DOCUMENT RESUME

ED 412 256 TM 027 534

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TITLE Ethical Dilemmas in Interpretive Research.
PUB DATE 1997-03-00
NOTE 24p.; Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, IL, March 24-28, 1997).
PUB TYPE Reports - Evaluative (142) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Confidentiality; *Educational Research; *Ethics; Foreign Countries; High School Students; High Schools; *Research Methodology; Researchers; Teacher Researchers; *Teacher Student Relationship
IDENTIFIERS Australia; Caring; Informed Consent; *Interpretive Research; *Researcher Subject Relationship

ABSTRACT

Ethical issues are fundamental in the planning and implementation of classroom research. This paper describes issues that arose as the researcher considered the ethical implications of a classroom research project studying teaching and learning issues in a grade 10 science classroom in Australia. Ethical issues were related to the relationships between the classroom teacher and her students, and between the research team and the teacher-researcher. Three principles of utilitarian research ethics that can be applied to a research study were identified by D. Flinders (1992) as informed consent, avoidance of harm, and confidentiality. Reflection on the research resulted in the conclusion that these traditional ethics were not powerful enough to address all of the issues that emerged during this school-based study. The "professional ethics" defined by H. Sockett (1993) as "care, courage, honesty, fairness, and practical wisdom" provided a richer framework for the analysis of the relationships between the teacher and her students and the research team and the teacher-researcher. Care was apparent both in the caring relationship between the teacher and her students and in the caring relationships the research team developed with the teacher. The research team also displayed, at varying levels, the virtues of fairness, honesty, and practical wisdom. In addition, the teacher displayed these virtues in her interactions with students and the research team. (Contains 10 references.) (SLD)

ETHICAL DILEMMAS IN INTERPRETIVE RESEARCH

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Paper presented at the annual meeting
of the American Educational Research Association (AERA)
Chicago, IL, 24-28 March 1997

Ethical Dilemmas in Interpretive Research

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Abstract

Ethical issues are fundamental in the planning and implementation of classroom research. Through my personal reflection on an interpretive study, I came to realise that the traditional ethics of *informed consent, avoidance of harm* and *confidentiality* were not sufficiently powerful to address all of the issues that emerged during this school based study. Subsequently, Sockett's (1993) 'professional ethics' of *care, courage, honesty, fairness* and *practical wisdom* provided a richer framework for my analysis of the relationships between the classroom teacher and her students, and between the research team and the teacher-researcher.

INTRODUCTION

I was a member of a group of teacher educators who proposed to conduct a research study in a grade 10 science classroom. The opportunity for this study emerged when a visiting scholar from the United States organised a group of us to examine teaching and learning issues in a science classroom. A Western Australian science teacher volunteered to participate in the study and to open her classroom to both suggestions and criticism from the researchers. Each researcher selected a research interest and the diverse range of data that were collected were to be shared between the researchers. The consequences of this act for herself and the students in her class are discussed in this paper.

This paper describes issues which arose as I considered the ethical implications of this classroom research project. The issues that I have selected to discuss in this paper are personally significant to me. The data from classroom observations, research meetings, interviews with the teacher researcher, the teacher interviews with other researchers, and my own self-reflection led me to consider issues which might be important for other groups of researchers involved in interpretive studies. The ethical issues described in this paper are related to the relationships between the classroom teacher and her students, and between the research team and the teacher-researcher.

SUMMARY OF FORMS OF THEORIES OF ETHICS

In searching for a suitable ethical framework, I examined the literature of ethics in educational research. This literature suggests that a number of theories of ethics can be applied to qualitative educational research. May (1980) identifies five theories of moral behaviour and summarises the relationship between ethical positions and qualitative research. This review helps qualitative researchers to answer the question "what is ethical research?" and clarify the different fundamental assumptions that underpin each ethical theory (Deyhle et al, 1992).

According to May (1980), *Teleological Ethics*, which is concerned with the truth, considers knowledge growth to be an end in itself. Because truth is the goal, deceptive means for acquiring knowledge are not acceptable. Many academics, seeking to enhance their contribution to the academy of scholars, are attracted to the teleological ethic, which sees the advancement of knowledge as a good in itself and, to my understanding, usually believe that they conduct quantitative research to uncover the truth.

Utilitarian Ethics is associated with a cost-benefit approach (May, 1980) to determining what is ethical. Utilitarian researchers are result oriented, and usually measure actions by their utility in producing the greatest good for the greatest number. But the main question underpinning this approach is "Whose benefit should be served?" When we study a local school which involves administrators, teachers, students and parents I believe that many academic and non-academic researchers are attracted to the utilitarian ethic. The question of "how can we make schools a better place in which to work and to learn?" is related to the issue of a cost-benefit ethical approach both for the researcher and administrator, and shapes the decision whether to authorise or cooperate with proposed research.

Deontological Ethics posits the existence of universal ethics. However, May (1980) criticises this ethic because its principles have a categorical force irrespective of results. He also warns of the danger of reducing others "from subjects to objects". This theory of ethics, although it ignores the special relationship between a researcher and the participants in a particular study still obligates the researcher to apply ethical norms to the study. For researchers who would like to work within the comfort zone of academic life, the categorical guidelines within the deontological ethic is very attractive to them. Usually "they do not anticipate any significant benefit from their research, except to themselves for having completed the dissertation... Their focus is not on being ethical but, rather, on not doing something immoral" (Deyhle et al. p. 613).

Emancipatory Ethics is built on critical theory and its application for advocacy research. May (1980) suggests that emancipatory ethics are underpinned by Habermas' approach

[(1979)] which claims that there is a "critical interest, an interest in emancipation, which should govern the social sciences" (pp 336). This approach is oriented towards advocacy and criticism and aims for human emancipation. Reformers who would like to see great changes in schools, even at the cost of their relationship with the participants in the research, often identify themselves with emancipatory ethics. I am convinced that this belief controls their life well beyond research activity. These researchers focus on the ways the school system abuses and oppresses students by, for example, engaging students in rote learning instead of critical thinking. They believe in emancipation of the subjects of their research and this belief influences their attitude to schools, administrators and teachers.

Covenantal Ethics is May's preferred ethical theory and is the one which involves: "obligations to host societies, to the public, to students, sponsors, colleagues and one's discipline... "(1980, 367). At the heart of this form of ethics is an exchange of promises, an agreement that shapes the future between two parties. Covenantal Ethics are especially appealing to researchers for whom interactions with the participants is the most important aspect of the research. They advocate a naturalistic research approach and close collaboration between participants. I believe that, to some extent, a teacher-as-researcher model can fit in this ethical theory. The cost of adopting covenantal ethics is that the relationship between participants is not necessarily finished when the research is completed.

ETHICS AND OUR RESEARCH STUDY

Relating ethical dimensions to the field of educational research is an important but sensitive issue because, as Punch (1993) claims: "there is no consensus or unanimity on what is public or private, what constitutes harm, and what the benefits of knowledge are" (p.94). I believe that ethical practice should be a prime consideration for the individual researcher or, in our case, for the team of researchers, who conduct interpretive research. Flinders (1992) believes that there is a need to protect human subjects in qualitative research. I believe that there is a need to clarify, for the participants, the opportunities that the research offers them, as well as to emphasise the risks that they take when subjecting themselves to interpretive research.

As I reflect upon the process of our research, I realise that even though we did not address ethical issues from a particular perspective, we considered ethical issues to be an integral part of our research study. At the end of the study, I examined whether our study was consistent with a specific theory of ethics. Initially, the task seemed straightforward. I planned to choose a theoretical framework, i.e., teleological, deontological, utilitarian, emancipatory, or covenantal ethics, and then by examining our research approach, identify whether we had conducted our research from this ethical perspective. However, as I delved more deeply into the interview transcripts and records of classroom observation, I realised

that the dimensions of our research were built upon more than one theory of ethics. The next section recounts my initial attempts to apply a utilitarian ethical framework to our study so that I could examine the frames that would best illuminate the ethical issues associated with this study.

UTILITARIAN ETHICS

Flinders (1992) identifies three principles of utilitarian research ethics that can be applied to a research study. These are *informed consent, avoidance of harm* and *confidentiality*. I argue that each of these principles were applied at different stages in our research process.

At the *recruitment* stage of the study, researchers should be concerned with obtaining the ***informed consent*** of the participants. This means that participants should enter into the research voluntarily, and should know 'what they are getting into' before deciding whether or not to take part in any given study. However, in interpretive research it is often impossible to predict the results and, therefore, it is difficult to inform the participants to the extent that they can make a 'safe' decision.

At the *fieldwork* stage, we should be concerned with ***avoidance of harm.*** In studies of teaching and learning, a researcher's mere presence in observing and taking field notes in the classroom may cause stress to some teachers. This is particularly important if the researcher is perceived as an 'expert' through his or her association with a university (Flinders, 1992, p. 103), or when the teacher may be concerned about her professional reputation.

At the *reporting* stage of the study we should be concerned with ***confidentiality.*** Confidentiality may solve some ethical problems by protecting research participants from stress, embarrassment or unwanted publicity resulting from publication of research findings. What happens, however, when we conduct collaborative research and want to involve the teacher as co-author, but still want to keep confidentiality? This problem became an ethical issue in this research project.

Did We Use these Principles of Utilitarian Ethics In Our Own Research Study?

In the initial planning stages of our research we considered some ethical issues. During the first research team meeting, there was discussion amongst the team about how to conduct the study. We reached a consensus that ethical issues would be handled with care and consideration in this interpretive research project. However, the issues of informed consent and avoidance of harm were not addressed explicitly. The dynamics of the research led to interesting episodes which - at the time - seemed like practical problems that needed simple technical solutions. We also experienced some unexpected difficulties due to participants'

differing beliefs and attitudes about teaching and learning science.The research approaches used by the study group to resolve problems associated with personal relationships indicated that we applied a more sophisticated ethical framework that was more consistent with Sockett's (1993) "teacher professionalism".

The teacher Informed Consent and Avoidance of Harm

The purpose of our research was to investigate teaching and learning in the science classroom. At the first team meeting, a framework was established to facilitate positive working relationships amongst the six researchers including the classroom teacher, who was considered to be part of the research team. It was generally agreed by the research team that the framework of the study should: (1) involve the teacher as a co-researcher; (2) consist of classroom observations by three researchers at a time, one of whom would operate a video camera; and (3) require three research meetings per week, each of two hours duration, to discuss the data and other issues that arose from the study. Implicitly, this approach was set up to keep the teacher informed about the progress of the research and ensure that she was not harmed by participation in the study.

Henrie, the teacher, became part of the research team and participated in the research meetings. Issues discussed included: gender in relation to group work in the science classroom, how students perceive the learning environment, leadership in the school, conceptual understanding in chemistry, the effect of individual perception on student understanding of the learning situation, teacher and student relationships, the social context of the school, and teacher beliefs about learning. Henrie expressed interest in explaining constraints in the classroom, and the difficulties of selecting teaching strategies appropriate for the current science curriculum. When Henrie asked for advice about her research focus the team leader suggested:

> talk about yourself and your beliefs about these kids, the school, science, what's appropriate for these kids and what's not appropriate, and you can then start to touch on some of the issues that are near and dear to your heart (research meeting 11.3).

There was discussion about procedures relating to gaining entry to the research site and about the involvement of Henrie in the study. A letter was sent to the school's principal and, after a meeting with the principal, permission was granted to set up our study in Henrie's classroom. The Head of Science also was informed and he agreed for the study to progress, so long as the school was presented positively in the study. Our entry into the school was not hierarchical in nature, but was achieved because of Henrie's personal interest in the research study and her enthusiastic willingness to be involved.

The research group meetings usually started with announcements from Ken, the research team leader, followed by a discussion of issues related to the day's observations, and opportunities for the teacher [to reflect upon] and respond to these observations. The second part of each research meeting was led by one of the researchers discussing his or her research agenda, and looking for comments and feedback from the other participants.

Although the discussion of our research observations raised critical questions about classroom interaction, Henrie claimed that she did not feel 'harmed' by the discussions. She found the research meetings the best part of this study. She saw most of her learning as coming from them. However, her initial reaction to some of the research leader's notes was: "it's a great story but it's not me!". She did not perceive her teaching role in the way she was described, but then realised that she could reflect and re-think about it in the research meetings. At the beginning of the study, she felt that "I was going to do everything wrong" in the school and that she was not up-to-date with her teaching and "I was a little bit reserved...". Slowly she became confident that she could change her teaching approach to provide a better learning environment for the students, and still conform to the school's curriculum framework. "I am becoming a little bit more confident that I am offering them what I feel is the best, and I am still fitting within those guidelines that are handed to me by the school." (interview with Henrie, March)

There was consensus among the researchers about the methodology of the study and about the procedures that the research team would use. There was also agreement amongst the researchers that the teacher would have the opportunity to respond to the field notes generated by the individual researchers before the notes were distributed to the other members of the team. This approach was adopted to secure the teacher's rights, to gain her agreement to participate as a co-researcher, and to protect her from professional or emotional harm. From the beginning of the study, trusting and caring relationships were established between Henrie and the other members of the research team. This is an example of how we tried to ensure that in the process of the study the principle of avoidance of harm was applied to the particular situation.

In addition, a letter was sent home to inform the parents about the study but not to ask for the parents' consent for students' involvement in the study. An ethical issue which should have been raised at this recruitment stage, but which was unconsciously ignored in this study, was the question of whether we should inform all the participants in the study, including the students, about the objectives of the study, our expectations, their privileges, and the risks that they might be taking. Other ethical issues which were not discussed at the time that the study was set up, but perhaps should have been, were (1) what part of the

data, or to what extent should the data, become public? and (2) who will own the data that are generated from the study?

Informed Consent and Avoidance of Harm Of Students

A question about the extent to which students were informed emerged as I viewed the first lesson which had been videotaped by the team. I realised that each time the camera zoomed in on students, especially female students, they smiled at the camera and seemed to react with embarrassment, losing engagement with their activity. Based on this observation, I interviewed the teacher who explained that the students were not informed about the study and thought that the purpose of the "university visitors" was to focus on the teacher alone. The students were excited and asked the teacher many questions. However, in a written response students commented:

> I didn't like the camera being in the classroom. (Terry, March 1994)

> There wasn't really anything I didn't like about them [researchers] but I suppose we couldn't express our ideas fully because there was always a camera on you. (Patsy, March 1994)

Resentment to the video recording by some of the students raises ethical questions about our right to conduct research in the classroom, to observe, to interview or to take video recordings without students' informed consent. Or without at least, explaining to students more fully the purpose of our involvement.

As a consequence of the researchers' concern about the lack of information given to the students, it was decided at a research team meeting to inform the students about the study. In the next school visit, Ken described to the students the purpose of our study. Ken mentioned the past experience of the research team as science teachers "and now what we are trying to find out as researchers, [is] what are the challenges that you are facing today and what are the challenges that your teacher is facing when she is trying to make science meaningful to you" (field notes 18.2.94). He explained to the class that research team members would interact with the students through journals which the students were asked to keep, and through students' responses to our surveys.

The students did not immediately respond to Ken's explanation so he encouraged them to ask questions. I was surprised to observe that students seemed to accept unquestioningly his explanation of the purpose of the study. However, one of the co-researchers in this study who conducted some follow-up interviews suggested:

I think these kids are just very compliant in the sense that if they have a teacher that they are doing what the teacher wants, they see it as all part and parcel of the way the classroom is run. (interview with Allan, May 94)

To what extent should we have asked students to consent to their participation in the study and to our videotaping their classroom? Should we have informed the students in order that they would become more confident about their roles and the researchers' roles in the study? In my opinion, from a utilitarian perspective, the students should have been informed about the study at the outset.

An important preliminary step in this kind of research should be to establish a positive relationship between the research team and the students. Other researchers expressed concern in a later stage of the study: "What are the students thinking? Do they feel that they have a choice in this?" The teacher emphasised that when you give the students a choice they are very surprised and don't expect it. One of the decisions of the research team was to provide students with a free lunch in order to establish more friendly relationships with them and to try to reduce the gap between us, the 'people from the university', and the students. Students were excited about the lunch idea and did not express concern about the study. However, one of the students was concerned about the video filming. "What are you doing with the video[tape]?" he asked. Ken explained that, in order to avoid a large number of researchers in the class, we would video-record the class and then other people could watch it. Another student asked: "Can we see the video[tape]?" I understood that the student was worried about the class video becoming part of the 'public domain'. Ken's statement that the students could borrow the video to watch with family or privately seemed to reassure the student who had asked the question.

As a result, generally, students seemed very positive about the "strangers" in their classroom and thought that they benefited from the study. In their journals', which they maintained during the study for our research purpose, they wrote:

We had more opportunities. Like we got into small groups and talked about some of the things in science that we didn't understand (Terry-Alexandra, March 1994)

Yes, with more teachers in the room I didn't have to wait for the teacher. (Daleth Stevans, March 1994)

They want to perform a study on how they could improve our science lessons (not just us but kids all around the world and in the future) (Kerry, March 1994)

> ...I learnt different things and they [researchers] made me realise that science is a good thing to know about . . . I would like to add that more schools should take the opportunities to having these people come into the class. (Turtle, March 1994)

On reflection, it is clear that the study began with the agreement of the teacher, the research team leader and the other researchers. However, students were left out of the decision to participate in the study. They became informed participants only at the start of the second week of the study after we realised that we had ignored their right to be informed. The research team was blinded by the involvement and consent of the teacher, and didn't think of the importance of other participants, such as students. This particular situation illustrates some of the limitations of our ethical approach from a utilitarian perspective

How Should We Secure Confidentiality?

In the study, an ethical issue arose in relation to confidentiality because the teacher was involved in the project as a teacher-researcher and, therefore, was a co-author of our publication. This raises the question of whether it was possible for Henrie to remain anonymous. Locally, it was difficult to maintain anonymity, as the existence of the study became common knowledge very quickly. It was even discussed informally with Henrie in a local teachers' conference. We had to work out a compromise solution: the teacher decided to use her own name, but we used pseudonyms for the students, the school and often the State. This highlights a further limitation of a utilitarian approach to ethics.

EXTENDING THE ETHICAL FRAMEWORK - SOCKETT'S 'PROFESSIONAL VIRTUES'

As one of the researchers in this research team, I adopted a 'constructivist' approach (Tobin, 1990) to analyse the classroom observations. My personal construction of the research events was strongly influenced by (a) the social interactions in the classroom and (b) the interchange of ideas during the research meetings. As I reflected on the relationships between the teacher-researcher and the university researchers, and between the teacher and her students, I realised that the utilitarian ethical framework based on three dimensions was too narrow to describe the relationships that existed between the members of the research group and the teacher. I felt that I needed to adopt a more comprehensive ethical framework.

Hugh Sockett (1993), in his book "The Moral Base of Teacher Professionalism", suggested such a framework. Sockett describes teacher professionalism as moral action, based on the virtues of *honesty, courage, care, fairness* and *practical wisdom.* Consideration of these aspects of moral action in this research assisted me to generate a richer picture of some of the ethical issues that emerged during the study. Henrie displayed Sockett's virtues to a considerable

extent. The members of the research team attempted to do so, but my critical self-reflection on the conduct of the research reveals some shortcomings.

How Did Henrie Display Sockett's 'Professional Virtues' in her Relationships With Her Students?

Courage

The thing that intrigued me most was the teacher herself: her *courageous* attitude in taking on the study, her feelings about the research team, the reason or reasons for her decision to join this study, and her willingness to change her teaching or be committed to change in the future. In a series of interviews with Henrie, I realised that her interest in participating in the study came very much from her desire to develop and change within her profession, and to create new opportunities for her students.

I perceive Henrie's commitment to this study as an act of *courage* and, as the study became more complex and more challenging, this became more evident to me. Sockett (1993) describes courage as a "virtue that describes how a person, often selflessly, behaves in difficult and adverse circumstances that demand the use of practical reason and judgment in pursuit of long-term commitments that are morally desirable" (p. 74). In this study, the teacher, had to go through social experiments where her educational beliefs and practices were put to the test. Henrie experienced pressure from the Head of Science, the students, the school, the assessment procedures of the science department and, above all, the curiosity of the six researchers in her classroom. According to Sockett, her actions met the criteria for courage "displaying practical reasoning in situations of great difficulty for purposes of great value" (p. 74).

The debate about the belief of whether the moral obligation of teachers and the school environment should be committed, firstly, to the intellectual academic world of the students, or to the student's emotional social need was put to the test in our study. Henrie courageously emphasised students' emotional and social needs over their academic needs. According to Henrie, "getting those kids to actually choose a different option to the one that's pointed out for them by the home environment, that's what I find challenging". Clearly, if courage is determined by how a person acts in difficult or adverse circumstance, then Henrie was courageous.

Her courage was also apparent when she taught chemistry in a very challenging situation - she put students' self esteem before the educational establishment and standardised tests. In her teaching, Henrie demonstrated courage when she asked students: "put your hand up if you find it interesting". In this act she invited student criticism and was willing to listen to

students' responses. She had to fight against their reluctance to study chemistry as "it's not 'cool' to learn chemistry".

In general, the culture of the school was not heavily committed to change, therefore a change in teaching was a challenging act for the teacher. In terms of being a 'change' agent, Henrie described it: "I find it a real challenge at the school".

Care

When I interviewed Henrie about her expectations of this study her first reaction was:

> I sort of have always been on the lookout towards being able to improve my method of teaching, or trying to keep up with new ideas behind science and in teaching. (interview with Henrie Feb. 94)

Henrie said that she saw it as an opportunity for her to have someone else look at her teaching. She was ready to expose her teaching and her students to the university researchers, however I doubt that Henrie understood or anticipated the extent of her involvement and the commitment that this study would require of her. She emphasised that a favourable outcome for her would be the development of some sort of 'user-friendly' science.

Henrie's interest in user-friendly science came out of her concern for students, exemplifying the virtue of *care* "I am there to care for them" she emphasised. Henrie claimed that her students experienced a lot of problems associated with being from different ethnic backgrounds to 'mainstream Australia', and with the low socio-economic background. She was deeply concerned about these issues because she believed that they contributed to the low self-esteem of the students. She was concerned that their backgrounds should not disadvantage them. In order to "get the science across to these kids", Henrie wanted to "chop off" irrelevant science and teach them relevant ideas. As part of her own teaching agenda, Henrie clarified:

> I am going to teach differently, I am going to first of all identify my frameworks and I am going to build or change those frameworks and the information I present is not going to be conflicting or ambiguous to their framework. (research meeting 2.3.94)

Although this seems a challenging task, Henrie's willingness to change excited me. She enthusiastically participated in all the research meetings, and responded to the variety of reports that the research members put forward.

Sockett argues that teachers can develop an understanding of the extent and limits of individual caring. "They get to stretch their capacities and responsibilities of their role, understanding that it has to be a professionally personalized role. They are not afraid of showing that they care, nor are they ashamed of wanting students to appreciate them, to like them, to reciprocate care." (P.79) *Caring* also has become a clearer virtue because of the influence of feminist approaches on education (Noddings, 1993). However, in the assessment driven curricula of high schools in the state, this virtue is rarely fully realised. Henrie was not afraid to show that she cared about the students but, at the same time, she felt that she was forced by time pressures or other commitments such as recess duties or staff meetings, to neglect some individuals in the class.

Henrie, perceived that some students who were socially disadvantaged, responded positively to her attention, even though they sat at the rear of the classroom and found it difficult to focus on the chemistry. Her care for these students was shown explicitly when she had small conversations with them, and showed interest in their personal problems.

On the other hand, Henrie approached students and probed them to answer her questions in order to keep them 'in tune and involved' and not always for their academic involvement. My observations indicated that she was not always seeking the answer but she was seeking to involve her students for whom she cared. "My goal is to provide them with opportunity to feel confident enough to want to participate in learning science". I believe that Henrie's behaviour reflected Nodding's portrait (1984) of the one-caring teacher for whom the student is infinitely more important than the subject matter.

The question that intrigued me is how Henrie got the strength to go on giving her attention and care for her students, in a situation where the students sometimes did not respond positively. Henrie valued interpersonal relations which she established with some students who maintained contact with her long after graduating from the school. These relationships encouraged her to continue being a carer - teacher.

Fairness

The virtue of *fairness* was an important issue to the students in the way they perceived their relationship with the teacher. Students wrote in their journals:

> Very good teacher [Henrie] Gives everybody a fair go. (Shannon Feb. 1994)

> She is a fair teacher, she made jokes and laughed along with her class. She knew when to have fun and when it was time for serious work. (Terry Alexandra Feb. 1994)

The virtue of fairness is related to justice in a general way (Sockett, 1990). In education, fairness deals with questions of equity, and the distribution of benefits against merit and deed. In relation to fairness, Henrie was concerned about whether she was fair in distributing time and attention between the students in her class and between other classes she taught. Henrie's biggest concern was whether gender issues are treated in a fair way: "Is that the best environment for boys? Or are we favouring the girls in the science classroom?" The issue of fairness is also related to Henrie herself; sharing the available time between school duties, research commitments and her personal life.

Practical Wisdom

Sockett (1993) describes the virtue of *practical wisdom* as requiring reflectiveness and judgment interwoven with the four other virtues. Practical wisdom is a matter of displaying content and methods and, according to Shulman (1987), is a domain-specific issue. Practical wisdom is what the teacher displays in the classroom and this is affected among other things by honesty, fairness, caring and courage. Henrie's practical wisdom was interwoven with her deep concern that the students' backgrounds should not disadvantage them, and she hoped that this study would provide them with some intrinsic motivation. "I think it has motivated those kids. ... I think they will achieve quite well; you know, they'll achieve better than they probably would have - and it will be more meaningful because they're going, ' hey, somebody cares, yeah' ".

I believe that Henrie demonstrated her practical wisdom when implicitly she provided a role model for the students. She showed herself as one-caring. Beside talking to the students personally and in a quiet voice, she engaged in cooperative practice with the students. By using her practical wisdom, I am convinced that although the students were learning less chemistry, they had an opportunity to learn to be caring. Although one can perceive it as a compromise, I saw it as the teacher's virtue of practical wisdom. Noddings (1984) argues strongly on this issue, "the primary aim of every educational institution and of every educational effort must be the maintenance and enhancement of caring" (p. 179). In her attempts to achieve a dynamic balance between principles such as care and fairness, Henrie clearly demonstrated her practical wisdom.

The virtue of practical wisdom also applied to the research study. In the same way as the teacher in our study struggled with moral questions which became part of her teaching professionalism: "Am I doing the right things with the students?; Did I take too much risk?; Am I unfair to some students?"; we, the researchers, struggled with similar questions in relation to the teacher.

How Were the 'Professional Virtues' Displayed in the Research Team's Relationship with Henrie?

Care

Looking at my field notes I realised that the virtue of care was the dominant one in the relationship between Henrie and her students and between Henrie and the research team.

When we approached Henrie to conduct the research in her class, I became aware of an inequitable power balance between the 'university researchers' and the 'school teacher-researcher', and of the effects of the change that we might impose on the teacher.

The effect of externally mandated change on teachers has been discussed by Tobin (1992). He raised the ethical question within a constructivist framework of interpretive research: "Is it ethical to seek to change teaching? If teachers have a rationale for what they are doing, and what they do makes sense to them, is it tenable for a researcher to judge that what they are doing is inappropriate?" (Tobin, 1992, p. 113).

Although the general objective of the study was to investigate learning and teaching in the science classroom, its underpinning rationale was to influence science teachers to change their epistemologies and, as a result, to improve teaching and learning in the science classroom. The issue of changing teachers and teaching was discussed frequently in the research meetings, in interviews with the teacher, and in informal conversations that I conducted with the other team members. However, according to Tobin, "if teachers are reluctant to change or refuse to do so, it would not be ethical for a researcher to coerce change or act in a manner that diminishes the self-esteem of participants" (Tobin, 1992, p.113). By finding a co-operative teacher, we overcame the constraint and ethical dilemma of coercing a teacher into a situation of change. However, the complexity and demands that the research would make of the teacher were still unknown in the early stages of the study.

Henrie became part of our research group as a result of our search for a good teacher who was faced with a challenging situation in her classroom and who was interested in participating in the research study (the challenge was created because Henrie taught students who were from different ethnic backgrounds, and students who came from low socio-economic backgrounds). Henrie was recommended as a teacher "who can handle difficult situations".

In addition to Henrie's desire to change, she was tempted to participate in the study because she was promised some benefit, such as credit toward a university postgraduate degree and participation in an international conference. Henrie benefited also by the care

directed towards her by the research team. Our long -term purpose was to benefit students and teachers who are not part of this study, as "benefits are largely assumed to be for the research community or curriculum developers" (Brickhouse, 1991, p.52). Nevertheless, the underlying feeling among the research team was that we ought to encourage and support Henrie, who was taking a considerable risk by exposing her professional practice to a group of 'university researchers'.

In a later interview with Henrie, she suggested that the study was a change agent for her:

> I can see there will be a light, that it will be change, and that I can head towards some of my goals. Its been really good for me in the last couple of weeks to actually sit down and say, 'these are the goals I started teaching with, these are the goals I hold now, and these are the goals I'd like to have in the future' (interview with Henrie, March 1994).

The study gave Henrie more confidence and trust in her own ability to be a change agent. She looked at the research team as a source of authority and as 'university experts' who held the solutions and for her 'the truth' to support her attempts at change. An example of her seeing the team as a change agent is when she asked us how to discover students' preconceptions. Henrie would have liked to have some specific strategies suggested by the research team to solve this problem. This unfolded during the following conversation in the research meeting:

> I think that the thing that you need to be careful about, Henrie, is that you make these as alternatives that are exclusive. That it's either one approach or the other. It's not. It's two together, to use Ken's phrase, that empowers the kids. You make life - you give them more power if you actually show them how their science understanding enriches their everyday understanding. (research meeting 3.3.94) We don't want to prescribe solutions for you but we would like you to reflect upon some of the notions that you have in relation to caring for students.

Although the research team did not want to prescribe appropriate pedagogies, I observed that the team members were favourably responsive to Henrie's attempt to change. One of the research meetings addressed the changes that had occurred in Henrie's teaching style as the study progressed. In general, we found that Henrie reflected on our comments and suggestions:

> I think one of the things that happens is that she is responsive to what happens in the meetings, even though today she made a point of saying that the lesson was not a

direct response to what we had said in the last meeting... but there are other signs of change that are going on in the classroom, so I think there's no doubt that she is being reflective about her practice in terms of what's happening in the meetings, thinking about what she was doing.

Today's lesson, I had to feel, was influenced a little bit by listening to the tape, even though she didn't change the plan. (research meeting Feb. 22)

The research team showed some satisfaction of Henrie being reflective and as a consequence changing some of her classroom practice.

During the study, a conflict situation emerged between the Henrie and her Head of Science, in relation to Henrie's teaching style and her perceived lack of conformity with the school's testing requirement. As the conflict became explicit, the group showed concern for the class teacher as some of us felt that the tension had arisen because of her involvement in the study and our presence in her class, a risk that we hadn't anticipated. However, the *caring* relationship between the teacher and the team helped her to get through this difficult year and renew her confidence in herself. Now, a year later when some of the research team are conducting follow-up observations and interviews, there is still some tension between the Head of Science and Henrie and the conflict has not been completely resolved.

Honesty

Honesty is a virtue of trust and truth (Sockett, 1993). During the research meetings, some members of the research became critical of some issues related to Henrie's pedagogical content knowledge: "In making it accessible, they are falsifying it". For example, in the second meeting when the research team reflected on an experiment conducted in the classroom that same morning, questions kept pouring at the teacher and she was trying to answer them. Some of the questions related to the content of the experiments and some to the difficulties that the students encountered. Although Henrie was open to suggestions on how to improve teaching strategies, she admitted that some of our questions were "thought-provoking", and asked for time to think about them.

Some of the research team's criticisms were as follows:

It seemed to me that students don't understand what a mole is, and a mole seems to be fairly important in this activity... (David, research meeting 22.2.94)

Now, they knew what a variable was, but they didn't know enough chemistry....the commitment doesn't seem to be there. (John, research meeting 22.2.94)

Other researcher's reflections on Henrie's teaching were more supportive:

> She [the teacher] is actually trying to get away from that [traditional way of teaching], and she said yesterday that she was trying to present things in a different way (Angela, research meeting 22.2.94).

> She [the teacher] said "find it in the text, look at the words around it, and tell me what it means from the context." ...And I think that's really nice teaching technique that she has, that demonstrates a concern that she has for understanding (Angela,research meeting 22.2.94)

Ken voiced his concern about Henrie's presentation of chemistry concepts:

> "Henrie may well be responding to the priorities of the culture, and that understanding chemistry is a very low priority. As a science educator that concerns me a great deal" (Ken ,research meeting 22.2.94).

My field notes showed that, in another meeting, Ken suggested:

> I talked to a few kids and the thing that strikes me is that word like "neutral" or neutralisation, they have some ideas of what that means, but it doesn't come close to what the chemical understanding...

In critiquing the teacher, the researchers emphasised that Henrie had more of a social agenda than a learning agenda and, therefore, her students didn't have a strong commitment to chemistry. In answering the researcher's questions, the teacher made it clear that sometimes the self-esteem of the students was more important to her than the science content and, therefore, she compromised on the science for the good of the students. She expressed it in the meeting:

> I found myself wondering about more-how they were not developing their self-esteem. So part of what I'd like to look at is classroom strategies for the kids' self-esteem; but more identifying where they are developing their self-esteem from (research meeting 2.3.94).

As I described earlier in the paper, her pedagogical approach was similar to that espoused by Noddings (1993) who considers a *caring* relationship with the students as a most important virtue which enables students to then deal with intellectual property.

While she attempted to be honest in her discussions with the research group, relationships of power within that group meant that her own voice and interpretations were not highly valued. When she suggested that the interpretations of the team leader were not descriptive of her teaching, it was she, not he, who was encouraged to "reflect and re-think".

When the pressure on Henrie increased we felt that we needed to be more sensitive and less demanding. However, Henrie claimed that she was not negatively influenced by the research group criticism: I haven't been finding the criticism [of the research team] difficult to handle. I think it's better to read it when it's harsher against you, because you're more quick to change...So it's not actually the criticism that put this stress on me...(interview with Dorit March 94)

According to one of the team members, however, the group as a whole became "over-protective" in trying to shield Henrie from criticism. Sometimes there was a compromise between being *honest* with the teacher, and *caring* about her. The individuals in the team had to use their *practical wisdom* to navigate the discussion. While an honest critique of Henrie's teaching revealed some problems, it was also necessary to present this critique in a way that maintained the caring relationship between Henrie and the other members of the research team.

Fairness

Henrie's involvement in the study became very time-consuming. The researchers involved her in a variety of research topics, she read and commented on reports written by the different researchers, prepared her own reflections on her teaching, was interviewed by different researchers, and actively participated in the research meetings. Henrie was also very reflective about her classroom practice, based on the meeting discussions and listening to the tapes of the research teams discussions.

Henrie seemed to agree to every request without considering the risk to herself. Although we intended to be caring, and obtained what we thought of as 'informed consent', and followed all of the technical requirements, during the study our demands on the teacher increased. This was sometimes hard on her, and caused enormous stress for her, both professionally and in her personal life, to the extent that she said this study was "aging her". Clearly the research team had failed to be *fair* in its many demands.

One reason for the inordinate pressure could be that the group did not allow enough time to make the teacher feel comfortable. Some of us introduced ourselves for the first time in her classroom and there was no time to develop a comfortable working environment. Being aware of the stress that was created for Henrie, an ethical question was raised: "When does

the research become an imposition on the teacher?" Every researcher wanted 'a piece of the cake' to make the study more authentic and reliable. However, because we created a trusting relationship with the teacher and cared about her well-being, a decision was made to minimise the pressure on Henrie and not to impose so much activity and involvement on her. But the question remained: "To what extent did we keep this commitment?"

To what extent did Henrie think we were fair to her? She used a metaphor about her feelings within the research group, describing the other researchers as having "larger hats" than hers. She felt comfortable and even spoiled, but not equal. She considered the other researchers to be more powerful and felt fortunate to work with them, but was sometimes intimidated by their experience and the "educational knowledge that the researchers [held]".

There was evidence of a concern for fairness and care towards Henrie within the research group. The leader of the group raised the concern about the pressure on Henrie that developed as a result of this study:

> I think today for the first time, as I say in the notes, It was quite apparent that Henrie was under a bit of pressure because of the study... there is an ethical side to that. We need to be caring about our colleague... and we need to relieve the stress that she is obviously under. (research meeting 24.2.94)

Therefore, the original agenda of this meeting changed to discuss the stress on the teacher, and the ethical issues related to it. In the meeting, the researchers came up with suggestions for ways to ease the pressure on Henrie. The suggestion that the research team adopted enthusiastically was to divide the class into four groups and then have the team members conduct discussions with the students about the problematic issue of electron configuration. These interactions were taped and analysed for some of the interaction patterns. The increased pressure on the teacher was resolved temporarily by the researchers teaching for one session and reducing their requests of Henrie. These activities not only relieved some of the pressure on the teacher but also improved the relationship between Henrie and the group by demonstrating a concrete example of collaboration. The university researchers, on the other hand, appreciated the difficulty of classroom teaching and therefore aimed at a fairer sharing of tasks. In addition, sharing data became a more efficient process as everything that was collected - interviews, field notes or reflections - was shared and became available to all the researchers.

Practical Wisdom

Ken, the leader of the research group, was aware from the early stages of the study of the unusual situation of the teacher. In an early research meeting he said:

you know, one of the things I have been really worried about is the sense that you are going to feel picked on, there are two, four six of us and one of you..."

Sometimes we pushed Henrie to the point where *care* for the teacher was replaced by exploitation of her *courageous* attitude. We then had to apply our *practical wisdom* in order to achieve a balance between care and fairness and therefore relieve undue stress on the teacher. Dilemmas of this sort emphasise the complexity of the issues raised in the study. The difficult situations that Henrie faced, and the uncertainty that she dealt with, indicated to the researchers that we should examine teaching from a moral perspective (Sockett, 1993, p 88).

In a lengthy discussion between Henrie and a researcher directed at clarifying the teacher's perceptions on learning, both reflected on the nature of interaction:

Researcher: Well, thanks for sort of staying with me through that [the conversation]
Henrie: That's all right
Ken: I was a bit persistent, wasn't I?
Henrie: I did write a big thing on that.
Ken: Are you going to share that with us one day soon?
Henrie: Do I have to?
Ken: you don't have to but it will be nice... (research meeting 5.3.94)

When we discussed in the group the ethical issues of the study, Ken reflected on this early conversation:

I was really wanting to be quite courageous, and at the same time I want to be caring. And there becomes a tension between being courageous and being caring, because to be courageous I had to be persistent, and in fact push Henrie into a corner a little bit at one stage by reading her the question and asking her to discuss a particular issue. Now, in doing that I felt vulnerable from an ethical point of view. To go down the list, I am not sure whether it was very fair to do it. It was honest; I was being as honest as I could be. I think we have a trusting relationship. I was being caring but I felt that I was pushing it to the point where care became a question I was certainly courageous, and I was using every bit of practical wisdom that I had to make sure that I didn't put a lot of stress on Henrie. (research meeting 5.3.94)

Ken's comments on his interview with Henrie summarise the research team's commitment to an ethical approach to the research. The team demonstrated practical wisdom in their resolution of some of the ethical problems that emerged during the interaction between the

research group and Henrie . In his comments Ken highlights the challenges associated with achieving a balance between care, courage, fairness, and honesty in a team approach to research.

SUMMARY

Sockett's (1993) ethical framework of "professional virtues" enabled me to analyse the interactions and relationships between Henrie and her students, and between Henrie and the research group, in ways that would have been impossible using a utilitarian ethical framework. Sockett's emphasis on courage, care, honesty, fairness and practical wisdom elevates our understanding of teaching and research, and reminds us that both are, most of all, moral activities.

In looking at the virtue of care as it applied to our study, there are two distinct levels: the *caring* relationship between Henrie and her students, and the *caring* relationships the research team developed with Henrie. The research team also displayed, at varying levels, the virtues of *fairness, honesty* and *practical wisdom*. It seems to me that the research team was not really called upon to exhibit *courage* except during interactions with her about when to be truthful and, therefore, courageous might have led Henrie to take offense. Clearly, most of the risks in this research study fell on the classroom teacher. In addition to care, Henrie exemplified the virtues of *courage, fairness* and *practical wisdom* in her interactions with students and with the research team.

According to Henrie, the study empowered her to try new things in the class and to believe that individual teachers are not the "lost tribe". Although the relationship between the research team and Henrie was one of trust and care, this did not automatically make it an equal relationship. This power/knowledge inequity within the research group worried me, particularly given the large number of researchers involved with a single teacher. The influence of gender and power on the discourse of this research study was also interesting. I hope to explore these themes in some detail in a later paper.

Ken described the triangulation offered by the research team working on different levels as being:

> like searchlight beams coming out from different sources and actually capturing different perspectives, you get a larger picture that is clear in some parts and fuzzy in other parts (research meeting, 10.3.94).

I find this metaphor appealing as a description of the different ethical dimensions which the research team faced in this study. Our ability to deal with ethical issues and to apply moral

principles of care, fairness, honesty, courage and depended on the situation. I came to this research with very unsophisticated views on ethical issues. During the course of the study, I realised that ethics is a fundamental part of interpretive research, and a complex one, especially when the research involves a large team of researchers in one teacher's science classroom.

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