Journal of Advanced Nursing, 1994, **19**, 755–761

Skilled expert practice: is it 'all in the mind'? A response to English's critique of Benner's novice to expert model

Philip Darbyshire RNMH RSCN DipN RNT MN PhD
Lecturer in Health and Nursing Studies, Glasgow Caledonian University, City Campus, Glasgow G4 0BA, Scotland

Accepted for publication 23 August 1993

DARBYSHIRE P (1994) *Journal of Advanced Nursing* **19**, 755–761
Skilled expert practice: is it 'all in the mind'? A response to English's critique of Benner's novice to expert model
In a recent critique of the work of Patricia Benner in relation to expertise, skilled intuitive grasp and the Dreyfus model of skill acquisition, English (*Journal of Advanced Nursing* 1993, vol 18, pp 387–393) uses the tenets of positivism and cognitive psychology to criticize Benner's work for lacking objectivity, validity, generalizability and predictive power In this response to English's critique I show how he has misread, failed to read, and consequently misunderstood her work, and, equally importantly, its philosophical basis Benner's work is developed from a philosophical foundation grounded in interpretive and Heideggerian phenomenology This wholly different 'take' on the world and on human behaviour embodies a strong critique of those very same traditional-science worldviews which English uses to damn her work English's critique is valuable in highlighting the ways in which Benner's work can be misrepresented and this response tries to remedy this misunderstanding by attempting to clarify the fundamental differences between phenomenological and cognitive understandings These differences are crucial to understanding Dreyfus's and Benner's work Here, I also attempt to correct some of English's wilder assertions regarding Benner's work Finally, I try to show how Benner's work has empowered, enthused and challenged, rather than being 'denigrating to the majority of nurses'

INTRODUCTION

As the work of Patricia Benner has become increasingly influential in nursing, it is important that her ideas are debated and discussed The recent critique of Benner's novice to expert model by English (1993) is welcome in this respect, if only as an exemplar of the misreadings and misunderstandings which her work can evoke English's limited, almost myopic, reading of the work of Benner and Dreyfus shows the pressing need to clearly differentiate their approach from that of cognitive psychology and also to point out the many ways in which Benner's work has been instrumental in moving our understanding of skilled, intuitive nursing practice away from and not towards what English caricatures as 'some esoteric talent available to a few initiates'

THE POSITIVIST AND COGNITIVIST TRADITION

English's critique cannot be welcomed for its tone which is so abrasive as to make the reader wonder what personal injury he has suffered at Benner's hands His critique must, however, be praised for its explicit

theoretical stance, which adopts the traditional cognitivist view that there must be a rational and often rule-governed explanation for skilled human behaviour and action The cognitivist psychology and scientism which English would have us embrace as an alternative to Benner and Dreyfus forms part of a much longer traditional thread of western thinking and philosophy which stretches back through Kant to Socrates and Plato

Dreyfus & Dreyfus (1987) describe how, in the Euthyphro dialogue, Socrates demands that Euthyphro, an 'expert' on the pious and the good, set out and explain his conditions and rules for recognizing piety Euthyphro, however, in a move which foreshadowed the present and increasing use of narrative and storytelling to uncover nursing excellence, 'does what every expert does when cornered by Socrates He gives him examples from his field of expertise', but he will not describe the 'rules' that he uses to make his judgements

Plato tried to assist Socrates with his problem by claiming that experts did use rules but that they had simply forgotten them The task for the cognitivist is of course to help the expert 'remember' and state these rules explicitly, so that they can thus become 'available for emulation' (English 1993), by those who would learn and somehow use these rules Plato went further, though, by suggesting that for knowledge to count as 'real' knowledge 'it must be stateable in explicit definitions which anyone could apply' (Dreyfus 1992) This Platonic quest was outstandingly successful in creating our current theory–practice chasm Plato also relegated what Dreyfus (1992) calls that which 'cannot be stated explicitly in precise instructions — all areas of human thought which require skill, intuition, or a sense of tradition to some kind of arbitrary fumbling' We can, of course, see the seeds of the devaluation of nursing practice here

Positivist cognitism

Part of the difficulty in responding to English's critique is that it is so steeped in the kind of positivist cognitivism which has become our everyday accepted worldview that it is difficult to present an alternative view which will be attended to, given that the canons of 'acceptability' are often those of the dominant view English's critique is notable for its emphasis on the laudability of formal systems, rules, universally accepted definitions, measurement, objective validation, empirical testing, falsifying hypotheses and so on When this worldview is so pervasive, suggesting an alternative to this entire schema of what counts as knowledge and to this explanation of human behaviour can be like trying to dialogue with Daleks

It is, however, fundamentally important to understand that Benner's and Dreyfus's work is specifically directed at proposing not that science is of no value but that a viable alternative to these traditional ways of understanding practice, theory and knowledge is possible To critique Benner's work for not being cognitive psychology is rather like criticizing a car for being a bad bicycle

THE MODEL OF SKILL ACQUISITION

English (1993) acknowledges the widespread acceptance of Benner's model of skill acquisition, but dismisses this as an 'uncritical' acceptance In this he may be partly right, although I suspect that we would differ as to the nature of this 'uncritical' acceptance As one who has worked with and promoted Benner's ideas for several years, I share a concern that her work may be becoming simply the 'flavour of the month', particularly among educators

Several College of Nursing Project 2000 proposals claim to be 'based on' or to be 'using Benner', where there is no more than a name-dropping acquaintance shown regarding her work, thinking and, most vitally, its implications for radically transforming teaching and practice For example, there are schools supposedly 'using Benner', where the levels of 'novice to expert' idea are simply tagged on to the usual behaviourist curricula without any apparent awareness of the philosophical and practice-related tensions existing between these two Similarly, there are those who see Benner's work as a ready-made, hierarchical 'career ladder' which managers can 'implement' For what seems a wholly inappropriate appropriation of Benner's work in this respect, see Keyzer (1989) who proposed a career structure where

> A starting point for debate could be the application of the *first three levels to the clinical role* (novice, advanced beginner and competent) This would leave levels four and five (proficient and expert) for those remits currently held by *the Directors of Nursing and Education and the executive post of Chief Administrative Nursing Officer* (Wales) [my emphasis]

If this were the rather confused, 'acceptance' which were widespread in relation to Benner's work, then English's critique would be on more solid ground As it stands, however, he merely takes inaccurate pot-shots

English (1993) suggests that it is synonymous with 'career development' which, sadly, some might say, it is not English regrets that stages from novice to expert

merge on a continuum, 'which impede measurement' The development is described in this way precisely because of the situational and relational nature of common-sense understanding and developing expert practice Like all complex caring practices — parenting, teaching, nursing — the person does not move in a 'lockstep' fashion from one level to another, where, for example, a nurse would be competent on Friday and proficient on Saturday Although some clinical-ladder programmes might suggest this when they promote nurses through different skill levels, this can only ever be a 'best possible' judgement of a nurse's developing expertise

Misreading

English also suggests that Benner 'advocates that the preferred method of learning is by observing and emulating the role model' This is such a bizarre misreading, in my view as to be almost the exact opposite of what she has advocated For example, in *From Novice to Expert* (Benner 1984) and elsewhere (Benner & Wrubel 1989) Benner describes a variety of educational approaches to clinical expertise development, including clinical knowledge development seminars, dialogue around clinical narratives, exchanges, research participation and the writing of paradigm cases

In her more recent work, (e g Benner *et al* 1992, Benner 1993) she and her co-researchers have further discussed the ways in which increasing clinical expertise develops From this work it is clear that Benner assuredly understands that the complexity of increasing expertise could never be reduced to the simplistic 'observe and emulate' strategy which English attributes to her There is a world of difference between 'studying proficient and expert performance' as exemplified in Benner's work, and the traditional approach to learning from practice, which has been called 'sitting beside Nelly'

EXPERTS AND EXPERTISE

Like all cognitivists English presumes that expert nursing practice can be laid out in 'clearly defined' terms and chides Benner for refusing to provide such a reassuring statement However, Benner (1984) is careful to explain that she is not using expertise or expert to describe mere personality traits or a collection of 'talents' which could be totted up and pronounced as 'expert' As she explains

> Expert performance may not be captured by the usual criteria for performance evaluation
>
> (Benner 1984)

What Benner's work, particularly in the use of narratives, has done is to show other ways of uncovering and seeing much of the richness and complexity of skilled nursing practice

English then raises the spectre that peer assessment of clinical experts 'presents methodological shortcomings', provoking the obvious challenge of trying to conceive of any research approach which does *not* have limitations Aside from this, there seems to be a strong unstated assumption here that another more 'detached' or 'objective' criterion should be used to ascertain or describe a nurse's level of expertise Such an assumption would sit quite comfortably with this critique's other positivist assumptions regarding the primacy of detachment over involvement

English (1993), in a move which almost defies belief, takes Benner to task for failing 'to seek further clarification of exactly what is entailed in gaining expertise' In critiquing the work of others, it surely behoves us at least to attempt a rudimentary familiarity with their work. In preparing his critique, English must have found it difficult to ignore the body of scholarship and research which Benner has produced since the publication of *From Novice to Expert* in 1984 This ranges from a book *The Primacy of Caring* which, as Benner & Wrubel (1989) explain 'extends the thesis begun in *From Novice to Expert*', to more recent studies which have assuredly 'further clarified' our understanding of skilled nursing practice in areas such as critical care and ethical comportment (Benner *et al* 1991, Benner 1991, Benner & Vilaire 1992, Benner *et al* 1992) Seventeen years of researching and reporting excellence in nursing practice is hardly the hallmark of a thoughtless dilettante, or of one who seeks to keep her 'pet concept' in the dark

English asks some interesting questions regarding the nature of expertise, such as 'do experts differ?' which are explored in the above studies, but then he makes the familiar appeal that our new understanding of expert practice be forced back into the cognitivist brace of 'precise definitions and descriptions of patient care' and 'criteria by which nurse experts were measured', in the name of the new god of prediction and control — quality assurance This perseveration belies a misunderstanding of the philosophical basis of Benner's work and a failure to appreciate why it is simply not possible to explicate a complex human practice such as expert nursing in formal, representational propositions which will predict or identify the 'criteria' of expertise Such a chimeral quest will certainly lead us to the brick wall of the limits of formalization and into the infinite regress of more rule construction and condition and criteria naming as we try

to 'clearly define' complex practice under its myriad of different conditions

Phenomenological understanding

Dreyfus has shown this especially forcefully in his critique and account of the disintegration of the early hopes of the artificial intelligence and expert systems movements (Dreyfus 1981, 1992, Dreyfus & Dreyfus 1988) For the last few decades these programmes held up the ultimate rationalist dream — that 'knowledge', 'understanding' and 'expertise' could be broken down into their respective criteria or parts and transferred to 'intelligent' machines who would then be able to reproduce or even excel human intelligence and skilled performance As Dreyfus (1992) has shown, however, these projects were virtually doomed from the outset because they made the fundamental error of assuming that all human behaviour must be the result of following rules and by ignoring the phenomenological understanding of our way of being-in-the-world as involved, engaged, embodied and knowing-how, rather than knowing-that

English (1993) accuses Benner, on what I argue to be the flimsiest of evidence, of promoting expertise as some quasi-mystical state He ridicules expertise as 'enlightenment', as an 'esoteric talent' and promptly imposes the positivist template of 'cognitive reorganization' over the process He scorns his own travesty of 'Benner's view of expertise' as being somehow a mystical, secretive, private possession of a 'paragon of excellence' and, in a passage, the crassness of which is matched only by its complete misunderstanding, implies that

> The expert nurse is then presented as a blessed practitioner, initiated into the protected knowledge of some secret society and forbidden to divulge the rites of passage to the acolytes Non-expert nurses might be excused their exasperation in asking just what they have to do to be admitted into the inner sanctum

What English seems to find so irritating is that Benner will not describe skilled practical knowledge in the dominant worldview terms which he cherishes and which her work is actively critiquing (Benner 1985, Allen *et al* 1986) English shows a certain lack of understanding of clinical knowledge development work if he truly believes that something merely 'befalls' a nurse to enable her to become a more expert practitioner The entire thrust of Benner's project — of her research, writing, speaking, promotion of narratives and clinical-ladders development in hospitals — has been aimed at *precisely the opposite* It has been to understand better and re-vision skilled nursing practice as shared and common understandings It has been to learn more about how nurses develop expertise and practice expertly and it has been to encourage and enable nurses to describe, uncover and share their expertise

Guidance

In his cursory discussion of experience English wrongly asserts that Benner offers 'no guidance to assist nurses to become experts' and that she does not explain why all nurses do not automatically become experts simply by working for 5 years The first point is answered more than adequately by even a brief glimpse at Benner's work *From Novice to Expert* contains specific chapters on implications for clinical practice and career development and an entire epilogue on practical applications (Benner 1984) *The Primacy of Caring* and other publications mentioned in this response are replete with the kind of challenging and empowering ideas which, I suggest, practitioners find ultimately more meaningful than the prescriptive, context-stripped lists of 'dos, don'ts' and 'the nurse musts' which have for so long been their traditional fare As Benner (1984) explains

> expertise cannot be legislated or standardised although it can be facilitated, recognised and rewarded

English's (1993) question about why nurses who work in an area for 5 years are not automatically considered to be experts is answered in the very quotation from Benner which he cites as 'clouding the issue' and again in Benner (1991) where she explains that

> Experience, defined from a phenomenological perspective, refers to the turning around, the adding of nuance, the amending or changing of preconceived notions or perceptions of the situation

In other words, there is a world of difference between 5 years' experience and 1 year multiplied by 5 (See MacLeod (1990) for a superb investigation of experience and expertise in relation to surgical ward sisters in the UK)

SKILLED INTUITIVE GRASP

If English's critique of the skill acquisition model and expertise seem muddled, they have the clarity of fine crystal in comparison to his discussion of Benner's work on intuition in relation to expertise Just as he misrepresented expertise as a private, quasi-mystical possession,

so English distorts Benner's view of intuition and intuitive grasp by suggesting that this is 'the exclusive province of the expert', that is an 'inner analytical process', an 'emotive response', a 'paranormal faculty', and that those who lack intuition have 'undeveloped mental constructs' In the light of such febrile speculation it is little wonder that English has so misunderstood the phenomenological notion of intuitive grasp, since he has tried so hard to fit this concept into the cognitive psychology frame of reference and thrown his hands up in horror when it failed to fit Truly, when the only tool you have is a hammer, everything looks like a nail

Once again, reading Benner's work shows how she makes it clear that

> Intuitive grasp should not be confused with mysticism since it is available only in situations where a deep background understanding of the situation exists
>
> (Benner 1984)

In her work subsequent to *From Novice to Expert*, Benner has explored and continues to show the meaning of intuitive grasp and the ways in which nursing expertise develops and how this can be recognized (Benner & Tanner 1987, Benner 1991, Benner *et al* 1991, 1992)

To answer English's plea for an unambiguous and universally recognizable definition of intuition plus a presumably similarly unambiguous and context-free list of 'how to become intuitive' steps, it is necessary to return to Dreyfus's critique of the worldview of human engagement which initially makes this seem a reasonable request As Dreyfus (1992) and Dreyfus & Dreyfus (1986) point out, our skilled everyday knowing is markedly different from the kind of formalized and decontextualized knowledge which has traditionally been accorded respect as 'objective' or 'empirical' knowledge Despite the fact that English (mis)uses the example of a chess player, this may actually help to clarify his point English maintains that

> What is described as 'intuition' in a chess player entails an evaluation of a situation in which the player opts to choose one move in preference to alternatives The analysis of the position of the chess pieces is involved and considered The player is not responding to a perceived anomaly, he is weighing up alternative moves

What this in fact describes is *not* expert performance or intuitive understanding but a less experienced stance where the player still requires to grasp the situation using calculative rationality and a measure of disengaged deliberation In contrast to this, as Dreyfus & Dreyfus (1987) explain

> Excellent chess players can play at the rate of 5–10 seconds a move and even faster without any degradation in performance At this speed they must depend *almost entirely on intuition, and hardly at all on analysis and comparison of alternatives* [my emphasis]

Dreyfus & Dreyfus illustrate this point by describing an experiment involving a chess international master who was to add numbers audibly at a rate of one per second while simultaneously playing five-second-a-move chess against an only slightly weaker opponent The result?

> Even with his analytical mind completely occupied by adding numbers, Kaplan more than held his own against the master in a series of games Deprived of the time necessary to see problems and discuss plans, Kaplan still produced fluid and co-ordinated play
>
> (Dreyfus & Dreyfus 1987)

Involvement in caring

English also makes the predictable cognitivist mistake of perceiving engaged, intuitive grasp as being a passive mental event where 'no action is involved' Within this view, the nurse is seen as bobbing along in a clinical sea until something 'attracts her attention' What Benner's work has highlighted is again the exact opposite, that developing expertise is based upon the nurse's involved, engaged, caring stance in her practice As she explained in *The Primacy of Caring*

> In studying what makes expert nurses effective, we conclude that mere technique and scientific knowledge are not enough Caring causes the nurse to notice subtle signs of improvement or deterioration in the patient In fact, caring (a certain kind of involvement) is required for expert human practice
>
> (Benner & Wrubel 1989)

English's 'redefinition' and 'challenge' to Dreyfus's and Benner's phenomenological understanding falls back on the traditional Cartesian notion that we are subjects standing outside or over an external world which is somehow 'represented' and 'organized' in our mind as a databank of images or experiences In this world, intuition is simply rationality gone underground And what is English's 'evidence' for this? What we are offered is no more than some rather dated and cursorily inserted references to Bandura's social learning theory, Schank's scripts and other assorted 'causal scenarios' and 'schemata', none of which have ever been able to produce convincing evidence for their notions of feature detection or any other rationality-based model to explain intuition

Dreyfus (1992), in his trenchant critique of the artificial intelligence movement which tried unsuccessfully to

operationalize this worldview in computers, is surely more credible when he draws on Heidegger to warn that

> Whatever it is that enables human beings to zero in on the relevant facts without definitively excluding others is so hard to describe that it has only recently become a clearly focussed problem for philosophers Human beings are somehow already situated in such a way that what they need in order to cope with things is not packed away like a trunk full of objects, or even carefully indexed in a filing cabinet When we are at home in the world, the meaningful objects embedded in their context of references among which we live are not a model of the world stored in our mind or brain, *they are the world itself*
>
> Dreyfus (1992)

Heideggerian AI

It is no surprise, therefore, that researchers in artificial intelligence seem to be abandoning an understanding of expertise based upon internal mental representations in favour of what Preston (1993) calls 'Heideggerian AI' (artificial intelligence)

The notion that our understandings and perceptions of our world are basically one of mental representations has been ingrained in western thought since the time of Descartes The subject–object dualism inherent in the representationalist view sees a detached subject making sense of his or her world through a 'complex combination of logically independent symbols representing elements, attributes or primitives in the world' (Dreyfus 1991) This thinking leads us to see all human behaviour as essentially intentional and principle-driven Such a belief forms the basis of most of our society's taken-for-granted ideas and understandings, such as the computer model of the mind, the view that we are disengaged thinkers who put their world together by processing numerous 'bits' of 'sensory information' the notion that nurses can be trained to 'apply theory to practice', the belief that these are facts 'out there' but internally we have 'values', and so on

What English has offered in his critique is nothing more than a collection of the assumptions of this world-view which has dominated western culture and thought since the time of Sophocles and Plato What Benner's work, and the wider interpretive turn of which it is a part (Hiley *et al* 1991), has shown is that for nursing, as for other disciplines, these assumptions will no longer be accepted as eternal truths

English concludes his critique with the inevitable appeal to the positivist's highest court, 'scientific knowledge', apparently still ignorant of the entire philosophical basis of Bener's work, the Heideggerian phenomenological approach which challenges this traditional notion of objective science Seemingly, without this genuflexion towards 'real science' and 'empirical research', nursing will not become a 'research-based profession'

CONCLUSION

I propose that Benner's work is among the most sustained, thoughtful, deliberative, challenging, empowering, influential, empirical (in true sense of being based on data) and research-based bodies of nursing scholarship that has been produced in the last 20 years English (1993) accuses Benner's work of being 'denigrating to the majority of nurses' This will come as news indeed to the nurses throughout the world who are moving nursing research, education and practice along the paths cleared by Benner's work precisely in order to value the clinical and practice knowledge which has for so long been seen as inferior to theory

For example, nurses in practice are using clinical ladders, often incorporating nurses' narratives and based upon the levels of skill acquisition to offer practitioners real clinical advancement within practice based upon their developing nursing expertise (Gordon 1986, Gaston 1989, Alberti 1991) (I will resist the temptation to contrast this with the UK's own abortive attempts at 'objective', 'criteria-based', clinical grading!) Educators are discovering ways in which similar narrative and interpretive phenomenological approaches can help us rediscover the meaning of nurse teaching as what Nancy Diekelmann calls 'the primacy of learning' (Carlson *et al* 1989, Seidel 1990, McElroy *et al* 1991, Diekelmann 1991, 1992, Darbyshire 1993)

Interpretive approaches to understanding the complexity of nurses' clinical judgement have also benefited from Benner's work (see, for example, Tanner 1989, 1993) Research studies which have taken up the call in Benner's work to focus on the richness of a range of nursing practice settings and the wealth of practical knowledge therein are simply too numerous to mention in detail, but see, for example, Gorman & Morris (1991), Steele (1986), Steele & Fenton (1988) and Whitley (1992)

Within nursing's developing tradition of scholarship there is no question of anyone's work being a 'sacred cow' and above criticism and dialogue, and Benner's work is certainly no exception However, it would do nursing's credibility no harm if those who critique (and those who advise them) were to show some understanding of the work of those they would purport to evaluate

The other lesson of English's critique is that, despite its adversarial tone, we should not be too quick to attribute to malice that which can be adequately explained by an

inability to escape from a narrowly defined worldview of scientism and rationalism which is as pervasive in nursing as it is throughout western culture and society

References

Alberti A M (1991) Advancing the scope of practice of primary nurses in the NICU *Journal of Perinatal and Neonatal Nursing* **5**(3), 44–50

Allen D, Benner P & Diekelmann N (1986) Three paradigms for nursing research methodological implications In *Nursing Research Methodology Issues and Implementation* (Chinn P L ed), Aspen Publishers, Rockville, Maryland

Benner P (1984) *From Novice to Expert, Excellence and Power in Clinical Nursing Practice* Addison-Wesley, Menlo Park, California

Benner P (1985) Quality of life a phenomenological perspective on explanation, prediction and understanding in nursing science *Advances in Nursing Science* **8**(1), 1–14

Benner P (1991) The role of experience, narrative and community in skilled ethical comportment *Advances in Nursing Science* **14**(2), 1–21

Benner P (1993) Transforming RN education clinical learning and clinical knowledge development In *Transforming RN Education Dialogue and Debate* (Diekelmann N L & Rather M eds), National League for Nursing, New York

Benner P & Tanner C (1987) How expert nurses use intuition *American Journal of Nursing* **87**(1), 23–31

Benner P & Villaire M (1992) Patricia Benner uncovering the wonders of skilled practice by listening to nurses' stories (interview) *Critical Care Nurse* **12**(6), 82–89

Benner P & Wrubel J (1989) *The Primacy of Caring, Stress and Coping in Health and Illness* Addison-Wesley, Menlo Park, California

Benner P, Tanner C & Chesla C (1991) The nature of clinical expertise in intensive care nursing units *Anthropology and Work Review* **11**(3), 16–19

Benner P, Tanner C & Chesla C (1992) From beginner to expert gaining a differentiated clinical world in critical care nursing *Advances in Nursing Science* **14**(3), 13–28

Carlson L, Crawford N & Contrades S (1989) Nursing student novice to expert Benner's research applied to education *Journal of Nursing Education* **28**(4), 188–190

Darbyshire P (1993) In defence of pedagogy a critique of the notion of andragogy *Nurse Education Today* **13**(4), 336–342

Diekelmann N (1991) The emancipatory power of the narrative In *Curriculum Revolution Reconceptualising Nursing Education* National League for Nursing, New York.

Diekelmann N (1992) Learning-as-testing a Heideggerian hermeneutical analysis of the lived experiences of students and teachers in nursing *Advances in Nursing Science* **14**(3), 72–83

Dreyfus H L (1981) From micro-worlds to knowledge representation AI at an impasse In *Mind Design* (Haugeland J ed), MIT Press, Cambridge, Massachusetts

Dreyfus H L (1991) *Being-in the World A Commentary on Heidegger's Being and Time, Division 1* MIT Press, Cambridge, Massachusetts

Dreyfus H L (1992) *What Computers Still Can't Do A Critique of Artificial Reason* MIT Press, Cambridge, Massachusetts

Dreyfus H L & Dreyfus S E (1986) *Mind Over Machine The Power of Human Intuitive Expertise in the Era of the Computer* Free Press, New York

Dreyfus H L & Dreyfus S E (1987) From Socrates to expert systems the limits of calculative rationality In *Interpretive Social Science A Second Look* (Rabinow P & Sullivan W M eds), University of California Press, Berkeley

Dreyfus H L & Dreyfus S E (1988) Making a mind vs modelling the brain AI back at a branchpoint *Daedalus* **117**(1), 15–43

English I (1993) Intuition as a function of the expert nurse a critique of Benner's novice to expert model *Journal of Advanced Nursing* **18**(3), 387–393

Gaston C (1989) Inservice education career development for South Australian nurses *Australian Journal of Advanced Nursing* **6**(4), 5–9

Gordon D R (1986) Models of clinical expertise in American nursing practice *Social Science and Medicine* **22**(9), 953–961

Gorman M & Morris A (1991) Developing clinical expertise in the care of addicted patients in acute care settings *Journal of Professional Nursing* **7**(4), 246–254

Hiley D R, Bohman J F & Shusterman R (1991) *The Interpretive Turn Philosophy, Science & Culture* Cornell University Press, Ithaca

Keyzer D (1989) Re-thinking the nursing career structure using a skills acquisition model *Nursing Practice* **3**(1), 18–20

McElroy E, Greiner D & de Chesney M (1991) Application of the skill acquisition model to the teaching of psychotherapy *Archives of Psychiatric Nursing* **5**(2), 113–117

MacLeod M L P (1990) Experience in everyday nursing practice a study of 'experienced' ward sisters Unpublished PhD thesis University of Edinburgh, Edinburgh

Preston B (1993) Heidegger and artificial intelligence *Philosophy and Phenomenological Research* **LIII**(1), 43–69

Seidel M A (1990) Guidelines for death education as a developmental process *Loss, Grief & Care* **4**(1–2), 57–66

Steele S (1986) Practice of the master's prepared nurse in pediatrics *Issues in Comprehensive Pediatric Nursing* **9**(2), 107–117

Steele S & Fenton M V (1988) Expert practice of clinical nurse specialists *Clinical Nurse Specialist* **2**(1), 45–52

Tanner C (1989) Using knowledge in clinical judgement In *Using Nursing Research* (Tanner C & Lindeman C eds), National League for Nursing, New York.

Tanner C (1993) Rethinking clinical judgement In *Transforming RN Education Dialogue and Debate* (Diekelmann N L & Rather M eds), National League for Nursing, New York

Whitley M J (1992) Characteristics of the expert oncology nurse *Oncological Nursing Forum* **19**(8), 1242–1246