

Appendix 1 – Prompt for interview

The way humans work these days is rapidly becoming more self-organized; in other words, less centralized and more interconnected. To understand how that happens, in healthcare we have relied on complexity theory and systems thinking to say things like *in order to improve teamwork, we need to move beyond the focus on the individuals and pay more attention to the interactions among individuals*. However I am not sure we have spent enough time/effort talking about what those interactions look like & their implications. I have found that analogies from biology might provide us with a more concrete way to look at interactions; in particular social insects – the reason being that insects live in colonies and focus on carrying out work together – much in the same way as humans do teamwork!

In a nutshell, social insects behave as a **self-organizing complex adaptive system** with 3 levels: individual, collective/colony, and environment. The way insects carry out work has been called **Swarm Intelligence** and is receiving increasing attention in other disciplines to support human problem-solving. Using swarm intelligence, a solution to a problem emerges as a result of the collective action of the members who interact using two key principles of communication: **solidarity** (direct) and **stigmergy** (indirect). To not get bogged down with terminology, in simple terms, solidarity is the direct member-to-member communication in the local context. If we take the example of ants, the direct member-to-member interaction happens via touch of the antennae; while for humans, our most direct form of interaction happens via language. On the other hand, stigmergy refers to the indirect communication that is achieved by individual members leaving “traces” in the environment and other members sensing them and using them to drive their own behaviour. In the case of ants, they leave pheromones for other ants to smell and know what to do. For humans, a simple example would be when someone leaves a coat on a seat at a theatre. Without saying anything, the coat (i.e., the trace) communicates anyone approaching the seat that it is already taken and that you should look for another seat. Another simple example in regular life would be something like leaving dishes in the sink for your kids to clean. Whether they do it or not, the message is the same “to execute the action of cleaning the dishes”.

While we humans privilege the direct forms of interaction, I am beginning to wonder about the influence of the indirect forms in how we work as part of a team. Therefore, I am curious to learn from your clinical/professional experience to see if we can identify **examples of traces** (like the coat in the theatre or the dishes in the sink) that people use to signal another person that something needs to be done (e.g., don’t sit on this chair or clean the dishes).