

You think you have problems with your research participants? My research subjects don't have a pulse!

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Abstract

As a lecturer in information systems I am very interested in information technology and its uses, in particular the design and implementation of educational technologies used to support teaching and learning in higher education. I use actor-network theory (ANT) as a conceptual framework to research these technologies. ANT employs a sociotechnical approach that requires all actants (human and non-human) to be treated equally for the purposes of analysis. As a human and an ANT enthusiast, I found myself on the horns of a dilemma: is it intellectually desirable and politically responsible that 'agency' may be ascribed to non-human entities that cannot speak for themselves, thereby constructing them as potential stakeholders and/or gatekeepers?

In this paper I will draw on ANT to investigate reflexively the risks and dilemmas of researching non-human entities. A nonhuman entity is a technical artefact such as a computer (it could also be an animal such as a scallop - see Callon (1986) - or a book or a policy). I will explore the various types of stakeholders and the types and roles of gatekeepers in an ANT informed study. Finally I will discuss using the metaphor of performativity as a tool to overcome the dilemmas and/or reduce the risks of researching socio-technical systems. Examples will be drawn from a study that investigates the implementation of an interactive video-conferencing network at a multi-campus, regional university in Australia.

Introduction

My doctoral research is a study of how the interactive video-conferencing (IVC) facilities were designed, developed and implemented for use in teaching across Central Queensland University's (CQU) Central Queensland based campuses: Bundaberg, Emerald, Gladstone, Rockhampton and Mackay. The main focus of my research is how staff use this technology for teaching purposes. In response to very limited training when the facilities were first implemented some of the users experimented with different techniques and teaching strategies until they found a way of teaching that fitted their content areas and teaching styles. They were constrained by the decisions made before implementation because the video-conferencing rooms were designed and built to replicate a tiered classroom such as those used for face-to-face teaching with the addition of cameras, microphones and television monitors. The more innovative lecturers found themselves constrained by the fixed nature of the furniture in the video-conferencing rooms. Other lecturers did not adjust their teaching strategies at all, while some rejected the technology altogether.

The IVC facilities at CQU are a complex system made up of technology, such as video cameras, monitors and electronic cables, and people, such as students, lecturers and technical staff. To study them I needed to find a methodology that would allow me to take into account the social and technical aspects of the IVC facilities. The research methodology I chose was based on the methods and principles that underpin actor-network theory (ANT). A brief overview of ANT is given in the next section, after which I will describe how the actants in my study can be constructed as stakeholders and gatekeepers and the risks and dilemmas of treating human and non-humans as equals in my research. I conclude with a discussion on how the metaphor of performativity could be used to address some of these risks and dilemmas.

Actor-network theory

ANT had its beginnings in the work of Callon, Latour and Law (Callon, 1986; Callon & Latour, 1981; Latour, 1996; Law, 1986). It is sometimes referred to as the sociology of translation (Callon, 1986). The aim of ANT is to explain how human and non-human actants (this term is used to avoid confusion since in the English language 'actor' is often limited to humans) are tied

together in networks that have been built and maintained to achieve a particular goal. It is used to study a phenomenon or set of phenomena, such as science (Latour, 1987), in action. It draws attention to issues of network formation and maintenance. In ANT the term 'network' is not the same as the more commonly held meaning of this term, as in a computer network. Latour's definition of network is much broader and includes a metaphysical element. The 'actor-network' is more than just the nodes on a network; it includes the filaments that hold these nodes together and acknowledges that these filaments are not fixed in time or space (Latour, 1998).

I chose to use ANT as a conceptual framework for examining the creation and maintenance of networks of associations amongst human and nonhuman elements, which, in the case of the IVC facilities (at first view), include people, organisations, video cameras, television monitors, microphones, furniture, room design, software, computer and communications hardware and technical infrastructure because an ANT informed study will attend to both the social and the technical dimensions of this innovation.

An analytically radical aspect of ANT is that there is no difference in how it treats people and objects (Latour, 1998). This implies that non-humans can have agency. Human agency is defined as "[t]he ability of people to change the institutions in which they live" (*The red feather dictionary of critical social science*, 2000). According to Callon and Latour (1995, p. 490), "something is treated as an agent...if it performs, or might perform [agency]". In this paper I am using the term 'agency' to mean the ability of an actant to perform or change or affect any other actant.

I will now discuss how ANT can be used to construct stakeholders and gatekeepers and the risks and dilemmas associated with conducting research using an ANT conceptual framework. Examples from my doctoral research will be used to illustrate these risks and dilemmas.

Stakeholders

A stakeholder in a research project is anyone (or anything) that has an interest in the research project. Kumar (1996, p. 191) categorises stakeholders into three categories: "the participants or subjects; the researcher; and the funding body". In my doctoral research the participants are the actants in the study. As described above, the actants in my study can be human or non-human. The researcher is myself and the funding body would be my employer as CQU supports my research financially through a staff study support scheme.

In my discussion of the risks and dilemmas of stakeholders I will focus on the rights of the actants in socio-technical research and the role of the researcher. CQU is also a stakeholder in my doctoral research but I have chosen to exclude it from my analysis.

There are several groups of human stakeholders in my study: academic staff who use the IVC facilities for teaching and learning and also for staff-based activities such as meetings and seminars; technical staff who are responsible for running and maintaining the IVC facilities; students who use the IVC facilities for their classes; and other general staff, such as the university timetabler who is responsible for the room bookings of all classrooms including the IVC rooms.

The non-human stakeholders are very diverse. They are all the pieces of equipment that make up the physical network of IVC facilities and the purpose built teaching spaces that are used for IVCing; these include such things as: cameras, monitors, microphones, desks, computers, microwave links and the key to the IVC rooms. Equally the policies and documentation that are associated with the IVC facilities are also part of the actor-network: such items as the equipment manuals, brochures advertising the equipment; the Internet site for booking the rooms; the

training manuals for staff; and the password to allow entry into the control panel in the IVC rooms.

As the researcher I am also a part of the actor-network as well as a stakeholder in the research. I am also in the actor-network in several other ways: as an academic who uses the IVC facilities for teaching; as a staff member who uses the IVC facilities to participate in staff meetings and seminars; as an early innovative user of the IVC facilities; and as the person who project managed a Federally funded staff development grant to train staff in the use of the IVC facilities.

The significant differences in who or what is viewed as a stakeholder in an ANT influenced study as opposed to other research methodologies are: the non-human actants that have been given an equal voice in the study; and I have recognised the multiple roles of myself as researcher and user of the IVC facilities (several actants in the study had multiple roles not just the researcher).

ANT contests certain accepted ideas and practices in research by assigning agency to non-humans, studying the interaction of the human and the material, and acknowledging that actants can have multiple roles within an actor-network and that actants can be translated through their interactions. In other words, ANT is engaged in the analysis of phenomena that contribute to a network that other analysis frameworks do not even consider. Using the IVC study as an example, a critical incident was the observation that the cameras in the room were able to translate how an academic taught her class. Because the lecturer camera was fixed on the ceiling and could be moved only by pushing buttons on the control panel, she was restricted in her movements in the classroom. As an academic in a conventional classroom, this particular academic often used movement in the classroom to emphasise a point. If she continued this practice in the IVC classroom, students at the remote sites would not be able to see her, which meant that this particular teaching strategy was ineffective in the IVC class. Equally the class camera had the ability to influence where students sat in the classroom. Some students were reluctant to see themselves on the monitor, so they deliberately sat in chairs that they knew were out of camera range (Luck, 1999). This incident highlights the belief within ANT that non-human agency requires that non-human actants be understood as stakeholders with as much capacity as human actants to affect the shape of the actor-network.

More detail on the more risks and dilemmas of researching actants can be found in Luck (2003b), a chapter on the ethics, risks and politics of conducting educational research using ANT as a conceptual framework. For example, it describes a process for ‘interviewing’ a non-human actant – a significant dilemma for an ANT researcher because they need to enable non-human stakeholders to have an equal ‘voice’ in the research project.

Gatekeepers

According to Homan (2002, p. 23) “[g]atekeepers are those who give access to a research field. Their role may be in allowing investigators into a given physical space or...granting permission for research to be conducted in a particular way”. This chapter by Homan discusses the principle of informed consent, in particular the role of teachers who give permission for researchers to study children who are not legally capable of granting informed consent. The implication is that in educational research involving children, the gatekeepers (those who hold the right to grant or withhold consent) are people who are not the subjects of the research. This raises the question in my own research on socio-technical systems as to who has the right to grant or withhold consent for me as the researcher to conduct research on actants that are not, and never have been, alive—that is the technical or non-human artefacts in my study.

At CQU there are two committees whose members act as gatekeepers for research by assuming the responsibility for granting ethical clearance for any research undertaken by staff or postgraduate students at CQU. They are the Human Research Ethics Committee which is responsible for assessing and providing clearance for any research involving humans, and the Animal Experimentation Ethics Committee, which undertakes the responsibility of assessing and providing clearance for any research or teaching projects that involve the use of vertebrate animals. The latter committee is also responsible for monitoring the use of and care for vertebrate animals by the University.

I had to submit an application for ethical clearance and be successful in gaining a certificate of ethical clearance for my doctoral research before the university would confirm my candidature. The panel raised several comments about the human participants in my study but did not make any comments about my statement on the application that I intended to interview technical artefacts. Should this matter? In ANT the proposition that all actants should be treated equally for analysis “is seen as an analytical stance, not an ethical position” (Nielson & Akroyd, 2001, p. 7).

When I was conducting my data collection and analysis, there were several stakeholders who or that took on the role of gatekeepers to the non-human actants. They were actants such as the keys used to access IVC rooms (these rooms were locked except when in use because of the amount and expense of the equipment that they contained); the technicians who controlled access to the parts of the IVC facilities that are not visible in the IVC rooms (for example, the bridge that is used to connect multiple sites for a video-conference); the custodians of archival material that was created when the university was deciding what equipment to purchase; and the owners of the policies with respect to teaching and learning at CQU.

To conduct my data collection I needed first to persuade these gatekeepers to allow me access to the actant(s) I wished to study. For example, in the case of the keys to the IVC rooms, I had to persuade the technicians that I was trustworthy enough to keep that key until I was finished my research.

In this section I have concentrated on the gatekeepers who influenced my data collection with respect to non-human actants. The human actants in my study were staff who were all legally adults and students almost all of whom were over 18 years of age (students who were under the legal age to consent were not interviewed or taped); therefore they were able to act as their own gatekeepers and were free to give or refuse their own consent to participate in my study at any time during the research project.

Another way to perceive gatekeepers in ANT informed research is through the concept of obligatory passage points (OPP). Any mandatory, standardised action is called an obligatory passage point in ANT. It is based on a military term, “obligatory point of passage” (Latour, 1988, p. 43). Actants who or that are enrolled in the network are persuaded to move through these OPPs, and thus contribute to the routinisation and durability of the network. Actants who or that successfully define and control an OPP become indispensable and grow in strength. Creating an OPP is dependent on the ability of the actant to enrol and persuade other actants of the value of the OPP. In my research there was an example where an actant tried to introduce an obligatory passage point and failed. The actant was working in the staff development area of the university and she tried to persuade the Academic Board to pass a policy whereby staff could not teach using the IVC facilities unless they had attended training in the use of the IVC facilities and had received a certificate. This policy was based on a similar policy that was used by the Technical and Further Education (TAFE) network in Queensland. The staff development officer failed to persuade the members of Academic Board of the need for such training and the motion to accept

the policy was defeated. The person lost power within the IVC actor-network and left the university shortly afterwards (Luck, 2003a). An ANT analysis would imply that the Academic Board was an OPP for new teaching and learning policies and that the staff development officer had failed to enroll the members of the Academic Board (an actor-network and stakeholder in the research) and persuade them that the proposed policy was beneficial to the university. Another view would be that the proposed policy (as a stakeholder in the research) failed to become an OPP for academics wanting to teach using the IVC facilities. The Academic Board kept its power and role as an OPP or gatekeeper and the policy lost power and was removed from the actor-network.

I have raised a number of issues with respect to possible risks and/or dilemmas relating to stakeholders and gatekeepers in an ANT informed study. One tool that helps to address some of these risks and/or dilemmas is the metaphor of performativity.

Performativity

According to Law (1999, p. 4; *italics in original*) “entities achieve their form as a consequence of the relations in which they are located...they are *performed* in, by and through those relations”. When entities are performed, and perform themselves, into relations that are relatively stable the actor-network is said to be durable. Entities within an actor-network can be performed in a number of different ways and they are defined by their performances within the actor-network. Mol (2001) describes how the disease atherosclerosis is performed, or enacted, in several different ways: as heart disease; as claudication (pain on walking); and clinically in the pathology laboratory.

The performativity metaphor is useful in ANT based studies in several ways. To avoid the risk of misrepresenting a non-human actant, the researcher should observe how an actant is performed within an actor-network several different times. Otherwise the researcher runs the risk of collecting data on how the actant is being performed at one point in time. If an actant within an actor-network is observed performing the same way time after time, the researcher can feel more confident that the actant’s performance in the actor-network is relatively stable. Using the example above of the cameras performing the academics and the students in an IVC class, as the researcher I could be sure that the cameras were performing the academics and the students in a particular ways only after I had observed many different classes and found similar patterns in the restricted movements of the academics and where the students chose to sit. As the camera is a stakeholder in the study, the researcher has an obligation to represent the camera’s role in the IVC classroom as accurately as possible.

Using performativity as a lens to analyse my data helped me to focus my discussion of actants who or that had multiple roles in the IVC facilities. For example, I could write about my many roles within the actor-network: as an academic who uses the IVC facilities for teaching; as a staff member who uses the IVC facilities to participate in staff meetings and seminars; as an early innovative user of the IVC facilities; and as the person who project managed a Federally funded staff development grant to train staff in the use of the IVC facilities. Physically I am the same person but I perform within, and am performed by, the network in several different roles.

The performativity metaphor also helped to explain my role as I tried to enrol the gatekeepers to assist me in my research. For example, I had made friends with the technical staff when I first started teaching using the IVC facilities. I was performing them as my colleagues and they were performing me as someone who was very interested in using the technology effectively. This role as a friend and colleague assisted me later when I started my study. The technicians as

gatekeepers allowed me to access areas that other staff were banned from entering on the basis of how I had performed the technology.

Performativity was useful as a way of analysing the role of gatekeepers in the study. For example, the defeat of staff development officer's motion to accept the policy (training of staff to use the IVC facilities prior to teaching using the IVC facilities) by the Academic Board (a gatekeeper for teaching and learning policies). The staff development officer performed the proposed policy as a threat to members of the Academic Board. It was made clear to the members of Academic Board that unless academic staff possessed a certificate they could not teach using the IVC facilities. Had the staff development officer performed the policy differently (as an opportunity to improve teaching and learning for all stakeholders) the outcome may have been different.

Conclusion

This paper described how the actants in my study of the IVC facilities at CQU could be constructed as stakeholders and gatekeepers. It explored some of the risks and dilemmas of researching nonhuman actants by assigning them agency to give them a 'voice' in my research. It illustrated, using examples, how the metaphor of performativity could be used to reduce the impact of some of the risks and dilemmas associated with researching socio-technical systems.

A question that remains unanswered is who or what has the right to act as gatekeeper in giving informed consent to conduct research when the stakeholders are technical artefacts or natural objects (everything except vertebrate animals given that most research-based organisations have ethics panels for conducting research on vertebrate animals)? An intent of this paper was to increase the awareness of the rights of all stakeholders in a research project – especially those without a pulse!

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