ETHICS OF TEACHER – RESEARCHERS[i]

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Abstract

The paper examines the integration of the researcher's ethics with the teachers' ethics in the context of classroom Teaching-Research methodology. It is shown that the integration of the two principles treated as ethical imperatives of equal strength leads to a series of constraints upon the classroom teaching-experiments as well as upon the acceptable research questions. Two component Teaching-Research questions are defined as better corresponding to the nature of Teaching Research, and are offered as the path of reconciliation between two separate kinds of knowledge: theoretical knowledge of researchers, and practical knowledge of practitioners.

INTRODUCTION

The discussion of the teacher-researcher ethics is motivated by three independent sources:

1. The editors of an important ICMI study Mathematics Education as a Research Domain: A Search for Identity, which aims to lay the foundations for the scientific identity of the educational research profession, observe that it may contain two, apparently separate types of knowledge: "the theoretical knowledge for the scientific community of researcher and the practical knowledge useful in applications for teachers and students…". They suggest that it might be helpful to reflect on the nature of these types of knowledge, on relation between them, and on whether it would be possible to have a unified body of knowledge encompassing both. The comments below as well as in other entries of the author in the TR Handbook oscilate around the relationship between the the two.

2. One of the few comments on the relationship between research and teaching comes from the teacher-researcher, Marian Mohr (1996) who offers a very interesting and relevant perspective the exploration of which will bring us closer to the questions stated above. According to (Mohr, 1996):

> Teacher-researchers have assumed that what they do differs from others ideas of both teaching and researching….teacher-researchers see themselves as „doubly bound to ethical behaviour both as teachers and researchers. How students are treated is a measure of the quality of both teaching and researching."

Consequently, in order to formulate the principles of TR ethics one needs to be aware of both research and teaching ethical principles, and properly formulate the relationship

between them. This way we might get a proper set of conditions with the help of which we will be able to define harmonious integration of both based on the principle of equality of ethical imperatives. Creation of such a compromise will condradict Wong, who, in an article in The Educational Researcher (quoted in Mohr, 1996), asserts that researching and teaching are in conflict because they require a different kind of knowledge and generate a different kind of inquiry. If indeed the two types of knowledge and inquiry are so substantially different, then of course, the ethics of teaching research would be contradictory; and yet at the same time, since practicing „teacher-researchers do feel bound to both research and teaching ethics", the possibility of succesfully resolving the contradiction between the two seems quite real.

3. The ethics of the teachers/researchers' interface is at present frought with the absence of such an equilibrium and is of concern to us here. In fact (Bishop, 1999) in the same ICMI volume points out

> to the assumed power structure within the academic researcher/teacher interface which accords researcher agenda and actions greater authority than that of the practitioner. The incraesing moves to involve teachers in research teams are to be applauded, but currently serve only to reinforce the existing power structure.

A very pointed confirmation of that particular power structure within the interface can be seen in the same volume where we read the following words of (Wittman, 1998) who, in his excellent remarks about the didactic instrument called "the teaching unit", wants to convince the academic profession that this didactic tool is worthy of the research attention of academicians. However, he notes a problem with "the teaching unit" in that it is the standard tool of good teachers, who till now were the only ones paying attention to it. Therefore "since the design of teaching has been considered as a mediocre task normally done by teachers and textbook authors, why should anyone" – he asks – "anxious for academic respectability stoop[1] to designing teaching and put himself or herself on one level with teachers?" (p.96).

Having thus defined the extent of the social, and possibly, class gap separating the profession (the term „stoop") and demonstrating how that gap hampers the investigative interest of academic educators, he has to now extricate the teaching unit from its grip. The author continues –

> That teachers take part in design can be no excuse for mathematics educators to refrain from this task. On the contrary: the design of substantial teaching units…is a most difficult task that must be carried out by the experts in the field. By no means it can be left to the teachers,

[1] - bend body: to bend the top half of the body forward and downward
- walk or stand bent over: to walk or stand with the head and shoulders bent forward and downward
- do something unethical: to act in an unethical or self-degrading way
- condescend: to do something reluctantly and with the attitude of...(Encarta dictionary, MSN)

> although teachers can certainly make important contribution within the framework design provided by the experts.

We see several elements in the statement which define the relationship between the two components of mathematics education profession: we see the assessment of the actvity of designing the instructional sequences by teachers as "mediocre" within the academic profession, we see the word "stoop to" characterizing the actions of academic researchers which "put them on one level with teachers", we see the process of recognition of its didactic value and the prescription to take away the ownership of the tool by teachers, so that its scientific improvement can be made under sole responsibility of research community experts. That process can be seen as the act of dis-appropriation of teachers as a profession from its professional tool with the help of the power structure within the mathematics education community, which distinguishes "experts" from mere teachers.

Clearly, if we believe that the ethical research imperative and ethical teaching imperative are of equal value in the class where teaching-research investigations are taking place, then Whittman must be violating some ethical components in his argument. Consequently a natural questions arises: what is the ethical principle that Wittman's process is violating?

TEACHERS' VOICES

Among the teacher researchers of mathematics who have expressed themselves on the ethical values of their classroom work, the fundamental theme, which comes out in sporadic comments is the primacy of the responsibility of the teacher to the children in the class. (Pawlowski, 2003), one of the few teacher voices exploring the ethics of classroom research offers following suggestions on the matter:

> A professional investigator has as its responsibility to explore a research problem in its entirety, to grasp as many as possible of its aspects, continuously doubt and concientiously document its investigations. A teacher, responsible for children, pupils in his classroom, has as its primary responsibility to use the best available to him or her methods. All the doubts that the teacher has the right to, must be decided with the help of the criterion of its responsibility to children undertaken in the best of faith; his right to planned meandering or to conduct the control measurements is strongly restricted. The teacher has no right to conduct the "negative" experiments directed to show that some configuration of factors leads to worse results. If the teacher had found by [experience] that some dydactic procedure is better than a standard one and knows about it (because of course he or she has the right and responsibilityy to rely on one's own memory), but did not collect yet an adequate documentation to provide the evidence for its observations, nonetheless he doesn't have right to return to the method recognized as less succesfull – to return only in order to document its observations.

The Teacher-Researcher Jim Minstrell, develops the theme further stating that

> …the more immediate of the two is the improvement of the teaching practice. That is, when teachers engage in research on their teaching, they do so to get better at what they do. The second purpose is to seek an improved understanding of the educational situations in which they teach so that they could become the part of the knowledge base of teaching and learning (Feldman and Minstrell, 2000).

The teacher-researchers from related Fairfax County Public Schools Teacher-Researcher Network agree with Minstrell stating that their primary responsibility is to their students. (Pawlowski, 2003), agress with that view as well:

> The main goal and the decision's criterion for the teacher must be, correctly diagnosed well-being of the student for whom the teacher is responsible. Only in the second instance, its goal can be the usefulness of the observation from a general, objective point of view. It is the objective investigative constraint, and not as one can think in a simplified manner, the limitation concerning only teacher-researchers, who are involved in other tasks. That's why didactic investigations are governed by a rigid system of values, which must be respected during any such investigations independently of who is conducting them.

We would like to pause and reflect upon the last statements of Pawlowski, because of the seriousness of their implications for the ethics of classroom research. For if we accept Pawlowski statement that the ethical considerations of classroom research constitute objective constraints upon it, which need to be fulfilled not only by a teacher-researcher but by any investigator or teaching-research team doing action research in the classroom, then we have a strong criterion with the help of which the programme of Whittman above can be judged as non-ethical. Elimination of teachers from the framework within which the design of the instructional units is determined, eliminates or downgrades the concern for the well being of pupils, for which, in a given classroom, solely teachers are responsible. Consequently the program of action concerning teaching sequence units discussed above can be rejected on purely ethical grounds governing the mathematics classroom. Since the teacher has the sole responsibility for the well being of his pupils independently of any research design, every design of classroom interventions such as teaching units must be developed with and approved by that very teacher. To achieve it, one can not leave it in the hands of academic experts - a teacher must be the member of their team with his or her experience as an essential source of knowledge in the unit's design in order to guarantee the intellectual well being of students in the experimental class.

Of course, contrary to convictions of many academic researchers who are convinced that teachers' participation in research negatively "changes the relevance and meaning of results" because, for example, "a teacher's result is attached to his or her school and is therefore not research", research can be done with adequate requirements of

generalizability. But the research questions need to be asked in a different way, and the organization of the Teaching Experiment needs to undergone serious re-definition.

Teachers know that what they experience in one classroom is not very far removed what is experienced in another, possibly quite far removed. What we don't know yet exactly is how to characterize different classroom domains where a similar experience can take place. Jim Minstrell informs us that his

> "rule of thumb" has been that if about 10% of students exhibits some kind of thinking, then I need to acknowledge and describe the conception and reasoning they are using, and I need to design the instruction to address that thinking. These findings had been generalizable beyond my classroom. Although one might think that there would be as many different ideas as the number of students in the classroom, this is not the case usually there are between 2-8 approaches to thinking exhibited by the class when confronted with a particular situation. When we present similar sort of situations in the classes of other teachers, I see the same behavior replicated in the classrooms of other teachers. And in most cases, the lessons that work to perturb the problematic thinking in one classroom also work in another. Thus these findings are considered generalizable.

In similar vein it was interesting to observe the interaction of teacher-researchers from one of the Polish PDTR teams, R_K with mathematics teachers from Warsaw, 250 km north of Rzeszów, who, upon learning about the teaching-research on the problem of solving and understanding the concept of an equation done by Rzeszów taechers, performed similar work in their classrooms, and, of course found similar issues and similar ways of addressing them. Hence, when properly analyzed, one of the first issues in need of correction is the generalizability of teaching-research done by teacher-researchers. It is not as wide as researchers would like, that is most probably it does not work "for all" classrooms, but it is not as narrow as the "teacher's own school". Thorough investigations are needed to determine the scope and nature of teaching-research generalizability of results.

In the next section we will investigate in detail several other constraints upon the Teaching-Research work implied by the teachers' ethics.

The responsibility for the intelectual well being and development of pupils constitutes the independent ethical principle of teacher's profession in its collaboration or cooperation efforts with the academic profession. That principle is complementary to the basic research ethics of an education researcher that is the Responsibility to the Field (e.g. Ethical Standards AERA or AARE Code of Ethics), and as such it assumes equal ethical value as that of the professional research integrity principle e.g. expressed by the point 1 of the Section I, Guiding Standards of AERA "Educational researchers should conduct their professional lifes in such a way as not to jeopardize the research results".

One could say that the teacher ethics principle discussed above can be similarly frased as "The teacher should conduct its professional life so as to not jeopardize the intellectual well being of the pupil in his/her class". One of the main goals of this paper is to show that if the consequences teachers' ethical principle are explored to their utmost, then the nature of Teaching-Research and of the Teaching Experiment are determined to a substantial degree.

RESPONSIBILITY TO CLASSROOM PUPILS AND (BUT NOT „OR") RESPONSIBILITY TO THE FIELD – A TEACHER-RESEARCHER'S ETHICAL DILEMMA

Is there a possibility of the compromise between the two responsibilities? How to conduct classroom research so that it is 100% for the benefit of children in the class of the teacher-researcher? How to teach so that every moment of it is the investigation of learning? Below we have some, possibly incomplete as yet, answers to these fundamental questions, phrased in the context of methodological differences between research and teaching-research. One of the ways in which the quality of teaching and learning can be maintained by the teacher in the classroom is through the investigation of the teaching process in order to improve the learning. That emphasis on the improvement of learning as the necessary component of classroom investigation has been aptly expressed by Jim Minstreel in (Feldman and Minstrel, 2000). This emphasis differs from the aims of collaborative teaching-research as expressed for example by (Raymond and Lienenbach, 2000) who state in the section Goals of Collaborative Action Research:

> A primary goal of the collaborative action research identified by many is to bridge the gap and strengthen the relationship between universities and schools. Collaborative research between university researcher and classroom teachers present opportunities for a more action-oriented approach to teacher enhancement. As teachers are encouraged to reflect upon and systematically examine aspects of their classrooms, they are likely to make changes based on observations that lead to the improvement in their classrooms.

In other words the classroom improvement of learning might possibly be a by-product of the researcher-teacher collaboration, whose main goal is to bridge the gap between university and schools. For (Feldman and Minstrell, 2000, above), on the other hand, the mere likelihood of classroom improvement is not enough for the classroom teacher; instead it is his or her primary goal with reflection and examination of the classrooms as the tools for that improvement. A very important though subtle change of emphasis, which can govern the nature of any Teaching-Research collaboration.

The difference in research interests between the educational researcher and the teacher-researcher resulting from incorporating teachers' ethical principles, is the difference in research interests, which of course, is also natural; while educational reserchers' primary

concern is the investigation of teaching and learning processes in their generality, the task of the teacher committed to the best quality of instruction is the investigation of a particular learning issue. Consequently we obtain significant differences in the formulation of research questions. (Cobb & Steffe, 1983), assert that the primary interest of an experimenter engaging in a teaching experiment lies in "investigating what might go in children's heads" and in "hypothesizing what the child might learn". (Czarnocha, 1999) responds that „In contrast to the interest of the experimenter, the teacher's interest here is to find means and ways to foster what students need to learn in order to reach a particular moment of discovery" or mathematical understanding. Hence investigative acts of a teacher-researcher are geared to better the instruction and it is because of that he/she is undertaking the classroom research. Doing it simply to investigate pupil's thinking without using it to better the teaching and learning process in the classroom is in disagreement with the teachers' ethical principle. A PDTR colleague, an Italian teacher-researcher offers a following compromise between the two different interests:

> I imagine that the goal for the team teacher-researcher / educational-researcher (ER) is a harmonious whole between 'might learn' and 'need to learn'. I see them as 'relative concepts' and the balance between them is a common compass for TR and ER. In other words: 'what might go in children's heads while they are working with topics that they need to learn? Or: 'How do children's different ways of thinking (often underground, not expressed verbally) influence the learning of what they should need to learn?

Note that in the proposed here compromise the question "what might go in children's heads?" has a correctly limited scope defined by that which they "need to learn".

Nature of Teaching-Research questions. To fulfill both the responsibility of the teacher and the responsibility of the researcher, TR/NYCity model proposes to establish two teaching-research questions for each classroom investigation, the first one investigating the ways of improvement of learning a particular concept, or a procedure, the second question concerning the assessment of the state of affairs relatively to the issue in question – a research question more in agreement with the standard approach of educational researchers. For example, one can ask how do pupils understand the symbol of equation? – standard research question assessing the state of affairs, and one can asks how to improve student understanding of the symbol of equation? – standard improvement question characteritic for TR work. What's equally interesting is that the second research question about the improvement neccessitates the first one: it's difficult to talk about improvement and to assess its needed degree without knowing the state of affairs before the improving intervention. Formulation of such pairs of questions, which separate the static question about the state of affairs and the dynamic question of the best route to effect the change of improvement brings mathematics education endeavour closer to the structure of classical physics, and in particular, its first two laws of dynamics, where the first one asserts the state of affairs without the presence of force (or

interaction), while the second law formulates the dynamical principles of change of the system, which give its trajectory. It's worth noting that recent interest in the Hypothetical Learning and Actual Learning trajectories quite neatly coordinates with the formulation of the two teaching-research questions, providing, quite possibly a new, complete and scientifically grounded metaphor for the classroom Teaching Experiment.

ORGANIZATION OF THE TEACHING EXPERIMENT (TE)

The teachers' ethics formulates strong conditions upon the length of the Teaching-Research Experiment, which require classroom ingenuity of the Teacher-Researcher to satisfy (Czarnocha, Prabhu 2006). The Teaching Experiments need to be so situated within the regular cycles of work so that the students who were the subjects of investigation are also its first beneficiaries. In simple cases, one can state as a guide that a minimum of two cycles of TE per unit of the classroom instruction, a semester or a year, are needed to fulfill this ethical requirement. Two cycles assure the refinement of instruction based on the qualitative or quantitative analysis, and hence its improvement through incorporation of results of investigation. However, one can bypass this simple condition in special circumstances, which still allow for the satisfaction of the ethical principle. For example, if a teacher teaches the same cohort of students the next unit cycle in the school then he/she has the opportunity to introduce the results of research after one unit and still to fullfil the requirement. Or as a teacher, TR apprentice in one of the TR teams of the Socrates Project describes her way of dealing with the problem of the control group through the parallel class taught by the same teacher (Łaszczyk, 2007). The ethical problem teachers encounter here is that, in reality, it is impossible to have two parallel classes and to implement new instruction one believes in, only in one of them and not in both. In other words she doesn't want the control class, whose students are used as object of comparative assessment, not to receive the benefit of the Teaching Experiment conducted in the parallel experimental class. She had divided the teaching experiment into parts within the year and having received the confirmation or rejection of her hypothesis in one class in a given part of the curriculum, she immediately was introducing the improving technique to the other class, but only for that part. This way she was able to assess the effectiveness of the innovative instruction in its components, and at the same time satisfy the ethical principle.

REFERENCES

Bishop, A. (1999). Research, Effectiveness, and the Practitioners' World. In R. Lesh & A. E. Kelly (Eds.), *Handbook of Research Design in Mathematics and Science Education*. Hillsdale, NJ: Lawrence Erlbaum.

Cobb, P., & Steffe, L. P. (1983). The Constructivist Researcher as Teacher and Model Builder. *Journal for Research in Mathematics Education*, 14(2), 83-94.

Czarnocha, B. (1999). El Maestro Constructivista como Investigador. *Educacion Matematica,* Mexico, vol.11(2), 52-63.

Czarnocha, B., Prabhu, V. (2006). Teaching Experiment/NYCity model, *Dydaktyka Matematyki*, 29, 251-272.

Feldman, A., & Minstrell, J. (2000). Action Research as a Research Methodology for the Study of the Teaching and Learning Science. In R. Lesh & A. E. Kelly (Eds.), *Handbook of Research Design in Mathematics and Science Education*. Hillsdale, NJ: Lawrence Erlbaum.

Lankshear, C., Knobel, M. (2004). *A Handbook for Teacher-Research. From design to the Implementation*. Open University Press.

Mohr, Marian M., (1996) *Ethics and Standards for Teacher Research: Drafts and Decisions,* Conference paper delivered at AERA conference, New York.

Pawłowski, M. (2001). Badać jak uczyć. *Nauczyciele i Matematyka*, 38, 22-25.

Raymond, A., & Lienenbach, M. (2000). *Collaborative Action Research on The Learning and Teaching of Algebra: A Story of One Mathematics Teacher Development*. ESM 41, 283-307.

Simon, M., & Tzur, R. (2004). Explicating the role of Mathematical Tasks in Conceptual Learning: An Elaboration of the Hypothetical Learning Trajectory. In H. C. Clements & J. Sarama (Eds.), *Mathematical Thinking and Learning, Special Issue: Hypothetical Learning Trajectories*, V.6, N.2.

Wittman, E. (1999). Mathematics Education as a Design Science. In A. Sierpiska & J. Kilpatrick (Eds.), *Mathematics Education: Search for Identity*. Doltrecht: Kluwer Academic Publishers.

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