Using fieldwork in analyzing ethical issues related to IT in health care

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Abstract

This paper describes how an understanding of everyday conflicts that have ethical implications – what we call ‘situated ethics’— can be explored through ethnographic field techniques in healthcare settings. Our approach to ethics is followed by findings from two ethnographic case studies. Our data suggest that several types of ethical issues (e.g., issues related to intellectual property, literacy, standardization, transparency, work ethics, and equitable allocation of resources) can be identified through fieldwork, and can have an impact on identification of everyday ethics in healthcare.

Keywords:

Ethics; Ethics, institutional; Principle-Based Ethics, Ethics, Professional; Narration; Work; Ethnography.

Introduction

Our interest in this paper is in understanding the situated, everyday conflicts that have ethical implications – what we call ‘situated ethics’. We developed an approach to studying ‘situated ethics’ as part of the Canadian Action for Health project which investigates the role of the internet, electronic patient records, computerized information systems and other forms of information technology in the health sector.

Our aim of studying ‘situated ethics’ is to bring everyday conflicts about IT in health care and their moral dimension to the fore. Ethical issues reveal themselves in the complex dynamics which unfold in everyday situations between actors, such as doctor and patient, nurse and management, clinical personnel and technical support/vendor. Their situated character lends itself to the narrative form – story-telling. The situated, everyday conflicts are connected to larger ethical issues – they are instantiations of such larger issues. They are often also connected to legal issues. We argue that understanding the context and the mundane details of situations in which ethical issues arise, and grounding them in people’s everyday experiences may make it easier to address, and deal with ethical issues.

‘Situated ethics’ is about ethics as an integral part of everyday action. It treats ethical problems as researchable through social science methods. It claims neither to offer ‘solutions’ to the identified issues nor to be a substitute for a professional case deliberation but it can prepare the grounds for such a case deliberation. Hence one of our aims is also to explain the difference between the work of professional ethicists who analyze ethical issues, eventually helping people to come to a moral judgment of a situation and plan appropriate action; and the work of social scientists, who through qualitative research methods - observation and interviews - unravel ethically problematic aspects of everyday life/work situations.

Here we describe how to study the ethics of everyday practices, using (ethnographic) fieldwork. We make a case for ‘narrative ethics’. We use vignettes based on fieldwork in two research projects on IT in health care to explain our approach to studying ethical issues and we reflect on how our approach may enrich the discourse about ethics and IT in health care.

How to study ethical issues

Researchers have for some time criticized the principled philosophical approach to ethics-in-practice. One major point of objection is that the principled approach assumes common moral intuitions, failing to recognize the existence of multiple cultural and religious traditions. For example, in her study of ethical decision making in cases of terminal diagnosis Turner [1] introduces the concept of ‘local moral worlds’ as meaningful for understanding different modes of moral reasoning. Another point of criticism is that clinical/medical ethics has been couched in general and abstract terms and focuses on dilemma-type issues. Guillemin and Gillam [2] argue that when it comes to looking at day-to-day ethical issues, these can rarely be phrased in the form of a dilemma. Using an example of a woman informant disclosing that her husband has been sexually abusing her daughter, [2] argue this can be interpreted as a classical ethical dilemma of whether to breach confidentiality or prevent harm. However, there are also more immediate ethical concerns, like whether or not to take up what the woman disclosed, in which words, what tone, whether to switch off the tape recorder, abandon the interview, and offer help. These practical but highly relevant ethical concerns cannot be framed as dilemmas. Guillemin and Gillam [2] talk about ‘ethically important moments’, moments of response where wrong can be done. They focus on sensitizing
people to ethical tensions, and through this enable ethical action, than prescribe specific types of responses.

In her study of different types of medical decision-making, Hall [3] proposed an approach, based on the work of Johnson, who sees the basis for moral sensitivity in the ‘moral imagination’. Her notion of narrative ethics puts imagination and interpretation at the centre of ethical decision-making. Narrative ethics includes constructing and telling one’s own story and comprehending the story of the other. This may include decisions such as: What is my story? What is important to relate? What is the best way to express what I consider to be the ethically most relevant material? Narratively crafting our understanding allows us to enter a decision-making process which includes contextual elements. The imaginative capacity is revealed in the images, metaphors, and symbolism the narrator uses, and in the small details s/he fills in. Hall stresses that narrative ethics and arguing on the basis of rules and principles are not mutually exclusive but can complement each other.

The notion of ‘narrative ethics’ resonates well with methods of ethical case deliberation that see moral intuitions embedded in narratives. Participants are encouraged to bring forward/argue through stories and organizers of a deliberation process are required to provide suitable case descriptions. Throughout the literature we find the term ‘vignette’ for such descriptions. Vignettes are short, narrative accounts of a ‘case’ from the field that illustrates one or more ethical-legal issues. They are constructed on the basis of extensive practical experience in the field or of fieldwork material produced through research. They may be real cases or hypothetical cases based on experience. When simulated, a vignette can be constructed to look at the same situation from different perspectives or contain one manipulated variable (e.g. the gender or ethnicity of one of the people in the scenario). When based on field work, a vignette can describe a real-life dilemma as it occurred. Advantages include that all contextual information required to understand and analyze the issues are at hand; and that the situation described is sufficiently complex and enriched with detail.

Ideally, vignettes should be written so that readers understand the context (of people, tasks, IT support, organization, cultural practices, history, etc.) in which ethical issues arise. Vignettes should have a clear focus on describing the issues. Video material, cartoons and other techniques have been used for producing lively accounts. A ‘good’ vignette is defined as an account that has “great hermeneutic power in its capacity to enhance our understanding of behaviour” [4, p. 83]. One characteristic is ambiguity, which leaves space for participants to define the situation in their own terms. Another important feature is narrativity, which introduces specificity and detail, helping to understand the context in which an ethical issue arises. Both encourage and enable reflexivity and discourse. Our interest is in using vignettes as part of qualitative research and in vignette writing based in fieldwork. This ensures that vignettes genuinely represent phenomena that occur in real world settings and that they reflect the complexity of an area being studied. Moreover, “the ethical decision-making in such a situation has a narrative context, in which competing moral stories containing strongly rhetorical elements present themselves” [4 2004, p. 84].

The cases

We have worked with ethnographic fieldwork material for constructing vignettes, and we elicited vignettes from other project partners. The material we collected –34 vignettes from 16 different projects – differs vastly. Vignettes can be rather short and ‘typifying’, (putting forward a case that may be encountered in other places) or they can be very specific and rich in social detail.

The two cases we selected for this paper are very different. The Canadian case is about a an automatic drug dispensing machine (ADS) that had just been introduced in a hospital; hence, it is about a system in use, the problems users encountered and how these were handled. The Austrian case is about the introduction of an electronic patient record in five clinics and deals with the introduction process, the problems that came up and how these were addressed.

Case 1: New automatic drug dispensing machines

In 2003, several units of a large hospital moved into a new building, and several new technologies were introduced, including ADS. The vignette contained here emerged from extensive observationally based fieldwork (see [5, 6] for more detail). These machines consist of cabinets with a keyboard and screen. A nurse logs on by keyboard, enters information about her patient, and selects the medications she administers to her patient from a computerized list. Once the medications are selected the drawer containing the medication opens, and the bin containing the desired medications is automatically unlocked.

When the ADS was introduced, nursing staff had difficulty locating the name of drugs they had to administer in the machine’s pre-programmed drug inventory. Nurses using the ADS shortly after its introduction reported that the names of drugs included in the ADS’ inventory list differed from the naming conventions in use prior to the introduction of the ADS. We observed several instances of nurses searching through pre-programmed drug names in the cabinet before finding the correct name of the drug they wished to administer. Another problem appeared to be that the nomenclature programmed into the ADS (generic drug names) differed significantly from the nomenclature that was in use previously on the hospital units (both generic and trade names).

Although the ADS accommodates naming conventions different from those programmed into it, the planned integration of systems both within one hospital and across hospitals necessitated use of a common drug nomenclature across multiple computing platforms. As a result of this standardization, the convention which had been in use to include common brand names after the generic drug name on medication orders ended, leaving nursing staff to translate between doctor’s orders (that typically use brand names such as lasix) and generic names (such as furosemide) used by the central pharmacy, and now programmed into several computer systems. The location...
of drugs within the ADS were also standardized.

Another issue related to the ADS concerns the processes put in place for inventory control and ADS discrepancy reporting. One of the main justifications used for the implementation of ADS has been inventory control. Drug inventories are controlled through the ADS in part through count back procedures, where staff count back, or verify that the locked storage drawer compartments that house the drugs contain the quantity of drugs indicated on the ADS screen. Each time medication is removed from the ADS, the user is prompted to verify that the quantity of the listed drug is stored in the machine. In instances where the quantity of medication in a drawer varies from the quantity listed, staff are prompted to address the discrepancy, by either choosing a pre-defined reason from a menu of options (e.g., discrepancy already documented in report; error in previous count back quantity; error in previous remaining quantity; medication not removed; or unexplainable loss–see report), or entering a user supplied reason for the discrepancy. Dealing with a discrepancy in the manner dictated by the ADS required staff to count the quantity of medications on hand – a time consuming process when a frequently used, well stocked medication (e.g., 200 tablets) is involved.

**Case 2: Introducing an EPR into 5 oncology clinics**

The 5 clinics participating in the EPR project form part of the CHO, the association of hospitals, nursing homes and geriatric centers run by the city of Vienna. The CHO is one of the biggest health service institutions in Europe with an average of 400,000 stationary patients per year and a staff of 32,000. Our description is based on interviews with different stakeholders, an in-depth study of paper-based and computer-supported documentation practices in three clinics (ONC1, ONC2 and ONC4), and participation in several user group meetings.

The decision to introduce such a system was a central-political one, initiated by one of the five clinics (ONC4) which has been successfully running an EPR for 12 years and had hoped to convince the CHO that their system should be implemented in the other clinics. The CHO in turn was interested in the project since it was in line with their strategy to replace the old hospital information system KIS and to generally look for unified solutions/products, since these seem easier to maintain, and hence more economical. The project had the support of 4 of the 5 clinic heads, who delegated the work of formulating a requirements document to interested physicians in their clinic, with the experienced ONC4 in a dominant role. It was decided that ONC1 and ONC2 should start implementing the system. Several user group meetings were conducted at ONC2 who seemed ready to work with the system.

Confronted with the system which was demonstrated by the vendor, physicians at ONC2 started an intense discussion about a variety of issues, none of which seemed as easy to resolve as the CHO had imagined. A major concern was the interface to ordering lab exams and viewing the results, which is currently done within KIS. This was immediately declared as technically very difficult, hence too costly, by both the vendor and the CHO. The next point was the ordering of chemotherapies, for which each of the hospitals has a different system run by their pharmacy. The question of who should be responsible for the process and who should be responsible for the maintenance of the drug catalogue – clinicians or the pharmacy - arose. There was also the question of interfacing here: “If you don’t design the interfaces, then he or the nurse, after having documented in XX (the new system) what should happen with the patient, a blood test, an X-ray, a nuclear-medical exam, the nurse or doctor would have to log into another program, identify the patient a second time, and type in the order.” There was also concern about how to integrate orders issued by external consultants. Questions arose about protocols, which in chemotherapy seem to change quite often – how many should be supported? Who should do the work of updating them?

There were heated discussions about the different templates physicians need, from the anamnesis sheet (a long and a short version) and the discharge letter to different kinds of overview sheets (patient status, overview of activities). How should they be designed? Which data can/should be automatically inserted from the system? How much standardization should be designed into a template? What kind of overviews should be enabled? etc. It became clear that at what seemed the start of implementation a time-consuming process had started, which uncovered contextual richness and highly relevant detail that would require much more attention than both the CHO and the vendor were prepared to give.

**Discussion**

The vignettes presented here in a shortened version are fieldwork accounts, rich with social detail. They do not just address one particular ethical issue but tell a story that needs to be analyzed to identify areas of ambiguity and complexity. Our analysis follows what [7] describe as ‘clinical pragmatism’. This protocol is based on a structural analogy between clinical judgment and the structure of ethical reflection. It requires ‘contextual factors’ to be taken into account in “centric circles. Implying first and foremost the perspectives of the other professional groups as well as their contributions to care giving” [7, p. 237]. Narrative elements, representing moral intuitions and stories are to be included. Institutional policies have to be examined. In this mode, we use the case descriptions to identify conflicts that can be related to ethical issues such as transparency, standardization, work ethics, privacy and confidentiality, intellectual property, equitable allocation of resources, literacy, etc. Different stakeholders’ perspectives on issues are considered and we describe how organizational as well as inter-organizational relations mediate these issues.

**Identifying the ethical issues**

For identifying ethical issues we use a framework which draws on several sources. Biomedical ethics [8] introduces a four-principles approach – autonomy, justice, beneficence, and non-maleficence. Related to virtue ethics, the ethics of care originally emerged as a feminist critique to traditional theorizing (see the pioneering work of [9]). It focuses especially on personal relationships and character traits that are valued in them. It has been reformulated as an ethics of re-
sponsibility, which with respect to science and modern technology stresses issues of accountability and liability. Furthermore, given the many opportunities information and communication technologies offer, it is vital to take account of the need for privacy, respecting people’s right to maintain boundaries, but also to preserve privacy, autonomy, confidentiality, and solitude. Other ethical issues connected to ICT are transparency – awareness of and the ability to understand IT systems and their implications – and literacy. This widening catalogue of principles or issues reflects the plurality of perspectives and the complexity and specificity of areas such as modern technology and health [10]. Here we discuss only a few of the categories of ethical issues identified. In the Canadian case these are:

Issues regarding intellectual property – The use of ADS will result in the collection of more sophisticated data about drug use by patients during hospital stays than has previously been available. Drug companies have been trying for years to gain access to British Columbia health data, as BC has one of the most comprehensive data sets in North America. Who owns the data that the ADS collects and consolidates? Should patients have to consent to having anonymized data collected during their hospital stay used at some future point for health research? Which health researchers should have data access?

Issues of literacy – Gaps in computer literacy among nursing staff became evident with the introduction of the ADS. Also, issues of literacy emerged again in relation to the nomenclature issue - pharmacy staff felt everyone (nurses, doctors and pharmacy staff) should use the generic names for drugs, because this constitutes better practice. However, as staff struggled when the brand names disappeared, differences in the drug literacy of pharmacy staff and other staff became evident, along with physicians’ non-compliance with a policy to use only generic names when prescribing.

Issues of standardization – The problem of drug naming conventions raises issues of standardization. Standardization was adopted for good reasons, but has had unintended consequences. The generic nomenclature is not in common use among floor staff who must now translate doctor’s orders (which are often written in trade names) into generic names. Staff may spend more time looking up drug names than they did in the past. Standardizing the location of drugs within the ADS was intended to make it easier for staff who move between floors to use the ADS. However, staff on some floors were frustrated by having to retrieve commonly used drugs from the bottom drawer. In both cases it is not clear if the benefits gained from standardization out weighed the costs.

The issues in the Austrian case were somewhat different:

Issues of transparency – As local IT experts where not involved from the project’s start, misunderstandings arose among physicians concerning system requirements and interfaces. For example, it was not clear that the new system would not support easy retrieval of lab results. Also, local system experts were not aware of hardware requirements of the new system, with the consequence that these were not included in local budgets. Nurses had been invited to attend the user meetings but it remained unclear how they might be affected by the implementation of the new system. At the same time the roll out of another IT project in support of care documentation was taking place and its status was far more advanced. How should nurses decide which system will meet their requirements best?

Issues of literacy – Vendor and project management asked physicians to provide specifications of working routines and work flow to be supported by the new system, although they lacked the experience and skills required for writing a useful requirements document. It turned out that the way physicians specified their requirements lacked relevant social detail so that something they had thought was a key requirement – easy retrieval of lab results – was formulated in a rather general and vague way, for example not defining when and in which form lab results should be communicated. This led to misunderstandings when translated into technological solutions by IT experts. The ‘medium’ of participation – a traditional requirements document – turned out to be inadequate.

Issues of work ethics – The system has been designed exclusively from the physician’s perspective although nurses will presumably have to work with it too – how can their perspective be included? There is also the issue of time - physicians don’t have the time to participate in the set up of the project. For reasons of cost control physicians’ possibility to work overtime has been limited to 20 hours a month. Whether physicians get compensatory time off for their collaboration in the implementation process is up to the head of their department. Also, the new system requires attention to issues, such as complicated login procedures or regular maintenance and updating of drug catalogues and protocols for chemotherapies inside and across clinics that have not been accounted for.

Issue dealing with equitable allocation of resources - As soon as it was decided that the oncology departments would get a new documentation system all further investment into the completion or updating of any old systems in place was stopped. This has led to a continuous slow down in data processing in some of the involved clinics.

Stakeholder perspectives

In the simplest sense, the stakeholders in the Canadian case are the central hospital pharmacy (pharmacy management, those who re-stock the ADS), the information management department of the hospital (responsible for the units’ connection to the hospital information infrastructure), nurses on the units, their managers, and the patients. Other stakeholders are people who might use ADS data-- one compelling reason for introduction of systems such as ADS is to improve data availability for research. The ADS implementation also provides insights about ethical issues related to assumed actors and assumed use contexts, both of which become stakeholders in system implementation processes. The ADS was designed with a U.S. market in mind, replete with all the record keeping required to bill for 100% of all services rendered or medica
dispensed. This was reflected in the machine interface. Although in Canada the reasons for introducing the system did not include the ability to track costs associated with each patient, the financial need to do so within the US market influenced software design and subsequently work practice in a Canadian hospital.

The Austrian case reveals a complex network of actors, with
the CHO as central hospital organization, the vendor, the five clinics with their own interests, and future users of the system – physicians and nurses. The perspective of ONC4, one of the main players, is of special interest here. In the 1990s they developed their own documentation system. When attempts to get funding for necessary improvements failed, the idea to promote purchasing of a standardized documentation system for all oncology departments arose. Responding to the call for tender was seen as a way to get a complete system update and at the same time standardize the systems of the other big oncology departments, thereby improving the possibilities to exchange data and promote research. But their system did not win - it was too expensive. Although it had been continuously improved over the years and adapted to changing work practices, these efforts and advantages were not included in the rating of the system. A lack of attention to the effort and expertise of one actor contributed to jeopardizing the whole project.

Mediating (inter) organizational relations

In a previous paper [11] we discussed the fragmented character of complex organizations and interorganizational relationships as a source of problems in systems development. Looking at the ethical issues in the oncology case we can identify fragmentation of (inter) organizational relationships as one of the reasons for the problems encountered. Systems development takes place in several loosely coupled social arenas between heterogeneous actors - CHO, vendor, the different clinics with differing interests, different occupational groups in the clinics, and within different hospitals, vendor, and varied occupational groups in the ADS case. We can also see action in other arenas shaping the process: the CHO using its power position, curtailing the needs for updating old systems by stopping financing.

Looking at the ethical issues in the ADS case, we see that a lack of attention to work design contributed to some of the problems, particularly related to the timely process of counting back commonly used drugs. Problems associated with which drug nomenclature were programmed into the ADS (generic or generic and trade names) were heightened by (inter) organizational relationships, which on the one hand did not adequately take into account current work practices (e.g., of doctors who use trade names in writing prescriptions), and on the other hand were not clearly visible to staff who had to cope with the consequences of the use of only generic names were programmed into the new machines—a decision that was taken because of inter-organizational relationships, but was not visible to staff. This lack of transparency, combined with a lack of transparency associated with how the communication of drug count discrepancies were reported to the pharmacy with the ADS undermined medication safety and inventory control.

Conclusions

The ‘politics of systems design’ is not a new agenda (see e.g. [12]). Our notion of 'situated ethics' proposes to use descriptions of (work) situations involving technology, to look into the moral dimension of technologies at work – how they are introduced, how they affect people and the quality of their work. The cases we have presented are based on extensive fieldwork. They are by no means simple; they reflect the complexity and entangledness of real life occurrences. As we have tried to show, the problems emerge in the social detail which can only be uncovered through close and careful observation of the technologies in use and/or the process of introducing the technologies in complex settings.

References