EMPIRICAL NURSING

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EMPIRICAL NURSING: THE ART OF EVIDENCE-BASED CARE

BY

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INVESTOR IN PEOPLE

I dedicate this book to Alison, Natalie and Rachel, who provided love, support, encouragement and inspiration, but above all, excellent practical advice.

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Foreword

I'm writing this forward on a hot summer's day in England on what has been something of novelty for us – a two-week-long heatwave! At least, there's no need to worry about my vitamin D levels. Isn't it interesting how certain triggers create a certain responses in our brains? Sunshine and vitamin D, carrots and night vision, cranberry juice and urinary tract infections, gluten and allergies, MMR vaccinations and autism. I wonder what your reaction is to some of these? 'That's an old wives' tale' perhaps? Maybe 'oh yes, my grandmother used to say that'? Or, for some, 'Hang on! We know that isn't true?' In some instances, the responses can be instantaneous, as if on autopilot. What is that drives these responses? Using scientific experimentation, Kahneman and Tversky (2000) described this psychological phenomenon of the brain, introducing to us the study of cognitive biases and the idea of slow and fast thinking. They provided ways to show us this in action too. Take the following example: A bat and ball cost £11 in total and the bat costs £1.00 more than the ball. How much does the ball cost? The first time I saw this '£10' also instantaneously popped into my head (the answer is £5). Being mindful of our own cognitive biases and what anchors them is the first step in understanding how they impact the way we assimilate knowledge. And no less so for professions that involve applying knowledge in the care of somebody's health.

Exploring our knowledge of what's 'good' or 'bad' for our health inevitably takes us to advances in research and evidence-based health care. Such advances have allowed us to do away with 'old wives' tales' and healthcare practices once thought to be good for us. There are examples abound: starving for a fever, cocaine for treating depression, putting babies to sleep on their fronts to prevent choking-related death, complete bed rest following surgery or giving oxygen as soon as possible after a heart attack. Practices now known, through scientific research, to cause more harm than good for most are no longer routinely advised or practiced.

However, there are two sides to the coin. The misuse of science can, and does, lead to harm and we need to be ever mindful of this. For many, the words 'Andrew Wakefield' will trigger a very fast response. But it may not be the one you just had. I read in the news recently that there had been an outbreak of measles in the city of Bristol. And not an incidence isolated to one city in the UK. It appears at least some people have been anchored to the original ideas of Wakefield that were rapidly and widely disseminated, and recently amplified via new and all-pervading media avenues, resulting in real harm.

The introduction of evidence-based medicine in the early 1990s shone a light on the way healthcare professionals made decisions. 'That's how we've always done it', 'It makes sense' and mechanistic reasoning dominated. This is not to

say that patient care and well-being weren't at the heart of their decisions; it's just that how these decisions were made wasn't really questioned before. Basing them on good scientific evidence it turned out was low down the list of priorities. Its introduction also led to the need for new skills. The development of evidence-based practice has continued apace, and at its most basic represents the skill of debunking, and the art of understanding and relaying the uncertainties of scientific evidence. All health professionals should have this skill, as Paul Glasziou et al. (2008). 'A twenty-first-century clinician who cannot critically read a study is as unprepared as one who cannot take a blood pressure or examine the cardiovascular system'. This applies to all health professionals, including nurses.

In an informative and accessible way, the author explores the nature and philosophy of science and the practice of evidence-based health care. In the first chapter, he explores and expands some of the themes previously mentioned, particularly the worrying trend of public scepticism in science, driven by 'fake news' and celebrity-based medicine and the pivotal role nurses play in dispelling myths, both old and new, and ensuring their patients are informed by the best available scientific evidence. In Chapter 2, he provides a detailed overview of key epistemological theories; their origins, examples of their applications, discussion of relative their strengths and weakness, and the nature of science, challenging the reader to consider them in the context of their own practice and knowledge acquisition. These chapters are a crucial introduction, before the author moves on to discuss some fundamental aspects of science, including causality, its alternative approaches and the social sciences, highlighting inherent deficiencies within each and the active efforts to address them. Throughout, the ideas explored are summarised and placed in an evidence-based context, ensuring relevance and interest to all practitioners.

Readers will find Chapter 6 particularly useful as this is where the knowledge and skill of evidence-based practice is introduced. In a lucid manner, the author provides excellent explanations of the key concepts that underpin health research that will be of great use to those with limited knowledge, while acting as a great reminder to those more familiar with them. The author should also be praised for discussing some of the criticisms of evidenced-based practice and how to address them. As already stressed, this knowledge is vital in modern health care and a skill that all involved in this area should have. This book will provide you with it.

Bad science and ways to challenge it are the focus of the latter chapters. The rise of pseudoscience as a rational and realistic alternative is particularly prevalent in health science. As a health practitioner, there will undoubtedly be times when you will need to discuss the wishes of a patient who has inadvertently succumbed to some news story of a new, non-scientific approach. In such times, you will need to use your debunking skills, and this chapter acts as great base for developing them. He concludes with a consideration of the art of nursing practice based on science and evidence in the context of knowledge generation and effective practice.

The author leans frequently on the work of Bertrand Russell, as too will I in summary:

> The art of basing convictions on evidence, and of giving them only that degree of certainty which the evidence warrants, would, if it became general, cure most of the ills from which this world is suffering.

This book will serve you well in your development as an artist of evidence-based practice.

David Nunan, June 2018
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Preface: Using this Book

While the author would like to assume readers will ponder on every word of this book in great detail, the reality for most time-pressed nurses is that they will want to use it as a reference text to explore specific ideas at particular times, as they find necessary. Therefore, this book has been designed for use in different ways: as a textbook, a reference source, or as a concise guide and primer to scientific thinking and its application in nursing. The blend of art and science that makes up nursing is explored with the aim to emphasise the value of creative scientific thinking for practical nursing issues and understanding how to avoid the pitfalls of non-science, pseudoscience, and even bad science along the way. Even those already familiar with scientific epistemology may find some interesting arguments and challenges to their foundational beliefs.

Although the book covers a wide range of philosophical approaches in nursing, it is not designed as a comprehensive philosophy text. Given the great volume of manuscripts devoted to this subject throughout the history of civilisation, it would be presumptuous to hope to do more than explore the fundamental concepts in a text of this nature. References to further readings and sources are given for the reader who wants to know more. Assume that you will encounter new ideas and terminology as you read, and you should expect the need to explore other sources. Readers who want to quickly get to grips with such terms as ontology, dialectic, nominalism, hermeneutics or gnostic can find a quick reference in a glossary of key terms included at the end of the book and an extensive index.

This text together with the references supplied, and excellent sources now available on the Internet, should enable the reader to understand the key concepts and arguments. In addition, a simple "Good Science Detection Guide" is included in the appendix to aid in the identification of the good, the bad, pseudoscience and non-science in healthcare writing and research. Summary ideas for critical discussion are also presented at the end of each chapter that may be helpful for those teaching this material.

Finally, it is also acknowledged that any book exploring this subject cannot be value-free, and therefore, a particular perspective on philosophy and nursing is presented here that aligns with empiricism, and contemporary science, and one that I hope readers will find compelling.

Bernie Garrett
June 2018

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Chapter 1

Science and Nursing – Why Should I Care?

> Science alone of all the subjects contains within itself the lesson of the danger of belief in the infallibility of the greatest teachers in the preceding generation […] as a matter of fact, I can also define science another way: Science is the belief in the ignorance of experts.
>
> Richard Feynman (1918–1988)

For such a highly science-based discipline, it seems a paradox that nursing education spends so little time actually exploring the philosophy of scientific inquiry. With the current pressures on curriculum space, the same is true for most health professions. Most nurses will not have examined the basis of scientific thought much since high school, and even then, the subject is often not covered in significant depth. Although the methods of scientific inquiry are examined in undergraduate nursing programs, the underlying philosophy (the fundamental nature of knowledge) behind modern science is often only explored in very rudimentary terms, such as by contrasting positivist and humanist approaches. This can give rise to some perplexity over what is and what is not scientific inquiry. This book seeks to address this and give both practicing nurses and students a sound understanding of modern scientific thought and its origins. In this book, the key scientific concepts and principles that underpin contemporary evidence-based health care and the practical application of empirical nursing are explored. Nurses will also find rationales to make sound scientific arguments to support their practice, and to readily detect poorly structured, pseudo-scientific or unscientific arguments and practice.

Readers may ask, 'Why should I care about scientific philosophy, as I've got by fine without any in-depth knowledge of this so far in my career?' In short, the answer is that in order to provide the best quality professional care, you need to be able to discriminate effectively between alternative therapeutic interventions, quickly identify illegitimate and inaccurate arguments and make decisions that support the optimum healthcare outcomes for your patients and clients. With the explosion of the information age, a growing volume of unscientific, pseudo-scientific, and simply bad science has pervaded nursing and other healthcare disciplines. There has been an erosion of science in nursing education where the philosophy of science and the approaches that underpin evidence-based practice (EBP) often get limited time in the classroom today, or at least get unequal time

compared to alternative discourses. The long answer to 'why should I care?' is more complex, and in the book, a number of arguments are presented as to why it is important to get a good grounding in this area to be an effective nurse. In particular, this is to counter the increasing use of alternative epistemologies to explain nursing phenomena under the guise of scientific inquiry, and the growing trend in deceptive health practices that are falsely presented as science-based health care. The disciplines of science and nursing are being assailed in both contemporary socio-political structures and within academia. A good knowledge of scientific philosophy will help the reader identify bogus arguments that may impair quality care.

Science Under Siege

Over the last 25 years, an interesting irony has arisen in the way science is perceived versus how much it is relied upon in our increasingly technological world. The public view of science seems to be becoming more and more negative in modern society, despite the fact that that same society has become increasingly more reliant upon it to function. Although we now live in a world that relies on the products of science to fulfil our basic and more advanced needs, postmodern academics now question the fundamental principles of science, and its value to society, and people who put belief in expert opinion or other authorities frequently reject scientific findings in favour of testimonial or dogma (Frazier, 2009; Freese, 2001).

This trend is also becoming apparent in health care and in nursing practice. Naturopaths and media figures such as Jenny McCarthy tell people to ignore the scientific evidence on vaccinations and trust in their vital energy or maternal intuition in making vaccination choices for their children. Spiritually based theories, bizarre alternative therapies, health machines, traditional remedies, and nutritional supplements based on magical explanations proliferate with no substantive evidence of benefits. Many nursing academics would argue that as nurses this is as it should be, as we must consider a multiplicity of narratives and be culturally non-judgmental in such considerations. There is some merit in this as a philosophical stance, but this highlights the alignment of nursing with the methods of the humanities rather than the naturalistic sciences, which few would argue, is now well established. Nevertheless, as health professionals, there is also a duty to balance personal perspectives with evidence, the wider socio-economic implications for health care, and consider the nature of evidence itself (Thorne, 2018).

This polarization of perspectives has been a significant trend in the later part of twentieth-century academia, and particularly in nursing. C. P. Snow suggested, in a famous 1959 Rede lecture (and later in his book), that there were diverging trends between the cultures of science and the humanities which he called 'the great divide' and that the split between the two cultures of science and the humanities was a great hindrance in solving the world's problems (Snow, 1993). John Brockman also suggested there was a third culture of

scientists communicating directly with the public about their work in media without the intervening assistance of editors (Brockman, 1995). However, today, incompetent and sensationalist reporting not to mention stereotyping by the media make it difficult for scientists to get their work understood (see Chapter 7 for examples). Advertisers make use of science and scientists to promote products (usually in iconic white lab coats), but science in the media is generally portrayed as nerdy, boring and difficult, whilst scientists are typically portrayed as either morally negligent, mad/evil villains, boffins, eccentric loonies or (perhaps more worryingly) spending their lives developing the latest cosmetic products.

These popular culture images of science and scientists have impacted public trust and confidence in science-based health care. In a 2006 Harris survey of trust in various professions, only about 50% of those surveyed identified doctors and nurses as being completely trusted to give professional advice that was best for patients. In 2010, an Angus Reid Opinion Poll in Canada revealed that an increasing number of Canadians did not trust their doctors (Gillis, Belluz, & Dehaas, 2010). Another 2014 study in the USA confirmed the trend of decreased trust in public institutions and medicine. Whilst in 1966, more than 75% of Americans trusted their physicians, only 58% of people in 2014 agreed that doctors could be trusted (Blendon, Benson, & Hero, 2014). Again, in 2014, during the Ebola crisis of that year, less than one-third of Americans said they trusted public health officials to share complete and accurate information (SteelFisher, Blendon, & Lasala-Blanco, 2015).

Much of the public remains scientifically illiterate due to continuing poor science education in our schools and pseudo-scientific narratives on the web. Even worse, many physicians and nurses fail to truly understand scientific methodology, often failing to discriminate effectively between a sound hypothesis and hyperbole. It is worth considering if nursing is best served by continuing down this path in the future and if scientific literacy is actually necessary for a nursing qualification. Currently, scientific illiteracy is not a major impediment to success in business, politics or in the arts; nursing could soon join their ranks in this respect.

Nursing Epistemology

As professional practitioners focused on health care, nurses are concerned with the why and how questions of health care in their everyday practice. For example, 'Why is my patient experiencing pain?' or 'How is this drug likely to affect my patient's mental state?' and so on. In order to answer these in any meaningful way, nurses need some common terms of reference, and a framework of understanding healthcare phenomena. In this, nursing is still struggling as a discipline to establish consensus as to the best way forward, although this is hardly surprising, as philosophers have been struggling with these big questions for centuries. These include such questions as 'What are the necessary and sufficient conditions of knowledge?' 'What are its sources?' 'What is the structure of

knowledge?' and 'What are its limits?' The study of the nature of knowledge and justified belief is known as epistemology, and this and its relation to nursing knowledge is one of the key areas that seem to interest nursing theorists. The academic journal *Nursing Philosophy* is primarily dedicated to exploring this very area.

In the consideration of the epistemology of nursing knowledge, it is important to deliberate what is meant by the concept of justification itself. The more recent trend towards evidence-based health care, medicine, and nursing has resolved some of this debate for nursing, but even that has been severely criticized by some nursing academics (Holmes, Murray, Perron, & Rail, 2006). The following chapters explore why an empirical approach makes good sense for developing nursing epistemology and justifying the practice. Science itself represents a belief framework as much as any other, so before proceeding too much further perhaps, it is worth considering what science actually is?

Science and Technology in Nursing

Simply put, science is a way of understanding the world. The term comes from the Latin, scientia, meaning knowledge. Science was originally synonymous with philosophy in the ancient world, and today is still used less formally to describe any systematic field of study. However, here it will be used to describe the system of acquiring knowledge through the use of explanations and predictions that can be tested. The key element of scientific inquiry is that it involves evidence and explanation of the phenomenon by observation and experimentation. In reality, the definition of science itself has come under scrutiny many times, prompting the UK Science Council to publish its latest definition in 2009, which works well here:

> Science is the pursuit of knowledge and understanding of the natural and social world following a systematic methodology based on evidence. (UK Science Council, 2018)

Nursing can be considered a scientific discipline in that it represents a collective of academic scholars and practitioners that generate and add to a distinct body of knowledge. It is also an academic discipline in the sense that this knowledge is suitable for both teaching and learning (Phenix, 1962). Nursing is also often described as an applied science (and often resides within such a faculty in universities' organizational structures) as it is concerned with the application of research into human needs, and it is notable that despite its human focus, it is heavily dependent upon technological innovation for its practice.

Technology can be considered the application of tools and techniques to solve practical problems. It comes from the Greek word technologia meaning art or craft. Although frequently used in relation to science, technology involves the use of technical means derived from both science and art. Technology is often conceptualized in terms of complex electro-mechanical devices but a simple

pencil and paper also represents a technology. Ever since humans first began to use tools, technological advancement has progressed. For our purposes, technology may be considered as the application of products from the findings of scientific inquiry, and in this way, nurses are heavily involved in the use of healthcare technologies in their everyday practice, from computers to stethoscopes. So why has health care become so dominated by science and technology?

Science and Medicine in Contemporary Health Care

Few would argue that contemporary health care in the economically developed world remains dominated by medicine. Apart from historical gender-based and socio-cultural rationales, a major reason for this continued dominance is that the discipline has established a track record of effective practice over the last century. To date, this has been unrivalled by alternative health practitioners, and together with the legal control of medication prescription, medicine has maintained dominance in health care. This state of affairs has a relatively short history, however; and before the last century, the success of medical practitioners was not that much better than other health service providers. Even Hippocrates of Kos (460–370 BCE), who is considered the father of medicine and introduced some aspects of science advocating meticulous observation of patients, identified that more than half his patients succumbed to the diseases he was treating them for. In the seventeenth century, there were clear divisions between medicine, surgery and pharmacy, with no clear leader in terms of effective practice. Physicians held university degrees and prescribed a range of remedies, some rather dubious such as medicinal snuffs, effervescent salts and anodyne necklaces. Surgeons were apprenticed, often serving in the dual role of barber-surgeon and practiced bloodletting, whilst apothecaries undertook apprenticeships to make and sell a variety of medications, including traditional remedies with uncertain efficacy. Eventually, with the increasing success of surgery (particularly following the invention of antiseptic surgery by Joseph Lister in 1865), this distinction between medicine and surgery did not survive.

Prior to 1900, there were few effective medical treatments for any of the major illnesses and maladies affecting people of the time. For example, tuberculosis, a major killer, was only identified as a bacillus in 1882, and a successfully immunized against by Bacillus of Calmette and Guérin (BCG) in 1921 in France, 18 years after the first powered aircraft had flown. Even then it was not until after World War II that that BCG received wider acceptance elsewhere in Europe and the Americas and further afield. The use of sound scientific practice by physicians was yet to develop and many doctors were prescribing dangerous treatments in the 1920s, such as chlorine gas for the common cold. There was narcotic analgesia, and insulin, but precious little else in terms of substantial effective therapies prior to 1935, but this was rapidly to change with an exponential increase in effective therapeutic interventions, becoming what has been termed a golden age of medicine (Goldacre, 2008). This golden age was heralded by the advent of a huge range of more effective medical and surgical

interventions and health knowledge including antibiotics, anaesthesia, thoracic surgery, vascular surgery, neurosurgery, solid organ transplantation, dialysis, radiotherapy, intensive care, and establishing causative links between diet, exercise, and smoking on cardiovascular and respiratory diseases. These rapid developments in effective proven therapeutic interventions were the product of huge leaps forward in scientific knowledge and technology during this time such as pharmacology, the discovery of DNA, non-invasive medical imaging and information technology. To be balanced, it is also worth recognizing that medicine also made serious blunders causing harm along the way too. For example, Dr Freeman and Watts' lobotomy procedures in 1936, or Dr Benjamin Spock's advice to put babies on their front to sleep in 1946. Overall, medicine has become established as a rigorously science-based discipline, requiring qualification in the naturalistic sciences (physics, chemistry and biology) for entry to training, adopting a biomedical framework and developing evidence-based medicine alongside improved ethical codes. This is one of the major reasons that medicine has maintained its status as the preeminent health profession in much of the world.

Nursing Science

Nursing has also benefited from the adoption of a scientific archetype in its professional development, but Nursing now stands at rather a crossroads for its future disciplinary development. Nursing has enjoyed a collegiate and at times tempestuous relationship with our medical colleagues over the last century and a half, establishing professional self-regulation in the face of medical opposition and challenging it when questionable medical practices occurred.

Florence Nightingale (1820–1910) gives a good example of the scientific practice of direct observation and hypothesis with her suggestion to an unheeding British military that most of the wounded soldiers in the Scutari were dying due to poor living conditions, rather than their injuries. She also supported the use of standardized procedural rules for the care of patients, based on the scientific knowledge of the time. Likewise, Mary Seacole, another nursing pioneer of the Crimean war, identified that poor nutrition and unsanitary conditions were a major problem for recovery of soldiers. Nightingale also suggested that 'Evidence, which we have means to strengthen for or against a proposition, is our proper means for attaining truth', clearly identifying support for an empirical basis for nursing care at the onset of our professional organization.

Nursing's disciplinary focus is of course, very different from medicine, in that nurses focus on patient/client care and health rather than the treatment and amelioration of illness and disease. Most nurses are motivated to enter the profession specifically with a desire to attain the knowledge, practical skills and attitudes that will allow them to help people improve their health status and maximize their quality of life, or when this is not possible to help them to die peacefully and with dignity. And here lies the most fundamental difference between nursing and medicine as distinct disciplines. Whilst medicine has identified a clear and

distinct focus on preserving health by diagnosing, treating and preventing disease using a biomedical model, adopting an empirical scientific framework, nursing has adopted more behavioural models of health and struggled with a foundational philosophy, as human behaviour, care, quality of life and health are by their very nature more complex multi-faceted concepts. Historically, the development of nursing has also had a strong link with theology, particularly the ideas of giving service and aiding the sick, and this can be seen as reflected in the contemporary work of nursing academics exploring ontology, the nature of being or existence. This has become a more prevalent trend amongst nursing theorists over the last 25 years with some novel conceptual frameworks for nursing being suggested, Parse's human becoming theory being a key example (Parse, 1992). Much of the recent development in nursing theory and research has also incorporated an increased focus on alternative post-modern and feminist philosophical approaches with the further alignment of nursing with the humanities, in the desire to develop a unique disciplinary body of knowledge. Following trends in the social sciences and arts has led to the promotion of the ethos in nursing academia that nursing science has evolved further from traditional positivist science to a broader humanistic interpretation. However, on closer inspection, this represents a rather simplistic exploration of these issues and of the current state of scientific philosophy. It has even been questioned whether contemporary nursing science as envisaged can legitimately be considered a science at all (Winters & Ballou, 2004). The nature of this argument and different viewpoints as to what actually constitutes modern scientific inquiry and nursing will be explored further in this chapter. There is a sound case to be made that nursing should be underpinned by scientific knowledge, but it is also foremost a practical profession concerned with action (or praxis) rather than theory.

Nursing Praxis

The ancient Greeks identified three basic human activities: theoria (focused on knowledge leading to truth), poeisis (focused on creation and production) and praxis (focused on enacting skills and action). Both Aristotle and Plato used the word 'praxis' to describe the activity engaged in by people where the end goal was action. And Aristotle also identified praxis could be good (eupraxia) or bad (dyspraxia) depending on the knowledge and, of course, skill of the practitioner. This necessitates some notion of moral reasoning or phronesis, to establish what is considered good in a given situation.

The nature of praxis has occupied the thoughts of many philosophers over the years from Immanuel Kant to Martin Heidegger. Karl Marx discussed it in that he suggested the purpose of his political philosophy was to understand and change the world rather than simply explain it, (Marx & Engels, 1965) whilst Paulo Freire suggested praxis required a process of reflecting upon the world followed by action to transform it (Freire, 1973). It can be argued that nursing is a form of praxis in that it is a practice-based discipline, and in that nurses are

concerned with the application of practical therapeutic techniques to maximize health and minimize suffering, and positive action rather than simply academic inquiry with a focus on theory rather than action.

If the profession of nursing is a form of praxis, it follows nurses should be concerned with what knowledge is required to inform this praxis, support eupraxis and avoid dyspraxis. This in turn leads us to consider, what the nature of this knowledge should be, and from a pragmatic approach, what epistemological foundations of nursing knowledge are most likely to result in eupraxis. In other words, how should nursing knowledge be generated and used by nurses to best maximize positive health outcomes for patients or clients? This then is the central question behind our concern with the nature of nursing knowledge (nursing epistemology) and ongoing struggles within nursing academia to define nursing phenomena and knowledge and its relation to science.

Pragmatism and its Value for Nursing

In exploring modern scientific thinking and its relationship to nursing, a key theme encountered is the value of a pragmatic approach. Pragmatism presents an approach that fits very well with the principles of praxis in nursing and in a contemporary scientific approach to nursing knowledge. The term is derived from the same Greek word 'pragma', meaning action, from which the words 'practice' and 'practical' are derived. Rather than trying to explain the nature of reality (metaphysics), a common target for philosophers, pragmatism instead tries to explain, humanly, how the relationship between the individual and their knowledge works in the practical everyday world. Pragmatism involves the idea of the theory being derived from practice and then reapplied to practice in different contexts, with the aim to support and improve it, and that theory is essential for more effective practices to develop.

The origins of pragmatism are generally credited to Charles Sanders Peirce (1839–1914), who is one of the founders of modern statistics and coined the term in an article entitled, *How to Make Our Ideas Clear* (Peirce, 1878). In its simplest terms, pragmatism purports that something is true only insofar as it works and considers practical consequences or real effects to be vital components of both meaning and truth. Pragmatists assert that the scientific method is best suited to theoretical inquiry, but that any theory that proves itself more successful in predicting and controlling our world than others can be considered to be nearer the truth and more valuable. However, there remain very different interpretations of pragmatism; some suggesting truth is inconsistent or relative. This will be discussed further when pragmatism is explored in more detail in Chapter 4. Overall, a pragmatic approach to epistemology has value for nursing, since it is outcome focused and clearly acknowledges the changing state of human knowledge and the limitations of cognitive processes in understanding the world. These ideas reflect modern scientific philosophy very well and, it can be argued, provide a more substantive basis for nursing practice, with nursing

identified as a pragmatic profession focused on action but underpinned by science as the basis for its theoretical support.

Making Sense of Nursing Theory

Nursing is a unique mixture of both science and art and represents a discipline that embraces both in its practice. Nursing knowledge requires grasp of a wide range of theory in addition to practical techniques. For example, understanding of the theoretical pharmokinetics of a therapeutic medication, the behavioural psychology concerning compliance and the sociological implications for medicating the patient with this drug. Artistry can be clearly seen in skills involving psychomotor and cognitive techniques requiring the development of ability through practice, with which a degree of mastery can be obtained (Benner, 1984), for example, patient assessment and communication skills. Of course, artistry in nursing may be demonstrated in many other areas such as creativity and problem-solving. A professional nurse requires significant education and training to develop such knowledge, skills and attitudes, and the body of theoretical knowledge supporting the discipline of nursing is dynamic and rapidly changing.

Given the hugely expanding knowledge base in nursing and the associated plethora of jargon readily apparent in social sciences and nursing, it is important for us to present ideas in meaningful ways. I would argue that the task of the educator is to explain complex ideas in as simple and practical terms as possible, rather than the converse; to which approach, alas, I note many modern nursing academics seem to subscribe. It is important for nursing theorists to attempt to present ideas in as plain a language as possible rather than obfuscate it with contrivance and unintelligible jargon in an attempt to appear innovative and more erudite. Using technical terminology is certainly not to be avoided, but it makes sense to use technical terms only where they readily convey an idea in a more succinct manner than other available terms or meaningfully describe a new phenomenon.

Nursing academics should desist from using jargon unnecessarily or combining adjectives and verbs together that make little sense to the uninitiated (rest assured there are some first-rate examples of this later on in the book). In this approach, we are in the excellent company of Einstein who suggested that if you can't explain an idea to a six-year-old, you probably don't understand it that well yourself. This seems sage advice.

Summary

Overall, this book presents an epistemological framework that is commensurate with modern evidence-based health care and serves as a solid foundation for nursing theory as a distinct body of knowledge within it. It presents an argument for modern, creative science as a productive way for nursing to further develop its knowledge base and for nurses to maximize their impact on society as healthcare professionals. In order to care for patients most effectively, nurses need to

adopt a pragmatic stance and not be focused on which ideas and explanations represent truth, but which approaches and arguments best describe phenomena given our current state of knowledge; or if they don't, what other ideas or theories could explain them. This forms the basis for modern thought in clinical practice. Despite all of its problems, modern science still provides the most useful and practical approach for us to understand health phenomena and a basis for providing high-quality care.

By now you will have gathered this book itself takes a particular perspective and other viewpoints are available and should also be considered by the reader. However, I hope that the arguments and ideas presented here will help inform the reader in their quest to understand nursing theory and research and help improve practice. The following chapters develop this theme and explore why nurses should consider the rich history of scientific philosophy, the value of science for nursing and consider how alternative viewpoints have influenced the profession.

Key Points for Further Discussion

- How does scientific philosophy apply to nursing practice? Is nursing more art or science?
- Can one be an effective nurse without using a scientific rationale for nursing action?
- What are the implications of nurses not understanding of scientific philosophy for patients or clients?
- Can you think of think of an example where pseudoscience or simply bad science has negatively affected patient care, and what were the reasons behind this occurrence?
- What does praxis mean in nursing terms?
- Is pragmatism useful for an approach to nursing?
- Does the scientific paradigm best describe nursing phenomena?

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