

Random Reflections from Un/Biased Action Researcher

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The case for action research in mathematics education

Reading Professor's Fals Borda's address I could not help but raise the question why is action research not as widely used in mathematics education as other methodologies. Perhaps this a reflection of misunderstandings about the nature of action research itself, or of the views about the objectivity and universality of mathematical truths, or of the dominant psychological theories explaining teaching and learning that lend themselves to other more controlled and quantitative methods. In another publication (Atweh, in press) I have argued the case for the use of action research in mathematics education based upon:

Pragmatic argument: The failure of research and curriculum reform during the past fifty years to significantly affect the mathematics classroom calls for alternative research paradigms that may bridge the gap between research concerns and problems from the reality of the classroom.

Epistemological argument: Constructivist theories of learning posit that there is some similarity between students' learning of the mathematical content and teacher's learning about teaching. There I argue that knowledge/meaning is constituted, rather than transposed, through activity in a sociocultural context. Similarly, using Habermas' theory of interest constituted knowledge one can argue that action research not only caters for the technical and practical interests of teachers but also to their emancipatory interests.

Political argument: The separation of roles between knowledge generation, knowledge translation and knowledge application may contribute to the deprofessionalisation of teachers. The separation diminishes the practitioners' responsibility to understand and theorise their own practice and to talk about their practice and defend it publicly.

Embedded in Fals Borda's address is a fourth argument for action research.

Ethical argument: Perhaps more than other paradigms, many action researchers have a strong agenda of social justice – they are not “non-interested” observers. Being participatory, it respects the participants' different agendas and interests and treats them as critical variables to investigate rather than as nuisance variables as in traditional research. However, all participants are interested in understanding their practice and the conditions of their practice, but also committed to its improvement. Being based on a critical philosophy of education it aims to question any practice including itself.

Dialectic nature of action research

Reading the written paper for this Keynote address, I was impressed by the number of dichotomies that Professor Fals Borda has identified. We have: objective/subjective, researcher/researched, theory/practice, quantitative/qualitative. A few others could be added from themes discussed in the Keynote: text/context; global/local; ethical/practical; academic/activist; and, foreground/background. One of the lessons I have learnt from my few years' engagement in action research and critical thinking is that often these dichotomies are imported from other paradigms and are not necessarily helpful in our lived experiences (*vivencia*). Action research has taught me that day-to-day truths both transcend these dichotomies and construct them in new relationships. Using the words of another great action research teacher of mine, Stephen Kemmis, these are not *either/or* constructs but rather *both/and* constructs. One is not possible without the other. Only through their interaction, we can achieve useful truths to understand and affect "vivencia".

This brings to mind other interesting statements showing the dialectical nature of action research:

Changing reality in order to understand it and understanding reality in order to change it.

No individuation is possible without socialisation, and no socialisation is possible without individuation.

Subjectivity of the objective and objectivity of the subjective.

Nothing is more practical than a good theory – the best theory is a good practice.

Critical friend.

Question of validity of action research

Finally, allow me to propose for your reflection a model that expands on the concept of validity as discussed by Fals Borda.

Ontological considerations on the nature of social reality

Social reality is **complex**. Consists of both material and non-material factors (practices, history, traditions, needs, power relations, resources). It is **not rational** because it *can not* be explained in complete and consistent theories (Goedel). However it is **not irrational** because different views of it *can be* contested and evaluated as to their usefulness. Likewise, reality is both **context dependent** and **context independent** – it is like "seeing the universe in a grain of sand" and yet realising that no two grains of sands are identical.

The task for action researchers is to argue and demonstrate that their views of social reality are viable. That is, they need to present (a) sufficient details about the context of their practice to allow for transferability of their learnings to other contexts (this is different from generalising to other practices). They also need to (b) demonstrate the basis of their learnings as

stemming from real observations about their practice. Finally they need to (c) argue that the learnings they obtained are useful to explain and predict changes in their practice.

Epistemological considerations on studying social reality

Valid knowledge from an action research perspective is **useful** knowledge. Knowledge is **subjective** - in a sense that to be useful for the individual, it needs to be owned by them and not all participants have the same understandings. Yet knowledge is also **objective** - in a sense that personal knowledge can be understood and contested, if not totally accepted, by others in a community of discourse.

Hence action researchers should demonstrate the learnings developed by the participants (not only external researchers) from their involvement in action research as well as demonstrate the value of this knowledge to them. This knowledge should at least be convincing to critical friends.

Methodological considerations on studying social reality using action research

Action research develops knowledge based on cycles of action and reflection. Different action researchers have different values and beliefs that inform their practice in the conduct of research. Action researchers need to demonstrate the claims that they make about their methodology and be self-critical about their failures and shortcomings. The consistency between theory and practice in the conduct of action research need to be critically reflected upon.