ONLINE APPENDIX

Domain Experts' Epistemic Encounters with AI:
Advancing a Configurational Theory using Qualitative Comparative Meta-Analysis
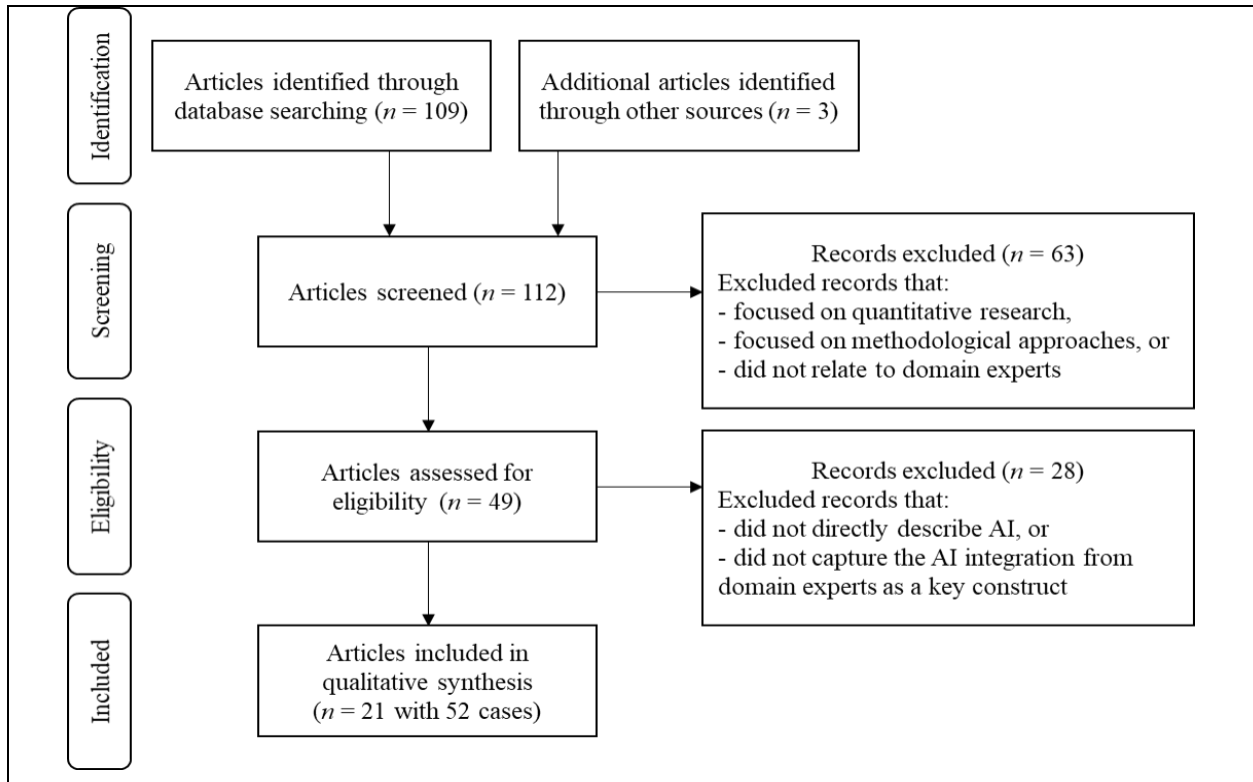
Appendix A: Sample Selection

Figure A1. Sample Selection

Appendix B: Illustrative Codes

Table B1. Illustrative Codes From a Sample Paper, Letovitz et al. (2022)	
Explanatory Condition	**Code & Quote**
	Knowledge Congruence
Know-What Congruence	**Case #14 - Low** ● "… in the majority of cases we observed, the AI tool's results presented a divergent view from the radiologist's initial view." (p.133) **Case #15 - Low** ● "However, in the large majority of cases we observed, the AI results and the radiologists' judgment diverged." (p.135) **Case #16 - Low** ● "… in the majority of cases, the bone age opinions diverged …" (p.137)
Know-How Congruence	**Case #14 - Low** ● "They questioned what features of underlying lung tissue were relevant to the tool's decision …" (p.133) **Case #15 - Low** ● "I don't know why they marked these calcifications, what about all these other calcifications (that the tool did not mark)?" (p.135) **Case #16 - Low** ● "They were unable to integrate the tool's unfamiliar way of communicating bone age opinions with their own knowledge about pediatric bone development …" (p.138)
	Transitional Ease
Extent of Change in Work	**Case #14 - Med** ● "Enacting AI interrogation practices required radiologists to invest additional time and analysis." (p.133) **Case #15 - Low** ● "Radiologists expressed negative views of having to tediously check … AI results for every patient's case, especially given the high time pressure they faced …" (p.136) **Case #16 - Low** ● "When they viewed a divergent AI bone age opinion, they resorted to rereviewing the same images from the x-ray and textbook and rarely transformed their initial opinion as a result." (p.138)
Facilitators	**Case #14, 15, & 16 - Low** ● No additional third-party facilitators were mentioned in the paper.

Technical Knowledge	**Case #14 - Med** ● "They examined the suspected area in question, zooming in on that region of the CT image and scrolling forward and backward to assess the tissue surrounding the AI-marked region." (p.133) **Case #15 - Med** ● "Instead, when faced with divergent opinions, the radiologists tended to review the image underlying the AI result in a perfunctory way before ignoring it …" (p.136) **Case #16 - Med** ● "One afternoon, a spirited discussion broke out as Dr. D attempted to reason about the tool's underlying logic …" (p.138)
Functional Alignment	
Know-What Ambiguity	**Case #14 - High** ● "Very frequently, they expressed concern about the possibility of missing a nodule, fearful of making consequential errors of omission …" (p.132) **Case #15 - High** ● "Because of the subtle differences in tissue appearance, and the difficulty of interpreting mammogram imaging, radiologists frequently expressed concern about missing critical findings." (p.134) **Case #16 - Low-Med** ● "… pediatric radiologists viewed this evaluation as a straightforward comparison task and did not experience particularly high uncertainty …" (p.137)
AI Augmentation	**Case #14 - Augmentation** ● "Following regulatory guidelines, the CT AI tool was deployed as an "aid" to radiologists, designated to be used after the radiologist first formed his or her independent judgment." (p.133) **Case #15 - Augmentation** ● "Following regulatory guidelines, the tools were deployed as an "aid" to radiologists, who were required to only view AI results after forming their independent evaluation." (p.135) **Case #16 - Augmentation** ● "After forming their initial judgment, the radiologist then viewed the result of the AI tool." (p.137)
White Boxing	
AI Opacity	**Case #14 - High** ● "Radiologists began experiencing opacity, as they were unable to understand these divergent AI results." (p.133) **Case #15 - High** ● "Radiologists experienced opacity as they encountered the AI tool's unexplained results. They were unable to see what aspects of that tissue were causing the AI tool to produce a given result" (p.135)

	Case #16 - High ● "Viewing the AI results, all of a sudden, radiologists experienced a new surge of uncertainty, rooted in their inability to understand or explain the AI result." (p.137)
Validating Practices	**Case #14 - High** ● "They examined the suspected area in question, zooming in on that region of the CT image and scrolling forward and backward to assess the tissue surrounding the AI-marked region." (p.133) **Case #15 - Low** ● "However, in this department, radiologists did not enact AI interrogation practices …" (p.136) **Case #16 - Low** ● "… pediatric radiologists did not enact AI interrogation practices …" (p.138)
Domain Expert Control	
AI Modularity	**Case #14, 15, & 16 - Low** ● "Vendors can request additional approval for updated software versions, which can then be deployed in clinical settings." (p.131)
Decision-Making Power	**Case #14 - High** ● "The Urbanside chest imaging department purchased an AI tool several years prior ..." (p.133) **Case #15 - High** ● "... Urbanside purchased an AI tool, which we call the "Mammo AI tool," as an add-on product to the mammography software from the imaging technology vendor …" (p.135) **Case #16 - High** ● "... the Urbanside pediatric department implemented a cutting-edge tool …" (p.137)
External Integration Pressures	
Social Proof	**Case #14, 15, & 16 - High** ● "When we investigated the three AI tools and the nature of their output, we found many similarities; each reported high-performance metrics" (p.131)
Institutional Normative Pressures	**Case #14, 15, & 16 - Low-Med** ● "Following regulatory guidelines, the CT AI tool was deployed as an "aid" to radiologists, designated to be used after the radiologist first formed his or her independent judgment." (p.133)

Appendix C: Iterations with Micro Models

Table C1. Micro Model 1

Configuration Number	Domain Expert AI Integration			
	(1)	(2)	(3)	(4)
Know-What Congruence	●	●	●	●
Know-How Congruence	⬤	⬤		●
Know-What Ambiguity	⊗	●	●	⊗
Validating Practices			●	●
AI Augmentation		●	●	
AI Opacity	⊗			
Inclusion Consistency	0.938	1.000	0.927	0.938
PRI Consistency	0.929	1.000	0.927	0.931
Raw Coverage	0.231	0.024	0.107	0.230
Unique Coverage	0.096	0.024	0.107	0.095
Solution Consistency	**0.951**			
Solution PRI Consistency	**0.947**			
Solution Coverage	**0.457**			

Table C2. Micro Model 2

Configuration Number	Domain Expert AI Integration		
	(1)	(2)	(3)
Facilitators		⊗	
Know-How Congruence	●	●	●
Technical Knowledge			●
Validating Practices	●		●
AI Augmentation	●	●	●
AI Opacity		⊗	
Inclusion Consistency	0.941	0.926	0.934
PRI Consistency	0.936	0.913	0.924
Raw Coverage	0.284	0.222	0.125
Unique Coverage	0.174	0.073	0.019
Solution Consistency	**0.959**		
Solution PRI Consistency	**0.955**		
Solution Coverage	**0.415**		