

# The need for research in innovation and change

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*As no other dare fail.* SAMUEL BECKETT<sup>1</sup>

The title you gave me for my talk is interesting, not least for the fact that it bears a striking resemblance to the Keynote Address given at your annual conference last year by Kathleen Lynch - *The Role of Research in Innovation and Change*.<sup>2</sup> I think I may make two assumptions and one speculative deduction. First the assumptions: the topic has been dear to your hearts and you would not wish me to stray into the areas so comprehensively covered in last year's address - this directs me, therefore, towards the more practical rather than the speculative aspects of research in nursing. I may deduce, perhaps, that you have chosen the title with some care, and that whereas last year your philosophy permitted only consideration of the *role* of research in a relatively abstract way, a year on there is more urgency as indicated by the replacement of *role* by the more imperative word *need*. It is my hope that my comments will be taken not alone as the views of one who has engaged in and enjoyed research, but also as one who believes that my sister profession of nursing has much to contribute to the totality of medical research.

## Definition of research

The word 'research' has many meanings and many definitions, none of which seem to me altogether satisfactory. The word itself derives, it is thought, from the French *chercher* (to search), and the Latin *circare* (to go around in a circle)<sup>3</sup> - the latter often being particularly apt. Whatever definition is used, there is general agreement that the process is concerned with discovery, and most would agree that the application of the reasoning process is essential. Let us see if we can define it to suit our needs:

*Research is a process which originates in a thought arising from an observation or from a cognitive process deriving from previous knowledge and/or experience and which leads to the formation of a question (the hypothesis or theory) which begs confirmation or refutation and demands (at least from the scientifically trained), the application of reasoned empiricism to devise the most appropriate test methods to fulfil this requirement*

If we accept this working definition, the next problem is deciding exactly what activities should be permitted to constitute the 'process' defined above, or more interestingly perhaps, which activities should be excluded. I do not propose to become too obsessional about this. I am prepared to accept that virtually all exper-

ience can qualify for the research process provided the definition I have construed is fulfilled in other respects, namely the formulation of an hypothesis and the reasoned and logical testing of that hypothesis.

We have then many prefixes to the term 'research' which tell us little or nothing about the quality of the activity being considered, viz.: *clinical* research, *biomedical* research, and let us not forget *nursing* research or that chestnut of chestnuts *scientific* research. To be sure we may see ourselves as clinical, nursing or indeed scientific researchers but such appellations tell us as much about the quality of endeavour as does the term *seamstressy* differentiate between the laundry needle woman and Coco Chanel.

Provided the observation that fires the process of enquiry is fanned into the flame of constructive reasoning so as to test its validity or otherwise, the essence of research is served. Within the clinical ambit, into which most (but by no means all) nursing research falls,<sup>4</sup> very little may therefore be excluded.

The much maligned observational exercise popularly denoted by the term 'audit' is no exception provided the observation is subjected to testing rather than merely reported upon as might the bird-lover capture a flight of starlings in his binoculars, whereas the ornithologist

would not be satisfied with the observation alone but would wish also to determine by enquiry why the starlings weave such sensuous patterns upon the sky and not alone why, but how, they do so with such uniformity of purpose.

The case report, on the other hand fails to fulfil our definition of research, in that it records merely the observation and, generally speaking, does not test a hypothesis. The basic observation that constitutes a case report may, none the less, serve as the stimulus or question for another, who may, in turn, conduct research that would satisfy our preconditions.

Indeed, art, genuine art, is *research*, incorporating as it does observation followed by an arduous methodology that tests the veracity of the initial observation until a result compatible with that observation is produced. The difference between the research to which you and I are accustomed, and that which culminates in art is that we deal with facts, (or do we - they can be so transient - the facts of today being the falsehoods of tomorrow!) whereas the artist deals with abstractions, but they, in time, may become more durable than the 'facts' with which we deal.

A word about serendipity in research, by which is meant that the chance observation leads to discovery. But as Pasteur has remarked chance favours only the

prepared mind. The laurels of research fall often to he who not alone makes an observation but who has the perspicacity to test it through experimentation to publication, thereby releasing discovery to fellow scientists. Within my own sphere of research an example springs to mind. In 1904, Theodore Janeway, physician to Cornell Hospital in New York wrote a superb monograph on blood pressure measurement in which he mentioned that he had heard sounds with a stethoscope over an occluded brachial artery, a subject to which he promised to return later.<sup>5</sup> He never did and on the opposite side of the world on the Russo-Japanese front, a Russian army physician, Nicolai Korotkov, studied a similar phenomenon, presented it for his thesis which was published in 1910,<sup>5</sup> and the world of medicine hailed his discovery by granting him eponymous immortality. How easily we might speak today of Janeway rather than Korotkov sounds!

Again, returning by way of light relief, but not devoid of purpose, to art, you will be aware that the concept of the blood in arteries actually exerting pressure was not demonstrated until 1733, when the humanist and divine, Stephen Hales demonstrated that blood rose to a height of nine feet in a tube inserted into the artery of a horse.<sup>5</sup> But had a scientist with a 'prepared mind' been alert and about in the Italian village of San Sepulcro two centuries earlier, in 1465, and had that scientifically thinking gentleman pushed open the door of the Church of San Francesco, he would have been astounded to view upon the walls *The Legend of the True Cross* painted by a local artist of renown, Piero Della Francesca.<sup>5</sup> Closer inspection of these astounding scenes would have revealed that the artist was ahead of science, as one of the paintings shows, and had he reasoned on this phenomenon, he might have been led to discover blood pressure and even the circulation of the blood.

### The importance of research

The primary goal of research is discovery whereby, at least in the clinical context, it is hoped that the suffering of the ill will be alleviated and the future of the healthy prolonged. However, research has a number of secondary goals among which is the provision of an intellectual milieu in which scientific principles are used to create that critical awareness so necessary for an appreciation of developments in medicine. Without research this critical

ability is undeveloped and nurses without experience in research, together with their doctor colleagues who have no experience in research methodology, are bereft of the ability to judge one treatment against another or to initiate change, simply because they have to accept uncritically so-called scientific dogma.

Without this critical faculty, to which I shall allude more than once, the nurse, indeed all humanity, is deprived of the potential that characterises our supremacy in the animal kingdom, for it is this faculty that so elevates us. Let me assure you that when I apply my remarks to nursing I do so only because you have selected me to address your discipline and to concentrate, therefore, my focus, however critical its beam, on you. Were I called upon to address our medical colleagues they would stand more heavily indicted, I assure you, for they have been afforded opportunities denied thus far to you, and have squandered these quite shamelessly over many decades.

Let me illustrate by personal experience what I mean by critical awareness in the nurse. In my daily practice on the wards I harbour a pet aversion which I occasionally vent, namely the routine recording of nonsensical measurements. Were all nurses exposed to research, were they acquainted with the scientific method, even only theoretically, I assure you they would not have tolerated the wasteful use of their time in the performance of so-called *routine measurements*. Would not the nurse with the critical awareness engendered by familiarity with the research ethos ask herself how it is that the city of Dublin respire uniformly at 20 per minute day and night, north and south of the Liffey? And having determined that the measurement is merely a figment of the measuring nurses imagination, would she not then be led to ask why no one cares? Did she do so, she would then be drawn to examine the rationale that led to the introduction of the measurement in the first place and she would find no doubt that when Robert Graves introduced the method of charting physical signs to the wards of the Meath Hospital in the early nineteenth century,<sup>6</sup> the physician was dependent on the respiratory rate to enable him to judge the crisis and lysis phases of pneumonia, on which depended the outcome of this so-often fatal illness. She would appreciate through her research of the literature, the value of this measurement to clinical medicine but she would also discover that with the introduction of antibiotics the disease had

changed but not the practice of nursing, simply because the nurse was not trained to question critically what she was doing, and perhaps just as importantly, even had she done so, her relationship and standing with her medical colleagues was such that she would have been censored for impudence rather than praised for her perspicacity. The same principle applies to many other measurements performed by the nurse in the pursuance of her clinical duties. The word *routine* when applied to measurements or to investigations is anathema to me. We should only perform measurements or investigations because they serve to answer a particular question that will further the management of our patients.

### The discipline of research

If research in nursing is to serve innovation and change in the nursing profession it is imperative for nurses to become acquainted with the rules of research as they apply to grant applications, establishing research protocols, obtaining patient consent, seeking ethics approval, recording data, presenting data and submitting reports must be acknowledged. There is only one yardstick by which research can be assessed and that is publication. But the path to publication is long, tortuous and arduous and many who set out fail to arrive. It might not be remiss, therefore, to summarise the research process from conception to publication.

#### THE DEVELOPMENT OF A CONCEPT

*The thing that had been, it is that which shall be;  
and that which is done is that which shall be done:  
and there is no new thing under the sun.*

ECCLESIASTES 1.2

The stimuli that generate an idea are many and varied and beyond discussion. However, two caveats are worth sounding. The first is encapsulated in the quotation from Ecclesiastes which serves to remind us that no matter how original or brilliant we believe our idea to be, the likelihood is that someone else will have had a similar idea and may already have conducted the research on which we plan to embark. Very careful consideration must be given, therefore, to asking simply *Is it worth doing?* It is imperative at this stage to discuss the proposed project with someone who is expert in research and preferably in the area of proposed endeavour. Put another way by a nursing researcher, Bobbye Gorenberg, 'The problem is not what research method to

use but what research question to ask and how the question can be answered best.<sup>7</sup>

Indeed, in this age of computer technology where we are able to use the most powerful computer statistical packages in our own homes, it is salutary to look back to one of the most revered members of your profession, Florence Nightingale. She appreciated the value of statistics which she used to determine how best the medical needs of an army could be provided, how sanitation might be improved and how hospital records could be standardised so as to provide accurate records of morbidity and death.<sup>8</sup> Her writings on these subjects are models of clarity of thought and expression. She presented her work at the International Statistical Congress in London in 1860, where she became the central figure thus demonstrating, in an age when the word 'feminism' had not been concocted that the nurse had a role and a most valuable one, in medicine. Perhaps a century was needed for nursing to mature for it to have the assurance to attempt a redefinition of its role within the caring profession.

**WRITING THE PROTOCOL** Let us assume that the idea is considered worthy of study. The next stage is to write the protocol, a most important stage but one which is often given only cursory attention. It is at this stage that the researcher may realise that the proposed research is not worthwhile. A protocol should essentially be the final paper minus the results. It should follow, therefore, the structure of a scientific paper by adhering to the following schema which will be also that of the paper.

**TITLE PAGE:** Title, author(s), institute(s), keywords, acknowledgments.

**INTRODUCTION:** A brief account of why the project is considered worth doing.

**METHODS:** A detailed account of the methods to be used. This should include the methods of analysis to be employed. If, as will usually be the case, a computer program is to be used for analysis, this should be referenced. It is also useful at this stage to design the sheet on which patient data will be recorded.

**RESULTS:** This obviously remains blank at this stage

**DISCUSSION:** The relevant literature should be reviewed, discussed and referenced.

**REFERENCES:** The introduction, methods and discussion sections should be fully referenced in the style used by the journal selected for ultimate publication.

**APPLICATION FOR FUNDING** Once the protocol has been completed, the project can be costed and appropriate sources of funding assessed. It is then necessary to complete the often complex forms for a grant application.

**ETHICS COMMITTEE APPROVAL** All research must receive the approval of an Ethics Committee and most grant-awarding bodies and indeed, editors of journals make ethics approval a prerequisite of all research. Among the ethical issues is that of informed consent for all patients participating in research. Ethics in nursing research has been reviewed by Waltz et al.<sup>9</sup>

**CONDUCTING RESEARCH** Meticulous attention to detail is essential for all research work. Data sheets should be completed as the research progresses and data entered into the analysis program. Those leading nursing research must be aware that as the discipline develops peer pressure and personal ambition will bring with them the potential for fraud. Indeed, fraud in nursing research, though not as prevalent as in medical research, is already a problem to which consideration has been given.<sup>10</sup>

**WRITING THE PAPER** As the study progresses it is important for the researcher to keep abreast of the literature. The last draft of the protocol now becomes the first draft of the paper and the Discussion should be up-dated as the study proceeds. Anyone with serious aspirations to research must be computer conversant at least to the extent of being able to use a word processor.

When the study is complete, the most difficult part of any research project begins, namely writing it up for publication. Once the analysis is finished the results section of the paper can be completed and relevant figures and illustrations incorporated. The Introduction and Discussion sections will expand in the light of the results, as will, of course, the references. It is necessary also to add a SUMMARY which should briefly summarise the project and the conclusions drawn from the study.

The first step in writing up a project is to decide which journal it is to be sent to. On this will depend the style in which it will be written but most reputable journals follow the format outlined for the protocol. It will usually take at least seven drafts for a paper to reach a stage where one feels satisfied enough to send it to a journal.

**PEER REVIEW** Once an editor receives a paper, he or she will send it out to one or more expert referees who will send the editor back their comments and an opinion as to publication. This may be to reject the paper or to accept it (usually) subject to much modification by the authors. In either event, the editor will usually send the referees comments to the author and these can prove very useful, even in the case of rejection when they can guide a revision of the paper for submission elsewhere. However, if the rejection is founded on critical comments that question the validity of the study it may be best to put the work aside as a failed exercise. Referees often demand quite stringent revisions and it may be necessary to run further analyses of the data. Complying with referee's requirements can result in two or more drafts of the paper and even when it is re-submitted their may be more queries from the editor before he or she is prepared to accept the paper. Even when the letter of acceptance arrives it may be six to twelve months before the paper appears in print. In fact, the period from completion of the study to seeing a paper in print is often longer than the time taken to perform the study.

**ACCOUNTABILITY** There is one final, often painful task, to be completed when the elation of successful publication (or the depression of failure) has subsided, and that is to provide the requisite report to the grant-awarding body which provided the support for the study. Each such body has its own set of rules and regulations. Some demand twice yearly progress reports, others annual reports and some a report on completion of the project. Whatever the requirements, they must be fulfilled in as conscientious and diligent manner as was the original grant application. Failure to do so or relegation of the task to a junior, guarantees that support will not be forthcoming for future projects.

## How should research be developed in nursing?

**CHANGE OF ATTITUDE** There is a theory abroad, perhaps within this faculty for all I know, certainly not foreign to certain parts of this College and endemic in some of our teaching hospital departments, that those who espouse research are egotistical dilettantes who somehow or other cannot be regarded as 'proper' doctors or nurses. You will hear from time to time a

respected elder relegate a curriculum vitae replete with scientific publications as being all very well but what is needed is a working doctor, as though the fruits of research dropped from the trees. Or, you will find your colleagues, not necessarily the older members of your profession, voice the view that this island is too small, its population too minute, to permit the luxury of research. Or worse, the view that was held by a not so late Minister for Health, that Ireland's role was not to conduct research but rather to be alert to the developments consequent upon research in wealthier countries and to adopt those that might be of use. What this policy fails to realise is that research is international, it is not confined by boundaries, hence the international scientific journals; but more to the point, such a policy fails to appreciate that if research is not conducted in this country, the dullards bred in such splendid scientific and intellectual sterility will be unable to determine if research in other countries is good or bad. What would be our fate if such philistinism was applied to the arts?

**DEVELOPMENT OF NEW SKILLS** The nursing profession is adopting new strategies to accommodate research and it not my intention to deliberate on how this should be done. Rather I will concentrate on how the nurse with ambitions towards research needs to equip herself or himself to fulfil such an avocation.

There are three basic requirements: the first is a need to write plain English; the second, to use a word processor and the third is to have some basic knowledge of statistical methods. Time will permit only mention of the latter two topics but let us dwell for a moment on writing in clear plain language. My study of the literature of nursing research in my preparation for this lecture, has illustrated a major pitfall, namely the use of jargon words and phrases. That each development of human endeavour should bring with it new concepts and that new concepts require new terms so as to facilitate their dissemination and discourse upon them is not denied. That each newly developing branch of activity should see the need to create a language of nonsense as a prerequisite to its propagation, is, however, more a reflection on the infirmity of the emerging activity and a lack of confidence in its substance by those who proselytise its doctrine. *With jargon I do thee impress!* I draw attention to this trap because I see it as one into

which nursing research is becoming victim and doing so quite needlessly. Let me illustrate and in so doing assure my audience that your colleagues, doctors, have been afflicted by 'jargonitis' for so many years that I have no diagnostic hesitancy in attributing the virulent epidemic to which you are now victim to the close company you have kept with this breed. Here is an example:

*'This study explored the epistemic processes used in the question-development phase of research by some of the discipline's leading researchers, specifically: (a) the sources or origins of research ideas, (b) heuristic devices for finding and developing researchable questions or hypotheses, and (c) how they determine which questions are worthwhile for study or significant to the discipline.'*<sup>11</sup>

Which means to me:

*'This study examined the way in which leading researchers have postulated questions relevant to nursing research. We have concentrated on three aspects of this process: (a) the origins of research ideas, (b) the ways in which knowledge has influenced the development of questions and hypotheses, and (c) how such a study of can be applied to select worthwhile areas of research in nursing.'*

Should you feel in need of gentle guidance in the matter of scientific writing and should you wish also to be entertained, I would direct you to a wonderful little book, entitled *Talking Sense* by Richard Asher.<sup>12</sup> It is a model of clarity using humour and plain common sense to disperse the poppycock with which we invest the topics we address thereby making them so obtuse as to be unintelligible. However, as we sit listening to a jargon-monger's discourse, we dare not admit to our neighbour that we are adrift in the dark but rather each expresses to the other at the end of such a discourse admiration for the profundity of idea, the sublimeness of thought thus giving birth to the jargon words and expressions, which are then endowed with their own sugar-buzz words -so as to become part of the vernacular. Asher in an age of relative innocence in this regard deplored such antics and allowed the beam of Kipling's verse instill lucidity in his medical writing:

*I keep six honest serving men  
(They taught me all I knew);  
Their names are What and Why and  
When  
And How and Where and Who.*

RUDYARD KIPLING<sup>13</sup>

**DEVELOPMENT OF COLLABORATIVE RESEARCH** One of the most rewarding features of research is the opportunity it affords for collaboration not alone within ones own discipline but also with those in sister or allied specialities - doctors, statisticians, physiologists and so on, and perhaps most excitingly of all, collaboration with colleagues abroad.

In this regard catalogues of nursing research, such as the *Steinberg Collection of Nursing Research* published by the Royal College of Nursing Library in London is valuable in assisting a researcher to identify areas of research being conducted by like-minded workers.<sup>14</sup> As nursing research develops apace in Ireland a similar publication might well be considered a priority, perhaps by the Faculty of Nursing?

In discussing collaboration it becomes necessary to touch upon the nurses standing in relationship to her colleagues in the medical profession. I have deplored for many years the subservient role of the nurse in this relationship. And let it be said that the nursing profession has not been without blame in its acquiescence, almost encouragement, of the imbalance in the relationship. I see collaborative research as a means of redressing this imbalance whereby the nurse and doctor become colleagues sharing their different skills and aptitudes in pursuit of a common goal. Straying from the theme of research for a moment, I am upset by the traffic warden, messenger-like role that the nurse has accepted in many of our outpatient departments where not so long ago she was participating much more actively in the consultation.

**WHO SHOULD DO RESEARCH?** In medicine, the Royal College of Physicians of London has called for one year in research, not only for future academics, but for all who are intent on a purely clinical career.<sup>15</sup> Even if an analogous case was made for nursing, I do not believe that a period of time in ill-defined and often poorly conducted research achieves much. It is neither desirable nor feasible for all nurses to participate in research, but there must be a facility for those nurses with particular aptitudes for research to progress to such a career. Such nurses, not alone make a substantial contribution to medical research, they must form the nucleus from which the research ethos will spread.

For the general body of nurses, however, the requirement is not so much

for 'hands on' experience of research as for the need to be able to appraise research and practice dispassionately and critically. I believe that his could form part of the undergraduate teaching curriculum with post-graduate courses and diplomas extending the concept of critical awareness further. I suggest that this innovative concept should be considered carefully by the Faculty of Nursing as the means of propagating research in the most economic and effective way. Such an approach would be dependent, of course, on participation of the full-time research nurses I have referred to above.

## Conclusion

From the foregoing, I hope I have made the case for the importance of developing research in nursing. But in so doing I have taken care, I hope, to emphasise that research is only a means to improving the contribution that nurses make to the welfare of mankind. I would not wish to be seen to advocate two nursing streams - the elite scientific nurse and the humbler caring nurse who graces - and I use the word with care - our wards. Rather I would hope to have contributed to the development of research in nursing by acknowledging that there will be within the nursing profession true research scientists, as there will be teachers and administrators, but as important to my thesis is the need for all nurses to develop their critical awareness through exposure to research. Indeed from this exposure most likely will come those nurses with an aptitude for research who will go on to devote their careers solely to research and they in turn will be the propagators of the research method to their colleagues in the field encouraging and assisting research projects and the development of the critical awareness to which I have so often alluded. In short the integration of research, as this Faculty is striving so effectively to implement under the enlightened leadership of your present Dean, can in my view only serve to fulfil, or if you prefer, to develop towards a greater fulfilment the definition of nursing so effectively enunciated by Virginia Henderson nearly a half century ago:

*The unique function of the nurse is to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to a peaceful death) that he would perform unaided if he had the necessary strength, will or knowledge. And*

*to do this in such a way as to help him gain independence as rapidly as possible.*<sup>16</sup>

Undoubtedly, innovation and change are upon the nursing profession. The development of an academic strata with all that it demands is one example, the call for nurse practitioners with prescribing rights is another, and I am adding to this clamour by stating that the nurse is aptly suited for research. Concern must be voiced, however, that the central role of the nurse, as expounded by Virginia Henderson, will be smothered in the headlong rush for excellence in these areas. This would be a tragedy, especially in Ireland, where nursing fulfils a truly caring role, where the profession exercises its greatest service in close proximity to the ill, and the well, and the not so well and the dying, in our hospitals and community services. This ethos should never be jeopardised but be aware - it is threatened.

Ladies and gentlemen, if you seek innovation and change, as I know you do, research will allow you to see the way forward, and in moving forward carefully conceived and impeccably conducted research will permit you to identify the innovations that will benefit those whose suffering you seek to alleviate, while also ensuring that the scarce resources at your disposal are not dissipated. Another aspect of research to I have alluded and which you should not ignore is that its performance enriches also the intellectual fulfilment of the participants.

In closing, I thank the Faculty of Nursing for the honour it has bestowed upon me in allowing me to share my perspective of a profession as it adapts to changing times, but most especially I am grateful for that which one can do so rarely, but for which the occasion occurs daily as we walk the wards of the sick together, namely the opportunity to salute nurses who give so much and seek so little in return.

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## Acknowledgments

I wish to acknowledge the valuable help of Ms Geraldine McCarthy, who has successfully defended her PhD at Case Western Reserve University in Cleveland and to Sister Fainisia Mee, who has been my co-author on so many papers, in preparing this presentation. Research support from the the Charitable Infirmary Charitable Trust and the Royal College of Surgeons in Ireland over the years has enabled me to pursue many research interests.

*Lecture delivered by Professor Eoin O'Brien, The Blood Pressure Unit, Beaumont Hospital, Dublin at the 13th Annual Nursing and Research Conference, Royal College of Surgeons, Dublin, 23rd February 1994.*