

Becoming deprofessionalized: One aspect of the staff nurse's perspective on computer-mediated nursing care plans

Negative impacts on the professionalization of staff nurses by the development and use of computerized nursing care plans are presented as a selected finding of a qualitative study. A symbolic interaction framework, using nurses' stories as communicated in semi-structured interviews, yielded meaning and behavior in metaphorical form. The computerized system for patient care planning, and the larger system in which it is embedded, contribute to loss of autonomy, loss of individualization of care, and loss of nursing expertise. Some questions that should be addressed now are identified.

Barbara L. Harris, PhD, RN
Assistant Professor
Syracuse University College of Nursing
Syracuse, New York

COMPUTERS ARE commonly assumed to be useful and necessary tools for improving efficiency and quality in health care. Listening to staff nurses, however, as they talk about what it is like to use computers in the development and use of nursing care plans raises the possibility of a subtle negative side. Part of the problem arises from the nature of the computer itself, and part from the way the computer is used in the workplace.

Advanced technology, as exemplified by the computer, occupies an ever-increasing part of the nurse's workspace. One of the recommendations of the Secretary's Commission on Nursing is to increase the use of technology in any way that can save the time and energy of the nurse¹; the computer, then, is to be used increasingly as a partial substitute for the nurse's activities, particularly in

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relation to nonnursing tasks, but also in nursing tasks. It is vital, therefore, if negative consequences exist, to identify and understand them so they become amenable to discussion, amelioration, and elimination.

We talk increasingly of the need to understand the client's perspective on his or her health and illness; it is equally important to understand the nurse's perspective on so-called new and improved ways of carrying out the work of nursing.

This article reports selected findings generated in a qualitative study of computers as used by hospital staff nurses in developing and using nursing care plans within a symbolic interaction framework.² Nurses on a variety of units in one hospital where computerized nursing care plans (CNCPs) have been in place for several years were encouraged to talk about their experience with this technologic innovation.

The software program in use in this hospital begins with a choice of using standards of care for the patient's medical diagnosis or using nursing diagnosis³ or both. Each nursing diagnosis selection is followed by a series of screens for selecting from lists of goals, etiologies, and interventions. The nurse always has the freedom to "free-text," to type in words or phrases not included in those lists.

The purpose of the present research was to discover what it means to the nurse to develop and use CNCPs, to identify the variables associated with and contributing to these meanings, and to determine the behavioral outcomes in response to these meanings. Some negative, or potentially negative, aspects emerged from the conversations, clustering conceptually around an erosion of professional characteristics. Only the find-

ings related to this concept of deprofessionalization will be presented here.

METHODOLOGY

Theoretic framework

One appropriate theoretic orientation for exploring meaning and behavior from the viewpoint of the subject or participant is *symbolic interaction*.^{4,5} The symbolic interactionist believes that human experience is mediated by interpretation; that meaning is conferred on objects, people, situations, and events, and that they do not possess meaning in and of themselves.⁶ People interpret their experiences in an interactive, self-reflective manner, considering the individual and her or his social context; meaning is therefore actively constructed and modified through interaction and is the proximate cause of behavior.⁶

The staff nurses, therefore, have actively constructed, over time, meanings related to the computer and to the CNCP as they "interact" with it and with peers, superiors, subordinates, organizations, and society in general. The nurses act on the basis of these meanings.

Research perspective

A qualitative mode of study is particularly suited to research questions similar to the one that directed this study, where the natural setting is the appropriate source of data, where context must be understood, where process is the area of concern (not outcomes or products), where there is little theory in place to be able to work from a deductive

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stance, and where “meaning” is the focus.⁷ The qualitative researcher seeks to enter the world of the participant, and to some degree regards himself or herself as a vessel or vehicle through which the participant makes known an intricate story or a “slice” of the participant’s life. To these ends, efforts were made to interview the participants in an atmosphere of privacy and trust, to promote openness and truth telling.

In qualitative research, the people studied assume more control as they enact their lives or tell stories; they participate actively in the research process as the investigator becomes relatively less active and less controlling than in a quantitative study. For example, the participants were asked open-ended questions, and the subject was not changed until the participating nurse seemed to be ready for another question. While qualitative research can also have the purposes of instrument development, illustration, and sensitization, this study has the purpose of conceptualization or substantive theory building.⁸

Participants

The staff nurses who shared their experiences of the CNCP were contacted by using phone numbers of all full-time staff nurses, supplied by their head nurses, on six units in one hospital. Out of 16 who were called, 14

(plus a “pilot” staff nurse from another hospital) readily agreed to participate.

All participants were female, with ages ranging from 22 to over 50; most were in their mid to late 20s. Some could type; others could not. Computer literacy varied: some had no computer experience except for this workplace, while others had taken courses in high school or an elective or continuing education course in computers in nursing, and still others had a computer at home for personal use. Nurses varied in their educational credentials and in the way they were acquired; most were associate degree nurses. Some were working on a higher degree.

Most are “regular” staff nurses; a few are “advanced” staff nurses who take on additional responsibilities such as orienting new staff nurses and carrying out quality assurance activities. They work on a variety of patient care units: medical, surgical, postpartum, intensive care, psychiatric, and longer-term units.

Participants were originally selected because, as staff nurses, they could illuminate the phenomenon of the CNCP, but some continued selection of participants was related to ideas that emerged gradually from the interview data. Some decisions were made by the investigator to maximize differences and to learn about meaning and behavior in regard to the CNCP by speaking with a diversity of nurses. For example, although the original intent was to interview only nurses who had been using the computer for at least a year, it became clear that a more complete picture would be obtained by selecting nurses who had been using it for a much shorter time.

When theoretic saturation of categories seemed to have occurred, that is, when it did

not seem as though new ideas would emerge from continued interviewing, sampling was ended.

Setting

Except for the pilot interview nurse, all participants are employed by one private, nonprofit, nontertiary hospital located in the suburbs of a city where the population of the surrounding three-county area is 650,000.⁹ This is a community hospital, not closely affiliated with a major medical center or a nursing school; its size falls within the range of 300 to 400 beds, and it offers a variety of inpatient care services typical of a community hospital, plus some outpatient services.

The equivalent of approximately 275 full-time registered nurses work here. The vacancy rate for RN positions is unusually low, considering the current nationwide shortage of nurses; the turnover rate is also low. On most units, the RNs deliver care by the primary nursing model, although a few units use the team nursing model. Much of the authority and responsibility are decentralized to the level of the head nurse. Nurses are actively encouraged to continue their formal education. This hospital is in good standing according to the most recent reviews by the Joint Commission of Accredited Healthcare Organizations (Joint Commission) and the State Health Department.

Data collection

Most of the data for this study were produced by means of interviews that were structured just enough to point the participant in the general vicinity of NCPs and computers. Each interview lasted for approximately one hour, and, in total, produced

about 400 pages of transcription plus observer comments, field notes, and memos. In addition, interviews with other relevant personnel, attendance at orientation of new nurse employees to the CNCP system, examination of basic nursing department documents, and examination of 130 hard copies of CNCPs from the relevant nursing units were used to obtain a fuller picture of the phenomenon under study, and of the associated context.

The interviews were held, with few exceptions, in the participant's home or in a local library, to protect the participants' privacy and encourage openness. The interviews were tape recorded to ensure accuracy of the verbal data. The usual research protocols were followed: the participants signed a consent form, they were assured of confidentiality, and the "no right or wrong answer" perspective of qualitative research was explained. At the conclusion of each interview, the participant was asked a standard set of questions related to demographic data that had not emerged earlier in the interview process.

Data analysis

Analysis of the data began as soon as the pilot interview tape was transcribed, and gradually increased in proportion to data collection. This ongoing analysis of data followed Glaser and Strauss's¹⁰ grounded theory method of data analysis, constant comparative analysis.

Reading and thinking about existing interview data alternated with deciding on strategies for collecting new kinds of data. For example, questions about privacy and confidentiality issues were not productive in relation to the direction the analysis was taking,

and were dropped from the interview guide. Also, the need for triangulation strategies became apparent, and hard copies of the care plans that were being discussed and an interview with someone higher in the hierarchy were added.

Specific activities included reading and rereading interview transcripts and field notes, reviewing previous field notes, writing new memos, summarizing periodically what had been learned, recognizing new themes as they arose, and looking for patterns and metathemes among the themes identified. The results were related to larger theoretic issues.

In the end, meanings became represented by metaphor, such as Fast Food, Empty Calories, One Size Fits All, the Velvet Glove, and Placing Square Pegs in Round Holes, all with the connotation of need deprivation or strain. Behaviors came to be recognized metaphorically as Contented Leaners, Neutral Compliers, Frustrated Compromisers, Matter-of-Fact Tool-Users, and Motivated Coopters.

Metaphor, however, is considered to be only a halfway point between the first order data (what the participants said) and the conceptual significance of the data.¹¹ As the final step, umbrella-like gerunds were identified, shifting the results from facts to processes likely to account for what is going on in the setting in regard to the phenomenon under study.¹² A major gerund that emerged was deprofessionalizing, the finding presented in this report.

ONE FINDING: THE COMPUTER AS A DEPROFESSIONALIZING AGENT

Characteristics of a profession have been presented by Jacox¹³ in general terms as

having a long period of specialization, having a service orientation, and having autonomy. More specifically, Kramer includes "specialized competence having an intellectual component, extensive autonomy in exercising this special competence, and influence and responsibility in the use of special competence."¹⁴(p15)

Nurses currently are struggling toward the achievement of these and other characteristics of a profession through such varied activities as seeking recognition of nurses as health care providers by reimbursement mechanisms, attaining recognition of all-RN units as bona fide bargaining units, seeking active participation at policy-setting levels of the Joint Commission, extending nursing's power base in other directions, and reaching negotiated settlements that ensure the delivery of safe nursing care to the public (*Amer Nurse*. 1990;22(5):2-26.). Any broad gains in professionalism, however, can be eroded by changes in the workplace whose significance may go unnoticed.

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In talking about using the computer for NCPs, the nurses who participated in this study describe to some degree meanings and behaviors that are consistent with the concept of being deprofessionalized. Emerging from the data are a feeling of being controlled by the computer or by the larger system of which the computer is a part, not formally planning individualized care, and losing the skills associated with the "old" way of generating NCPs.

Deautonomizing

Aspects of the CNCP process that contribute to the diminution of the nurse's autonomy are represented by the meaning metaphor of the Velvet Glove, by the behavior metaphor of the Neutral Complier, and by implicit messages sent by the computerized system. The Velvet Glove metaphor suggests that computerization in the workplace facilitates control by supervisors. Garson's report of a qualitative study of several occupations, including McDonald's employees, financial assistance workers in the Massachusetts public welfare system, airlines reservation clerks, and the military, demonstrates this control.¹⁵ In addition, Zuboff concludes from her qualitative research that (1) computerization facilitates increased surveillance by the supervisor, (2) computer systems can incorporate biases and controls that are automatically built into their operations, and (3) supervisors can have instant total access to the subordinate's output.¹⁶ Rosenthal recently found that people respond to the computer as an authority, by obedience, as others responded to the experimenter as authority in the classic Milgrim electric shock experiments.¹⁷

Danish nurses show an awareness of the increase in control over them that would occur should the computerization of their NCP-Kardex system take the form of a system developing in England.¹⁸

If a computer based system were to be introduced which was similar to the system used in Exeter, then nursing management would have direct access to all of the information which had been collected from the departments via the terminals. The staff in the departments would have no influence on what information was used, nor would

they even be aware of when it was being used. The nurse's report, which was kept in a Kardex before, would no longer be a tool for internal use within the department.^{18(p72)}

The nurses who participated in this study, however, show very little conscious awareness of the control aspect, except in an overt and concrete sense that the production and revision of CNCPs are "mandated."

I'd say that for the most part, the nurses will pick from that list, and unfortunately, I also think that a lot of the nurses do it only because they know they have to have this care plan. The CNCP must be on the chart and one must be on the Kardex. So they do it (Anne).

More covertly, one nurse said,

It's a task. It's a task. It's part of the admission procedure and therefore you do it. Don't ask me why [laughing]. You just do it. You have to use their list and you can type in anything else, and also, you have to type in a number that is the closest to what you want, put in that number and then type in [free-text] something. And, then, it's time-consuming, and you get beeps when it tells you you've made an error, and people don't do it [free-text] (Anne).

We've been asked to keep the goals to a minimum. And I don't know where they're drawing the line. I suspect there's some rules here that I'm not too sure of (Claire).

Sometimes I think it puts you kind of into a box, because you'd like to do it a different way, but you can't, because that's the way it's set up (Deborah).

Sometimes the control, the interference with the nurse's autonomy, arises because the computer appears to be inflexible and uncooperative, and the nurses have to adapt to the way the computer "thinks." Most of the conflict arises from the linear operations

of the computer and the simultaneous thinking of the person.

It's a nuisance. You can only type in one at a time. Like if you wanted to type in six nursing orders, you'd have to type them in one at a time [and follow through with each one before going on to the next] and then you have to keep looking back and forth, between the screens. I think it would make it easier to ad lib [free text] if you didn't have to flip-flop back and forth between the screens (Emily).

You want to be able to look at the whole thing, and say, "OK, now," and weigh it in your mind, and go back and forth. It's a pain. It doesn't go back and forth for you. It'll go back to the previous screen and then *you've* got to bring it back to Diagnosis (Claire).

It is clear that the nurses have to adapt to the way in which the computer program operates. Yet another aspect of erosion of the nurse's autonomy is the subtle but effective way that the computer and the system in which it is embedded virtually prevent free-texting.

A lot of them really elaborated on their care plans, really put a lot into them. And it was coming back to them, you know, these plans are too long, they can't go out of the unit with plans like this. It's too much for the general units, because with the care plans, everything you put into them, you're supposed to document in your nurse's notes. Well, the people out there on the regular floors are not going to document all this. So I think people get discouraged. Forget it, you know. Here, here's a few things, take it. So you don't get too much free-texting (Emily).

And, as two Danish researchers point out, It is possible, but inconvenient, to enter free-text into the system, and it runs counter to the intention expressed by means of the system, as embodied in the standardized input. By using the com-

puter system daily, she [the nurse] has learned the *given* standard categories and sub-categories and she will observe the patient and read the case sheet, as it were, through those glasses; maybe she estimates that the situation requires that she write the report in free-text, but normally she will employ the given orders—because they are there, and because it is easier.^{19(p17)}

Furthermore, the nurses occasionally exhibit a pattern of behavior labeled the Neutral Complier, and compliance seems the antithesis of autonomy.

What comes into mind? Just that this has to be done. Just like a lot of other things that aren't our *favorite* things, but that *should* be done so you just sit down and do it (Ingrid).

What are the long-term consequences of Neutral Complier behavior? For the nurse it may be a protective mechanism against both conflict with the system and frustration. For the patient, it depends on whether the care actually given is by the implementation of the CNCP, without elaboration, and is developed only because it has to be done. For the institution, compliance facilitates stability rather than innovation and adaptation; in the turbulent environment of today's health care institutions, stability would not seem to be a viable characteristic.

Autonomy is eroded, or potentially eroded, then, because nurses must follow the rules of the computer program that are really the rules of the programmer or part of the belief system of the manager or organization. The expectation for incorporating part of the nurse's deliberations and conclusions into the CNCP is deemphasized in comparison with the implicit message of the computer system, to use standardized entries, to use the screen lists as is.

Deindividualizing

A second and related aspect of the deprofessionalizing influence of the CNCP is the interference with one of the Ten Commandments of nursing: Thou shalt individualize

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thy nursing care. The nurses talked frequently and at great length about this problem: The program choices from which to construct a CNCP are too general to fit a real patient. In other words, metaphorically, one size fits all. This problem leads to others. "Do I take the trouble to make it fit, by free-texting or otherwise supplementing the choices on the lists? Is it worth my while to do it well? Is it acceptable to me to use just the screen items, even if they don't fit the individual patient?" This is an area rich in predicaments for the nurse. With the computer program, it is the loose fit, the lack of precision, and the sense of "second best" that are the most problematic for the nurse.

You could probably take one nursing care plan, and then apply it to almost everyone who comes on the unit. We deal with depressed patients; you could make one on depression and everyone could have it (Anne).

The only nursing diagnosis that we can come up with for GI Bleed is . . . Loss of Body Fluids. That's not quite it, but that's the idea. And that doesn't describe a GI Bleed. And yet, if you put in there, "GI Bleed," that's a medical diagnosis [which is not acceptable] (Claire).

The plans are very general. They may fit someone, but as far as fitting like a *glove*, maybe that's not the case (Greta).

Nurses feel pressure, however, to do it "right." In nursing school and in the nursing literature, the individualization of care is highly valued; each patient is unique and deserves to be treated as such. There is a considerable degree of strain, for most of these nurses, in being pulled between the two choices of using the CNCP program as it is, and modifying it to fit the patient more like a glove than a muu-muu.

It's also kind of impersonal. You can't personalize the care plan to the individual patient, because the diagnoses and the etiologies are pretty general. And sometimes there's only the potential for a problem to try for, and our computer won't pick up the potentials (Anne).

Although the CNCP is more individualized when the nurse uses the Nursing Diagnosis track in the program rather than the Standards of Care track (which assumes that the salient variable is the patient's medical diagnosis), it is hard to see how any list can take into account the full range of human individuality and nursing creativity. Also, with a plan composed of phrases from lists, whose plan is it? Is it the nurse's plan? The links between participation (in creating a plan from scratch), ownership, and commitment no longer exist.

Use of the option to free-text would individualize the CNCP. Free-texting, however, takes more time, may make the plan too long, is only rewarded in special circumstances, and is extremely rare. And, as Emily says, why put a lot of effort into it to get it right, when nobody uses it and quality does not earn the nurse any praise?

What effect does the one-size-fits-all approach have on the nurse? This is frequently

a source of compromise, creating frustration at the knowledge that a plan constructed from the computer lists is often second best. On the other hand, using the lists saves time and effort. For the patient, it may result in routinized care, unless the plan in the nurse's head is more specific than the one in the computer. For the organization, the CNCP program may be eliminating creativity in planning and the commitment to the plan that ownership can bestow.

Deexpertising

There is yet a third component of the deprofessionalization created by the CNCP process. The meaning metaphor of Fast Food and the behavior metaphor of the Contented Leaner garnered from listening to the staff nurses combine with the concepts of mindlessness and skill acquisition levels to expose a link between the CNCP and the loss of expertise.

The Fast Food metaphor reveals some positive aspects that the nurse associates with the CNCP; it is fast, easy, and convenient. These characteristics are particularly desirable if what the nurse is doing is not a valued part of her role, if she is not a gourmet. Since she has to do it anyway, it is appreciated that it does not take much effort.

I think, if you're really busy, you don't have to think. It's there. You just have to punch it in (Deborah).

The computer makes a few of the things I have to do faster so I can get back to the patient, and that's about it (Loretta).

I really can't see too many disadvantages. I mean, I like it. Because it's time-saving. And if we have to do it, I'd rather do it *that* way (Jennifer).

Most nurses express some degree of "Let George (the computer) do it," though no one used exactly that phrase, and most connected this behavior with a kind of mindlessness.

And especially our newer nurses, they don't know how to write the care plan. They only know how to use the computer, and we have to have a care plan, so if the computer is down, they'll wait. So it makes people kind of lazy. They have to think about how to write the care plan without having the computer do the work for them. . . . If the computers disappeared? It would be very difficult, even for the ones that were used to writing out their care plans in longhand. I still think it would be very difficult because the computer has made it relatively easy for us, and we kind of forget all the finer ways of writing things (Anne).

I'd rather pick it off the screen [than create it from scratch]. It's easier. You don't have to *think*. Well, you have to think, but you can just see it there. I mean, you could develop your own, but it would take you longer (Jennifer).

Fiske and Taylor²⁰ present mindlessness as a form of psychological, self-induced loss of control resulting from "overlearning" a task and thereby knowing it so well that it can be performed in a routine, automatic fashion. Langer²¹ suggests that, when the task becomes too routine, the individual relinquishes conscious control over that task, and is therefore open to mistakes. It is assumed that the current situation is "normal," that is, exactly like preceding ones both structurally and semantically, prompting automatic use of a "script," when in reality the situation may be different and call for new behavior. Overlearning is therefore associated with the potential for error in novel situations, and also with a less creative performance and an

impaired ability to modify performance in the presence of subtle cues.²¹

It is not clear whether this is the type of mindlessness being described by the nurses; indeed, they seem to be talking more about multiple choice exams versus essay exams. What they do in developing a CNCP is to recognize, from a given list, items that "match" the particular patient. The only nurse who seems uncomfortable about this is Noreen, a recent graduate who is still working through some of the early stages of reality shock.

When I was oriented to the computer, compared to the way I was taught to do care plans, it was totally different. To me it was, God, it was pounded into my head for two years. And now I don't *do that*? At first, it was, God, I'm gonna do that anyhow. But . . . Pain . . . Like, you know you measure the intensity of pain, you do all that stuff . . . Assessment first . . . But when you've got only 10 minutes on it [on the computer], you don't put that in there, you know . . . But you're *doing* it, which doesn't make sense. It *does* save time but you're leaving stuff out.

Becoming mindless and losing the skills learned in nursing school are two ways of losing one's expertise. A more subtle way is suggested in the skills acquisition model.^{22,23} In moving through five distinct levels of skill acquisition, from novice to expert, the mode of thinking changes from a rule-based, part-focused, linear, procedural, analytic, and detached process (of which the computer

program is an exemplar) to a context-based, gestalt-view, intuitive process; the expert nurse can no longer describe, step-by-step, how she arrived at her conclusions. There is evidence that the performance of the expert deteriorates when forced into the mold of operating in linear, rule-based steps.²³

In addition, Zuboff,^{16,24} whose work over the last dozen years has centered on a qualitative approach in a variety of computerized industries and occupations, avers that "for some jobs, the word 'decision' no longer implies an act of human judgment, but an information processing activity that occurs according to rules embedded in a computer program," and that job deskilling involves the managerial level of an organization as much as those performing routine work.^{16(p144)}

What effect does the erosion of the nurse's expertise have for the nurse, the patient, the organization, and the profession? Whatever the "micro" effects might be, it is important to realize the "macro" effect on the enactment and recognition of nursing as a profession.

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Of what use is it to learn that the computer has a deprofessionalizing effect on staff nurses? After all, common sense does tell us that computers are here to stay. A first step toward ameliorating the problem is to put it into perspective and to improve our understanding of it.

As far as perspective goes, there are several points to be made. First, staff nurses spend very little time developing CNCPs; provided they do not free-text, these nurses produce a CNCP for a newly admitted patient in 3 to 5 minutes. It would be easy to shrug off the deprofessionalizing effect as

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too minor to be of significance. The use of the computer to help nurses carry out functions for which they formerly used their assessment skills together with their knowledge, experience, intuition, and judgment is increasing, however, as health care institutions add innovations such as computerized nurses notes. Still, these functions so far are usually related to documentation and to using nursing time efficiently; documentation ultimately takes much less time, freeing the nurse, theoretically, to be engaged in activities that are more truly person centered and holistic.

Another aspect of perspective that needs to be made explicit is that there are other uses of the computer in nursing that do not seem to have the same effects on the nurse: simple information processing—storing, transmitting, organizing, and retrieving data. The nurses who participated in this study were eager and proud to explain, for example, the speed and ease of obtaining lab reports.

Also, not all the problems recounted here are the inevitable results of the computer and its role in CNCPs. The meanings and behaviors surrounding the CNCP cannot be separated from the environment in which it exists. In this and many other hospital environments, the nursing care plan (whether computerized or not) is not valued. Nurses are rewarded for the existence of the plan, not for its quality, and, as Emily says, “No one reads them, no one cares.”

There are, however, exceptions. The deprofessionalizing effects of the CNCP are not invariably present. On one nursing unit studied, the CNCP has a bona fide and prestigious use in that it serves as the guide for the nurse leader for regularly scheduled interdisciplinary conferences. Also, the head nurse on this unit supports free-texting, and

patients stay long enough for a thorough assessment and a therapeutic relationship to occur. Nurses on this unit do free-text, and do not moan that no one uses the CNCP. Nurses who do free-text produce a highly individualized care plan, maintain the skill of developing a care plan almost from scratch, and are autonomous enough to combat the computer’s implicit demands for standardized input.

It seems to boil down to a question of values—the values connected with the organizational bureaucracy, the regulatory pressures, and the reimbursement environment, values largely related to efficiency and control. Even the current thrust in nursing research for standardized input, toward a nursing minimum data set,²⁵ indirectly supports the same values. And it may be that nursing can no longer exist and grow without operationalizing these values. On the other hand, professional values encompass more quality and effectiveness than efficiency; more individuality than standardization; more a commitment arising from nurse participation than a detachment from what the computer generates.

“Dilemma” seems an appropriate word at this point. How can the dilemmas suggested here ever be resolved thoughtfully if not by formulating relevant research questions and carrying out studies? For example, are there other facets of the nurse’s workday that nurses perceive, however dimly, as having deprofessionalizing effects? Or does a lot of nursing time spent in a procedural, rule-governed, step-by-step thinking process destroy part of the nurse’s ability to care, to empathize, to intuit, to gain insight, to function in the expert mode? Can nurses be given choices—free choices, with rewards for a variety of behaviors—to plan with their in-

tellec, without lists to pick from, as well as to plan the computer's way?

Perhaps the deeper question is whether institutions really listen to their workers and respond by making changes. One strength of this study is that it was built around listening carefully to what nurses have to say about the

work they do. Researchers in the area of technology and its effects in the workplace report consensus that the problem is not the computer or automation per se, but in the organizational and managerial choices that are enacted in implementing the use of the new technology.²⁶

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