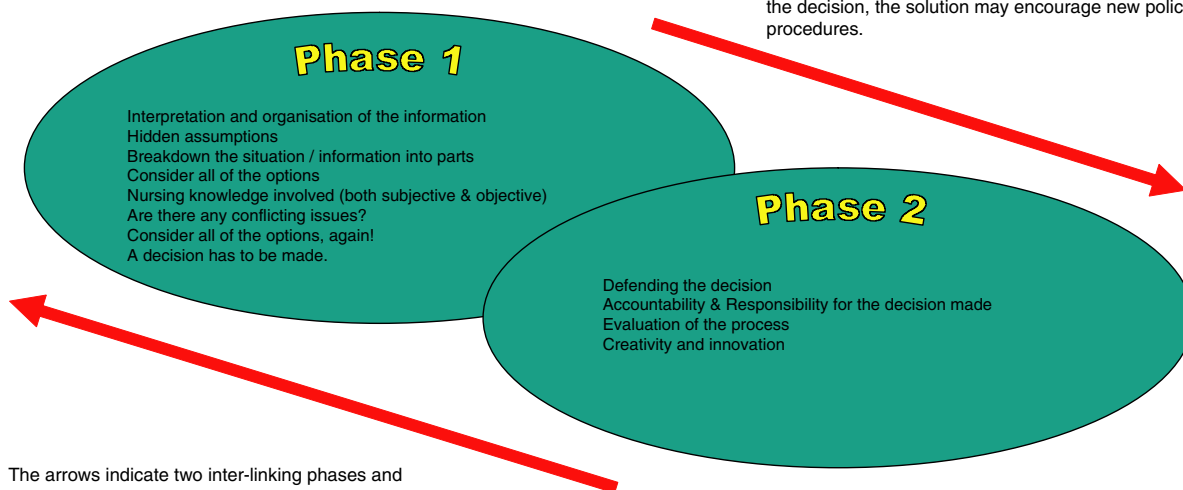
Phase 2

- | | |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9. Defending the decision | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Taking/accepting responsibility for the decision that has been made • Being accountable legally, ethically and professionally |
| 11. Evaluation of the process | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 |

331 **Tanner (2000)** proposed a way to think about and
 332 examine some of the central questions about the
 333 nature of the nurses role and knowledge needed

to be effective in that role. This involves cognitive 334
 interpretation of problems using both objective 335
 and subjective data relating to care. Therefore, 336

The framework consists of two overlapping phases one leading into another:
Phase 1 looks at choosing one alternative over another and considering what actions to follow.
Phase 2 is about justification and taking responsibility for the decision, the solution may encourage new policies or procedures.



The arrows indicate two inter-linking phases and once completed can lead back to phase 1. The framework is not static or a structured process but is flexible and dynamic.

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.

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

340 There is no doubt that nursing students not only
341 need to understand the benefits of science but also
342 need to see the value of their clinical practice
343 skills, personal and professional experience
344 (Clarke, 1999). The ability to think critically and
345 come up with clinical decisions is a composite of
346 cognitive, clinical skills and experience (Edwards,
347 2003). In Carper's (1978) article she identified ways
348 of knowing that nurses and nursing depend on. She
349 advocated that nursing needs to use a variety of
350 ways of knowing when caring for patients. Carper
351 (1978) incorporated personal, practical and intuit-
352 ive knowledge and granted them equal to theory,

research and ethical knowledge. Her ways of know- 353
ing compare with other authors explanations of 354
nursing knowledge such as the 'know how', 'know 355
that' and experiential knowledge outlined in Ben- 356
ner (1984) and Burnard's (1987) work. The view 357
of using a variety of knowledge is incorporated 358
and encouraged when using this two-phase 359
framework. 360

This includes practical knowledge as part of crit- 361
ical thinking outlines the importance of expert 362
practice and the motivation to care. Practical 363
knowledge acknowledges the importance of the 364
art of nursing (Rolfe, 2000). Nurses need to use 365
experiential knowledge both personal and profes- 366
sional (Edwards, 2002). Experiential knowledge in- 367
cludes gaining inner personal meaning from life 368

369 experiences. Nurses have personal experiences
370 such as having a baby, bereavement or a close
371 member spending a period of time ill in hospital.
372 These experiences develop experiential learning,
373 which can form part of an individual nurse's knowl-
374 edge to draw on in clinical situations. It is also
375 knowledge that is gained from the experience of
376 professional practice. Nurses have many clinical
377 experiences during their years in practice, and it
378 is these that can inform future practices when sim-
379 ilar situations are met.

380 Intuitive knowledge is also essential. It does not
381 emanate from books, journals, lectures, or aca-
382 demic conferences. It is about 'we know more than
383 we can say' (Polyani, 1966), or 'understanding
384 without rationale' (Benner and Tanner, 1987). Intu-
385 ition or tacit knowledge is widely accepted within
386 nursing (Marks-Maran and Rose, 1997). Intuition
387 has been cited as an integral part of nursing clinical
388 practices (Benner and Tanner, 1987). It helps to de-
389 velop creativity and often it is not directly commu-
390 nicable in language it is a hunch, gut feeling
391 (Effken, 2001; King and Appleton, 1997).

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

399 **Breakdown the situation/information** 400 **into parts**

401 This part of phase 1 involves breaking down of the
402 situation/problem/area of inquiry into parts. It in-
403 volves analysis and an examination of ideas/argu-
404 ments and possible courses of action. Discovering
405 the relationships between parts. Searching for
406 and identifying evidence, and interpreting that evi-
407 dence following a detailed examination. How does
408 one effect the other? (Box 2 – Model case 2).

409 What are the parts to this scenario? First, knowl-
410 edge: identifying the evidence, literature, and your

own intuition, practical experience. Second, will 411
the experience cause the child long-term harm? 412
The issues of do good and no harm are linked to 413
this, allowing the child to visit could do her good 414
and no harm, but equally do her no good and harm. 415
Third, what are other people's views, ideas, and 416
arguments for and against allowing the child to vis- 417
it? A clearly thought out phase, in this way, will en- 418
sure a detailed examination of all issues. 419

Consider all of the options 420

In this part of the critical thinking framework it is 421
important to be flexible and include other people's 422
opinions, including the patients and relatives 423
views/perspectives on the situation. What is re- 424
quired is an ability to view the situation in many 425
different ways with a variety of ideas. In addition, 426
continually question the issues involved, which is 427
imperative. Ask yourself and others for confirma- 428
tion or contradiction so other areas can be consid- 429
ered. This allows for all possibilities to be 430
considered fully, be inquisitive and curious when 431
asking questions. It should not matter at what level 432
the individual is (medical consultant or director of 433
nursing) and to whom the questions are being 434
asked. This is about being courageous to obtain 435
all the information. 436

Are there any conflicting issues 437

Conflict may arise in clinical practice for example 438
giving a patient a prescribed brandy and that of 439
health promotion and illness. It could be that con- 440
flict occurs between a professional and ethical 441
principles (Edwards, 2003). These conflicts may 442
also occur between professionals', e.g. nurse and 443
doctor whose ethical principles and values may dif- 444
fer. There is always an issue of quality of care, 445
which may in its self-create conflict. In these in- 446
stances, one nurse may have to compromise his/ 447
her own beliefs. Sometimes the processes of criti- 448
cal thinking have to be undertaken quickly and 449

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.

450 decisively, the decision then has to be adhered to,
451 despite it being opposite to your own beliefs or
452 interests. In these types of conflict there has to
453 be an element of trustworthiness in relation to car-
454 ing and working as a member of a health care
455 team.

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

464 Making sense of the information

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

473 A decision has to be made

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

Phase 2 of the framework is once the decision 491
has been made it has to be defended the reasoning 492
behind the decision explained as to how it has been 493
arrived at? In addition, the use of creative thinking 494
is incorporated. Creative thinking is the ability to 495
generate new ideas by combining, changing, or 496
reapplying existing ideas. Implementation of the 497
decision/solution may involve change, such as 498
changing, refining or developing something new. 499

Defending the decision 500

A reason why that decision was made and how the 501
decision was reached has to be given. An explana- 502
tion has to be available as to how the decision 503
was arrived at and justification has to be known. 504
Kurfiss (1988) acknowledges the process of justifi- 505
cation in critical thinking in a definition: 506

‘an investigation who’s purpose is to explore a sit- 507
uation, phenomenon, question, or problem to 508
arrive at a hypothesis or conclusion about it that 509
integrates all available information and that can 510
therefore be convincingly justified’. 511

Accountability and responsibility for the 512 decision made 513

Another facet of critical thinking is that of 514
accountability and responsibility for the decision 515
made (Simpson and Courtney, 2002). Those in- 516
volved in the decision have to take the conse- 517
quences for that decision if found to be wrong. 518
Taking/accepting responsibility for the decision 519
that has been made and being accountable legally, 520
ethically and professionally demonstrates the 521
importance of ethical knowledge in critical 522
thinking. 523

Evaluation of the process 524

When integrating critical thinking into practice 525
(Clark-Birx, 1993; Conger and Mezza, 1996) the sit- 526
uation has to be evaluated (Oermann et al., 2000; 527
Daley et al., 1999) expounding the trustworthiness 528

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.

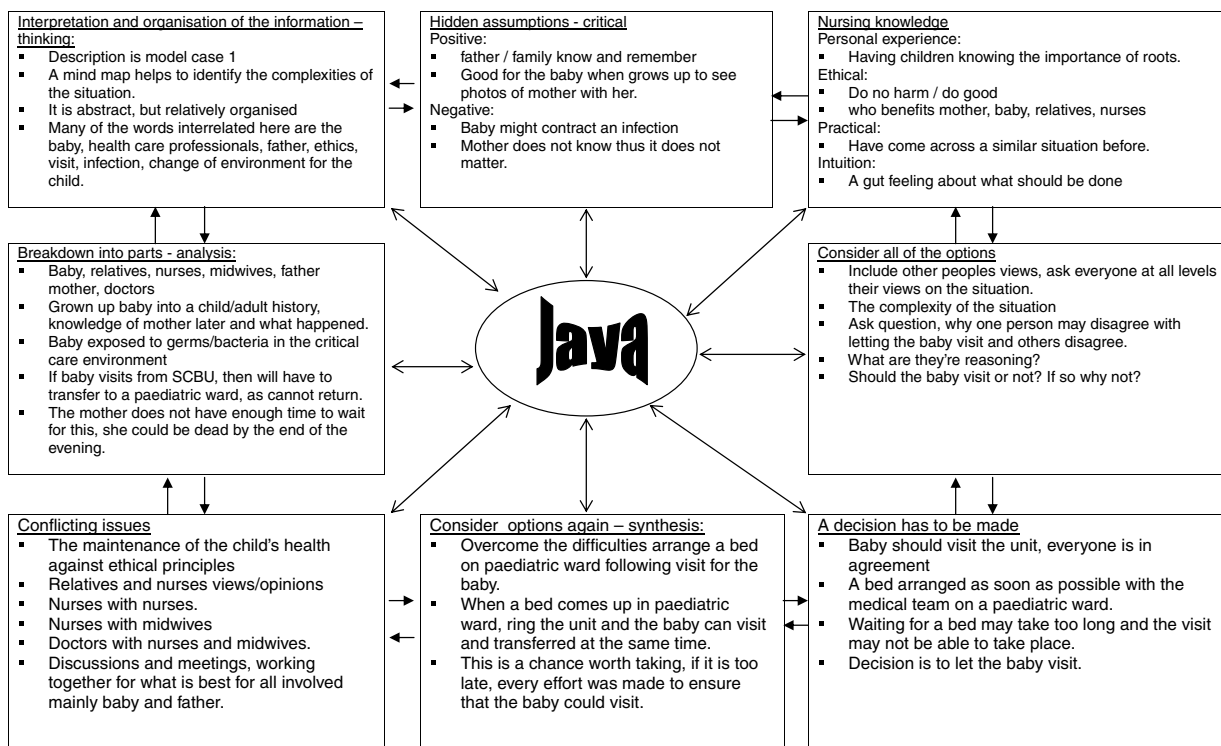


Figure 2 Example of using part 1 of the two-phase framework for critical thinking.

529 of colleagues, and relevance to the situation. Being
530 a critical thinker demands evidence and applica-
531 tion of reason, which might initially be abstract
532 in the mind or on paper, but the two-phase frame-
533 work later, facilitates organising the information
534 and a diligent approach to solutions to problems
535 or issues despite their complexity.

536 The process of evaluation encourages self-regu-
537 lation, monitoring of own thinking – correcting
538 oneself if found to be wrong, and can be where
539 reflective practice overlaps into the critical think-
540 ing process (Baker, 1996). The evaluation process
541 advocates learning from the situation and develop-
542 ing an action plan for future learning needs. It in-
543 cludes personal learning and continuous
544 professional development (CPD).

545 Creativity and innovation

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

Critical and creative thinking can generate sim- 554
555 ple, good, practical ideas that no one seems to
556 have thought of yet. It advocates that critical
557 thinking is dynamic and serves to continually im-
558 prove ideas and solutions by making gradual altera-
559 tions. Ultimately, it is about moving practice
560 forward and developing something new to us due
561 to knowledge gained.

562 Critical thinking and the future

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

570 The nurse in the 21st century needs to be inquis-
571 itive curious and enthusiastic, willing to seek the
572 truth, be courageous about asking questions to ob-
573 tain the best action for patients. It is not easy to
574 challenge and question decisions, but it can be
575 made possible if the question is thought through
576 with all the arguments and rationale before the
577 challenge takes place. Nurses are then in a better

578 position to put forward the arguments and there-
579 fore influence change.

580 Critical thinking will not develop through this
581 article alone or by being constantly supplied with
582 complex and copious amounts of discipline content
583 (Arangie, 1997). The reader needs to go away and
584 actively practice the components (Bitner and To-
585 bin, 1998). Nursing practice requires creative, per-
586 sonalised solutions to unpredictable client
587 circumstances. This cannot be taught by rote.

588 It is not developed through attending one lec-
589 ture or clinical placement; instead, critical think-
590 ing develops over time through varied
591 experiences. Dealing with questions (Schell,
592 1998) of quality of life and death, the lived expe-
593 riences of patients suffering, in pain, breathless,
594 and healing nurses are continually weighing up
595 the alternatives. They are looking at reasons for
596 choosing one alternative over another in an open,
597 flexible and attentive manner and considering
598 what actions to follow.

599 Conclusion

600 In this paper, a two-phase framework for develop-
601 ing critical thinking has been presented. The
602 framework may be useful in nurse education to
603 encourage student nurses to critically think and
604 for developing the analytical practitioners of the
605 future. In nurse education the two-phase frame-
606 work could be used to enable nursing students to
607 understand the stages and processes of critical
608 thinking. For students it brings into perspective a
609 useful tool to explore critical thinking. Practice
610 nurses could use the framework to investigate a
611 specific patient issue/problem or identifiable area
612 of existing practice. It could help to determine
613 the nature and quality of all available evidence
614 both objective and subjective.

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

623 Uncited references

624 Elliott (1996), Fowler (1998), Gopee (2002), Jones
625 and Sheridan (1999), Weiss and Guyton-Simmons
626 (1998).

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