



Letter To Editor

Constructionism a compatible epistemology for research in medical education

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Dear Editor

Doing research is an ethical enterprise because it involves allocating time and resources, declaring claims and statements of truth, affecting other researches and the result may be used as some form of truth by others. Therefore designing and conducting research in any field of inquiry, in general, and in the field of medical education in particular needs careful consideration. Crotty [1] suggested four questions that are indispensable in any research and are necessary to be carefully answered in developing research in particularly social and educational inquiries. The questions are as follow:

- What methods do we propose to use?
- What methodology governs our choice and use of methods?
- What theoretical perspective lies behind the methodology?
- What epistemology informs this theoretical perspective?

Most of the researchers are familiar with the concepts of "methods" and "methodologies"

In this article I endeavour to organise my discussion around the last question to address the inevitability of the question of in relation to research in medical education which is unavoidably an inquiry into the human relationships, their psychology and social interactions. Then, I will examine the inevitability for compatibility between the topic under investigation, research methodology, and the researcher's main assumption of the nature of knowledge.

The place of epistemology in research:

Epistemological beliefs are the cognitions (i.e., understandings) individuals have on knowledge and knowing and determine how (new) knowledge is perceived and processed. Within educational psychology (2). Research paradigms, in general, can be classified as positivist or naturalistic. The epistemology that supports positivism is objectivism, it maintains "things exist as meaningful entities independently of consciousness and experience and that they have truth and meaning residing in them as objects" [1]. On the contrary, naturalism maintains that reality is "not a fixed entity but rather a construction of the individuals participating in the research, reality exists within a context and many constructions are possible" [3].

Accepting the independence of reality, objective

investigation of knowledge through a fixed designed methodology and predicted methods are what happen in a positivist investigation. Qualitative studies mainly follow this way of inquiry. Conversely in naturalistic research studies, researchers acknowledge their subjectivity and seek the ways of addressing this. They accept that their design of the study is flexible, inductive and emergent.

In the field of medical education both paradigms are used but the very nature of the field seems to be more compatible with interpretivist qualitative researches.

Interpretivist study aspires to interpret the world, mainly the social world, where knowledge is constructed "through the search for meaning, beliefs, and values and through looking for whole and relationships with other wholes" [4].

Main epistemological premises of research in medical education:

One could identify several key main features of research in teaching and learning in medical sciences education:

- Potential beneficiary of most of the studies in teaching and learning are students and teachers therefore their participation and perspectives are important.
- The nature of teaching and learning is undetermined and needs continuous investigation
  - Researchers cannot find "the truth" about teaching and learning but they can to contribute to existing understanding and meanings of the phenomenon
  - There are always new dimensions of medical education as a complex social phenomenon that can be illuminated through research.
  - Research process, researcher as an individual, and research outcomes are significant in providing a better understanding about the researched subject
  - Overt and covert meanings and interactions, both symbolic and explicit, are important elements of any educational situation which involves human consciousness, human interactions and human emotions.
  - The individuals experience and interpret the reality individually but they are interdependent and they try to reach a collective interpretation as well.

These very basic beliefs about investigation in medical education and, cautiously educational research in general, are mainly compatible with a constructionist epistemology of research as opposed to the other two main epistemologies, objectivism, and subjectivism [1].

The objectivism epistemology maintains that meaning, and therefore meaningful reality, exists in isolation, aside from the operation of any consciousness and human understanding. This view of human knowledge implies that the knowledge is "discovered" and "verified" through direct observation and precise measurements of constituent fractions [5]. Medical Education involves teachers, students and patients. There are certainly many aspects of the relationship of these parties that can be investigated via objectivist paradigm but when education involves human psychology, beneficiaries' consciousness and their interests and emotions everything cannot be discovered and verified as it is claimed by objectivism.

Subjectivism holds that the object does not have a meaning per se and does not contribute meaning generation. Rather meaning is personal and imposed by the subject [1]. Therefore, knowledge is only personal opinion. This view cannot be easily applied to research in medical education where there are real human interactions with their own meaning and interests. There are meaningful realities outside the mind of the observer therefore knowledge of the realm of medical education is not personal rather it is collective and interpersonal.

Constructionism holds that reality is socially constructed. It has also been termed as interpretive [6] and naturalistic [7]. Constructionism rejects the idea of there being an objective truth waiting to be "discovered". It instead argues that meaning is constructed out of human engagement with reality. This is what happens in everyday interactions in educational settings. Therefore, meaning is neither imposed on the reality nor discovered [8]. The role of the medical education researchers is to understand the multiple socially constructed meanings and knowledge out of human interactions. The research methods help the researcher to obtain multiple perspectives of teachers, students, patient, clinicians and other involved people in his interplay with them.

Abovementioned main beliefs about the research in medical education are much more in sympathy with constructionism rather than objectivist or subjectivist epistemologies. In addition, the literature on research methodology emphasizes on the compatibility of research strategies and the subject matter of research [7].

Mason [9] holds that sound research design is dependent on the compatibility between the subject matter of the research and its ontology and epistemology.

### Conclusion

Constructionism and medical education share basic assumptions about knowledge and learning such as the view that ideas and actions are integral, interdependent, and essential aspects of the learning process [10]. Therefore it

could be concluded that central to both constructionism and researching medical education is knowledge construction not knowledge absorption or recording [11] and they share the central importance of the context in learning [12]. Constructionism helps medical education researcher understand the fragmented parts of knowledge and reality in educational and clinical settings and then construct and amalgamate the fragmented pieces into an integrated knowledge.

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