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A Philosophical Axiom Review on "The Methodology" of Computing Research

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Computer Science today spans an increasing range of theoretical and practical disciplines in its exploration of what can and cannot be automated, giving rise to a greater diversity of disciplinary collaboration. Where collaboration is between individuals from different disciplines, then accommodations are needed in agreeing on a research philosophy and developing the research methodology. A review of the general research literature suggested that where research is undertaken by different disciplines, misalignment between the respective understandings of the ontology, epistemology, and axiology (o-e-a) underpinning the research is not uncommon. Studying the prominent literature, it developed an online mind-map to illustrate such misalignment and opened to discussion. The mind map was constructively criticised by experienced researchers from multiple disciplines and it has potential for enhancement. In addition to consideration of the different forms of collaboration deployed by researchers, multi-disciplinary, inter-disciplinary, and trans-disciplinary – conceptualisations of the problem/enquiry domain itself were examined, as was the relevance of perspectives by non-research stakeholders, who may be critical to the uptake of research findings. The level and scale of complications entailed by research interventions in navigating complex situations suggest that the nature of o-e-a cannot be determined by any one discipline (i.e., the 'research as usual' ticket), but most probably will emerge through collaborative negotiation. The development of such processes has hitherto been marked by the transition from multi-disciplinary to interdisciplinary research. Where research extends beyond and outside scientific disciplines (i.e., includes non-scientific sources or practice, engages with learning processes from wider society) – trans-disciplinary research – the challenge to academia is establishing whose o-e-a counts, that of the researchers, or that of the knowledge users? This paper explores these options.

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