

Technicity in Nursing and the Dispensation of Thinking

Executive Summary

- ▶ While technology and health care delivery are inextricably and increasingly intertwined and technology has driven major advances in quality and efficiency in health care, technology does not replace the need for a thinking human being in care delivery.
- ▶ The term “technicity” refers to the tension created by the ability of humans to think versus their risk of being exploited as objects subservient to technologies.
- ▶ Drawing upon the philosophical works of Thoreau, Heidegger, and others, the authors pause on the conundrum created by expanding technology with the assumption that technological “improvements” should be evaluated with caution.
- ▶ Health care information systems are an example of tools that have improved our ability to collect and store information, but when systems “go down,” staff can be rendered helpless.
- ▶ Similarly, technology can impose personal distance between the patient and provider in instances where staff are positioned as a mechanism for collecting data rather than a person interacting with another person.
- ▶ In some cases, health care providers function as navigators helping patients reach the correct pharmaceutical, rather than as teachers helping patients seek better health.
- ▶ Lastly, the tendency toward systems analysis in the context of the complex hospital environment leads solely toward uniform solutions rather than instances where a customized solution is warranted.

HENRY DAVID THOREAU (1985) expressed his disdain for the way his neighbors’ seemed to be infatuated with the possession of “things” whether or not these things contributed to an experience of a good life. He lamented over the lack of initiative and innovation on the part of people who were willing to just acquire and accumulate “things” instead of engaging in the self-satisfying project of doing or getting for themselves.

The practice of just taking what is available, whether or not it has any real utility or consequence for a good life, was accelerated by the introduction of new and exciting artifices of technology that began to proliferate about 100 years before his time, during the industrial revolution. The exorbitant proliferation of technology signaled the changing of the concept of technology from one of defining man’s relationship to his tools as “man-using-tool” to one of “tool-using-man.” Accordingly, “...men have become the tool of their tools” (Thoreau, 1985, p. 352). It was this blind acquiescence to the technological imperative without concern for its consequences that Thoreau feared and objected to. He argued that “No doubt another may also think for me; but it is not therefore

desirable that he should do so to the exclusion of my thinking for myself” (p. 359).

A hundred years later, Heidegger (1993) restated the warnings of Thoreau saying that “...Everywhere we remain unfree and chained to technology....But we are delivered over to it in the worst possible way when we regard it as something neutral” (pp. 311-312). He insisted that thinking was the way out of this dilemma, postulating that “thinking holds to the coming of what has been, and is remembrance. It is a question raised on all sides and always with a sense of urgency, it hinges on nothing less than the survival of the species man and the planet earth” (p. 307).

Heidegger, like Thoreau, recognized the tension between thinking and technolization which he called “technicity.” Technicity is the manner in which entities in the world, including human beings, become revealed such that they are experienced as objects that are available and subject to control and exploitation (Heidegger, 1993; Richardson, 2003; Sheehan, 1999).

The entity of exclusive interest to us in this article is *human being*. Human being or *person*, is distinct from all other entities in the world by virtue of having the

SUSAN KLEIMAN, PhD, RN, CS, NPP, is Assistant Professor of Nursing, Lehman College, City University of New York, Bronx, NY.

ALLEN KLEIMAN, MA, is Research Associate, International Institute for Human Centered Caring, Riverdale, NY.

ability to think, deliberate, make choices, and take responsibility for those choices. In today's world of techno-wonders we have the same tension between thinking and an even more accelerated technologization than was the case in Heidegger's day. We call this tension the *motif of technicity* wherein persons can be perceived or experienced as objects that are available and subject to control and exploitation under the very auspices purported to offer a better and happier way of life.

In this article, we examine this motif of technicity as it does or does not occur in health care and particularly in nursing.

Background and Limitations

The reader should keep in mind that the space limitations and purpose of this article preclude giving extensive references – naming every commentator that has and has not published on each subject. With respect to Heidegger, there are thousands of papers and books on his thoughts and many of them conjecture and interpret his musings on technology and thinking. In this article the discussion is limited to *thinking* and the effect of technology on that unique human process as well as the extent to which technology can be used to control and exploit the entity *human being*. No attempt is made to offer an argument as to whether technology is good or bad. Rather the point is made that technology is not a neutral phenomenon and as such requires attention in our world of radical technologization – especially in health care and our quest to improve the quality of our services to our patients.

The interested reader is offered the following resources. Richardson (2003), according to Heidegger, gives the most lucid commentary on his problematic. Other resources include Beardsworth (1998), Heidegger (1993, 1997), Sheehan (1999), and Wills (2004). Wills (2004), in keeping with the spirit of Heidegger's work, warns

that if we don't change our way of thinking about technology, "...we will be unable to recognize technology or begin to account for its increasing direction of our movements and lives...nor will we be able to set about resisting or responding to it" (p. 51). Beardsworth (1998) worries about "the evermore explicit [technologization] of the world, and how this process explicitly defies the syntheses of human imagination and invention" (p. 70). He asserts in an abstract and philosophical way that we must engage in a process of thinking and developing our understanding of technicity in order to clarify the political and ethical issues that arise from it.

On the Power of Human Sensory Perception and Analysis

Instruments of technology pervade every aspect of nursing and are used by nurses as tools which help to execute the basic nursing skills required for excellence in patient care. Some, but not all, of these basic skills are taking a blood pressure, pulse, respiration, temperature, auscultating chest sounds, and such observational and interpretive competencies as evaluation of patient demeanor, patient's perception of health status, and the offering of a reassuring touch of an attending nurse; all of which are performed in a deliberative and purposive manner. By deliberative and purposive we mean the attentive and thoughtful engagement with the patient and the patient's health concerns. The goal of the deliberative and purposive engagement is to have a positive impact on the patient's health care issue and his or her perception of both the treatment being given and the person giving it.

In the practice of nursing there are many occasions where these basic skills are performed using a host of simple and familiar implements of technology (for example, the stethoscope, thermometer, syringe, or inflatable blood pressure cuff). Despite their

simplicity they have proven effective in helping to determine a patient's health status. The following example shows the use of a basic instrument of health examinations coupled with the power of the human sense of smell and subjected to the deliberative process (thinking) in performing a patient health status analysis.

One nurse advises that "while taking a temperature, if I smell tobacco on the person's breath, I know that the reading on the thermometer may be inaccurate depending on how long ago the person had smoked. Furthermore, if I encounter a patient who has tobacco odors on his or her breath, I am alert to the whole array of health problems that smoking causes especially with respect to how it may aggravate a particular patient's health-related concerns."

Insofar as touch is concerned a nurse can obtain many clues about a person's condition by just touching his skin (for example, temperature, clamminess, dryness, sensitivity, etc.). Just feeling the skin of a patient when positioning him in bed or handing her medication, for example, can signal to a nurse that there is a raise in temperature or a change in circulation.

The world-acclaimed scientist and mathematician Benoit Mandelbrot (2001) pointed out that scientific discovery and explanation originated in taking advantage of observations made by "persons" through the senses, sight, smell, hearing, and in particular, touch. According to Mandelbrot, the sense of touch is so fine that it enables a nurse to differentiate between the textures of surfaces such as the skin and is far more sensitive than even sight. Wills (2004) discussed the power of the senses of hearing, smell, and touch as a way of gaining insight into that which cannot be seen.

We in nursing have a name for the more esoteric and special powers of touch: *pathic touch*. The pathic touch has several domains of relevance in nursing. First it

accommodates a desire for a connection between nurses and patients; we say it is the primordial means to overcome separation. Second, by virtue of its fine sensitivity, it provides a first approximation of what is going on with a patient both externally and internally. Third, it is a means for the nurse to feel herself as another human being and reaching out and becoming more as a person in an act of metaphorically speaking "going through life with another" (Kleiman, 2005).

The great French novelist Marcel Proust (1922) also commented on the perceptive powers of the human senses saying that the senses are more apt to reveal fundamental truths that underlie life's experiences than rationalizations of discrete data. Perhaps the arguments of Mandelbrot and Proust are, in part, the basis for one nurse's observation that nurses have the uncanny ability to just look at a patient and know "that something is just not right" even before consulting vitals signs or lab results. Another nurse commented that, "all you have to do is stick your head in the door and you can smell an infection without even seeing the wound." Excitation of the senses in any configuration stimulates the thinking process and offers possibilities for a high quality of patient care.

Contrary to the concerns expressed by Thoreau and Heidegger, rudimentary tools that excite and augment the human senses and stimulate the thinking, deliberative, purposive process pose no threat to us. It is clear that it is a situation of "man-using-tool" rather than "tool-using-man."

On the other hand we have as part of the health and medical care rapport "cybernetic" artifices of technicity which incorporate artificial communication and control processes in biological, mechanical, and electronic systems. These include all the highly sophisticated measuring, diagnostic, and monitoring instruments

(for example, MRI, fetal monitoring, sonograms, diabetic blood monitoring) used in analyzing body fluids, presenting high-definition images, or monitoring patients' vital signs. These measuring devices are often applauded as effective uses of technology in health care. However, the technologic worldview in western society belies the fact that these sophisticated instruments can not demonstrate adaptability to unique situations (in the style of a bricoleur) and fail with or without warning. Contrary to popular belief, they do not have the precision of the senses of sight, touch, smell, and hearing, except for the most rudimentary imitations of human capabilities; and they certainly can't think.

On the Artifices of Technicity

The artifices of technicity that symbolize the prevailing motif in today's health care milieu are computers used for diagnosis, monitoring, and data collection; pharmaceuticals as the palliative or cure for everything from cancer to mental dysfunction; and systems analysis and design affording procedures for control of and economy of movement, innovation, and thinking.

The following commentary on these artifices of technology is not meant to be a general condemnation of technology in health care and nursing. We do, however, follow Heidegger in saying that any phenomenon that is so powerful that has the capacity to affect every aspect of our daily lives deserves to be questioned. The authors hope that the following commentary does not offend or turn-off anyone who uses and enjoys the wonders of technology (as everyone does). We only ask the reader to be alert to and reflect on how these important phenomena can and do have both positive and negative consequences for our daily practice activities as nurses as well as for patients. We hope to remind nurses of the importance

of thinking about what we do and the way we do it every day.

On Computers

One of the most familiar phrases heard in our daily commerce is "the computer is down," and in most cases whatever the situation may be either the process cannot be done manually, or the operator has not been trained to do it any other way. The term "operator" is used in the most austere fashion here. The operator, although a living sentient person, is not using the machine as a tool to improve efficiency, effectiveness, or productivity but rather as a subservient data entry mechanism that facilitates the entering of information as prompted without regard to its consequence. As Thoreau pointed out, the operator has become the "tool of his or her tool." The technologists are even working on voice recognition devices with the hope of eliminating the need for the human interface entirely.

Additionally, it seems that every week each establishment gets a new computer system (euphemistically called an upgrade) which requires the users to relearn how to use it or interpret or not interpret the output presentation of data. Of course the upgrade requires that the computer be down for some time and often the upgrade does not work right away, causing further inconvenience. Patients are also inconvenienced by being repeatedly asked to resubmit personal information to satisfy the requirements of the new computer system or one of its features. What happens to the personal information from the old computer system as well as the forms on which the information was written?

Insofar as computers as tools for nurses, the alert nurse must validate, with her experience and knowledge, every reading presented on the computer screen or printer because it may represent an error or malfunction with life-threatening consequences. Tech-

nicians, aids, and persons of lesser training and/or experience (who the nurse is often responsible for) might very well mistake an aberrant computer readout for correctness and jeopardize a person's health.

A Changed Patient/Provider Interaction

Recall a time some years in the past when an appointment with a provider would entail going into that person's office and telling the provider in his or her office or examining room what the concern is. Not so any more!

Picture the setting of a hospital, clinic, doctor's office, or patient/provider cubicle. The patient or prospective patient resides at some distance from the provider or provider's intermediary (sometimes not even a person). The distance may be measured in yards, miles, minutes, demeanor, language, or other "separating" factors of reality. The patient responds to a series of questions, the first being "what kind of insurance do you have?" The first order of business is not what services the patient needs but rather how the provider will be paid for whatever he or she does or does not do. The questions that follow involve details which may be very personal and intimate that the patient would rather not reveal to the intermediary. These define his or her medical or psychological concerns, all of which are fed into some form of computer data retrieval device and thus become available to a myriad of persons. These include, without exception, the computer system's managers who have nothing at all to do with the patient or his or her health care concerns.

The information may then be used or misused for a wide variety of purposes (for example, data to support a research project or even demographic information that may deal with advertising, performance statistics of a particular office or institution, or credit reporting). Often the patient is given no opportunity for discus-

sion or questions. The interrogator, who may be a data entry clerk, technician, insurance company or managed care company representative and not a health care professional, can only recite what is on the screen in an uninformed and impersonal manner. Where is the respect for the dignity of the individual?

On Thinking Computers

How many times in your everyday experiences do you hear people referring to computers as if they can think? A familiar utterance is, "There is no need to check on what I am telling you because it's what the computer says." The computer "says" is a terrible misstatement. Computers have no language skills whatsoever. They have output mechanisms which are screen displays, printers, and in some cases synthesized voices that reflect the results of some form of calculations. The sad part of this state of affairs is that it illuminates the extent to which our reliance on computers has disenfranchised us from our status as members of a group of unique beings capable of rational thought who make choices.

The idea of thinking computers originated with the distinguished mathematician Alan Turing who proposed that to the extent that a computer can fool a human being into believing it is a person with intelligence, it is in fact thinking (Bolter, 1984). Notice the emphasis on "fooling!" Thoreau and Heidegger were not fooled by such intellectual frivolity and neither should nurses be "fooled" by computer readouts. Nurses are dealing with the lives and health of their patients and cannot be distracted from the fundamental requirement and truth of needing to "think for oneself" (Kleiman, 2005).

On Pharmaceuticals

We sometimes overlook the fact that pharmaceutical products are part of the technological motif in health care. Our love affair with

technology further manifests itself in the way we follow with great anticipation and expectation even the most rudimentary reports of new drugs that promise to cure the latest scourge or some of our longstanding health problems (for example, cancer, heart disease, diabetes, arthritis, weight reduction, aging or the reversal thereof) often without regard to risks or costs and without much regard for the person as a whole.

Despite the noble attempts of scientist researchers, think of the number of times that drugs offered as preventing or curing some ailment have proven not only unreliable but dangerous (for example, anti-inflammatory and dietary aids). Drugs are at times prescribed on the basis of over-enthusiastic recommendations from drug representatives who point to safety regulation (FDA approval) as a glowing endorsement for their products.

Furthermore, the idea that cures for illnesses such as diabetes and hypertension are on the horizon of techno-wonders sometimes causes people afflicted with these and other diseases to leave them untreated or unattended. This attitude is a direct result of the socially pervasive belief that the magic of advanced technology will provide, in due time, an answer to all of humanities problems. Pay a visit to any drug or vitamin store, or health store, and observe the thousands of remedies available for every imaginable and unimaginable malady. In each of these stores you will find a salesperson, perhaps with dubious qualifications replete with an erudite attitude, ready and willing to diagnose your ailment and prescribe an appropriate remedy. In contrast to the profit-making enterprises of the pharmaceutical companies and the focus on treatment of pathology followed by the medical profession, nurses focus on health and human responses. Today nurses should be proactive and help people to be healthy. When medications are

necessary, the discriminating nurse will remember, like other technowonders, pharmaceuticals and constituent products must be viewed with informed caution and healthy skepticism.

On Systems Analysis

The third form of technology, which utilizes the first two as tools, is the systems analysis approach to problem solution. The systems analysis approach is the most active and pernicious aspect of technology insofar as it contributes to the retarding and discouraging of thinking. What is the "systems approach" to problem solution? The systems approach to problem solution is a process which provides management with a product for decision authentication that is equivalent to an FDA endorsement of a drug. Anyone who has participated in a systems analysis and design, guided by consultants, in a hospital or other institutional setting is familiar with this process.

Management's justification for employing a systems analysis approach is three-fold. First, it inherits credibility because it is taught in most management schools (for example, MIT Sloan School of Management). The MIT approach puts the teaching and learning emphasis on analysis, what to do, strategy, mechanisms, and systems. Second, it is argued that this approach is useful in deriving solutions to complex systemic problems such as the rising cost of health care and the nursing shortage. Third, it is chosen on the basis of an assumption that individuals, thinking persons, require in all cases a systematized way of problem solution because they do not have the capacity to do otherwise.

With regard to the first premise, Jack Welch, one of the most respected and successful

business executives in the world, insists that in real life, if you want to be successful, you have to emphasize the human side of business. You have to develop your people rather than systems to control and monitor them. That is, the key to success (profitability) is not radical systems analysis and design but the way you develop the people who work for you. For those readers who are in management or leadership positions or just interested in the topic, refer to Welch (2005) and Welch and Byrne (2003).

In the case of the second premise, deriving solutions through systems analysis, we have only to consult the literature and the public reports on the state of affairs in health care to validate the failures of systems analysis and design. On a more personal level, bring to mind the everyday activities of your own institution. Consider the marginal operating efficiency of the simplest processes like receiving and distributing supplies throughout a building. How many times do you as a nurse have to go fetch a meal or medication for a patient or leave the floor to take a patient for an x-ray?

The third premise is absurd and has no basis in reality. It brings in to question the ability to think and the need for programmed responses – the main concern of Thoreau and Heidegger. Nurses are faced with unique situations every day for which there does not exist any intervening object of technicity nor is there any fixed set of instructions to guide one in a proper nursing response (Kleiman, 2005; Paterson & Zderad, 1976).

Conclusion

Despite the wonders introduced in the past 100 years and their accompanying diagnostic and curative benefits, *thinking* remains

an essential component of providing quality patient care. It is thinking that engenders intuition, instinct, rational thought, and a capacity to do good or bad for humankind. Nurses are challenged to revitalize and re-emphasize the value and need of thinking in order to direct our perception of technology towards the betterment of our patients, patients' families, and the community of nurses. \$

REFERENCES

- Beardsworth, R. (1998). Thinking technicity. *Cultural values*, 2(1), 70-86. London: Blackwell Publishers Ltd.
- Bolter, J.D. (1984). *Turing's man: Western culture in the computer age*. Chapel Hill, NC: University of North Carolina Press.
- Heidegger, M. (1993). *Basic writings* (2nd ed.). San Francisco: Harper & Row.
- Heidegger, M. (1997). *The question concerning technology and other essays*. New York: Harper & Row.
- Kleiman, S. (2005). Discourse on humanism in nursing. *International Journal for Human Caring*, 9(1), 9-15.
- Mandelbrot, B. (2001, November). *Fractals in science, engineering and finance (roughness and beauty)*. Lecture at Massachusetts Institute of Technology, Cambridge, MA.
- Paterson, J., & Zderad, L. (1976). *Humanistic nursing*. New York: John Wiley.
- Proust, M. (1922). Swann's way. *Remembrance of things past* (Vol. 1). Retrieved July 1, 2004, from <http://onlinebooks.library.upenn.edu/webbin/gutbook/lookup?num=7178>
- Richardson, W. (2003). *Through phenomenology to thought*. New York: Fordham University Press.
- Sheehan, T. (1999). *Martin Heidegger, a companion to the philosophers* (pp. 288-297). Oxford and Oxford, UK: Blackwell.
- Thoreau, H. (1985). *Prose works: A week on the Concord and Merrimack Rivers; Walden, or, life in the woods; The Maine woods*. New York: Literary Classics of the United States.
- Welch, J. (2005). *Winning*. New York: Harper Business Publishers.
- Welch, J., & Byrne, J.A. (2003). *Jack: Straight from the gut*. New York: Warner Books.
- Wills, D. (2004). Thinking back: Towards technology, via dorsality. *Parallax*, 10(3), 36-52.

Reprinted from *Nursing Economic\$*, 2007, Volume 25, Number 3, pp. 157-161. Used with permission of the publisher, Jannetti Publications, Inc., East Holly Avenue, Box 56, Pitman, NJ 08071-0056; (856) 256-2300; FAX (856) 589-7463; Web site: www.nursingconomics.net ; For a sample copy of the journal, please contact the publisher.