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Quality Tensions in Computational Literature Reviews

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The growth of research work and the subsequent complexity of field-specific and multidisciplinary nature calls for new computational tools to manage scientific knowledge (e.g., Miranda et al. 2022). Literature reviews are important to both 1) synthesize and 2) avoid duplicating knowledge. Recently, the use of computational tools to maneuver reviews consisting growing amounts of literature is recognized (Antons et al. 2021). The process is known as Computational Literature Review (CLR). Since CLR is a novel and developing process, we here view it from a perspective that neither restrict the human nor the computational involvement, or the type of computational tool used to conduct it. While CLRs may offer interesting opportunities for the conduct of literature reviews, many questions are still unanswered. We, in particular, do not know how the inclusion of computational tools impacts our research work. Accordingly, this study aims at answering: *What are the considerations and implications for research quality when using computational tools in systematic literature reviews?* This is addressed to ensure rigor in the CLR process leading to trustworthy outcomes, thus enabling researchers a solid argument for the process of conducting and guidelines for evaluating CLRs. At Aarhus University, a group of IS-researchers and librarians have engaged in qualitative auto-ethnographic research about CLRs. Data is collected by the researchers who try different computational tools to conduct CLRs on their own research. The individual experiences are systematically compared and analyzed by use of three parameters of quality in literature reviews: *structure*, *transparency, and comprehensiveness* (Paré et al. 2016; Hiebl 2021). The analysis reveals tensions between quality parameters and use of tools in different phases of the CLR process. For example, use of AI systems may increase comprehensiveness of literature reviews by handling large amounts of papers, however it challenges transparency as algorithms are too complex or not accessible. While most tools are still in their infancy, we also noticed a rapid development. For that reason, now is the time to reflect on CLRs. We hope that our research contributes towards opening a discussion about CLR use, with implications for how to develop computational tools and how we evaluate CLRs.

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