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RESEARCH NOTE

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A group dynamics framework for 21st century collective intelligence facilitators

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1 | INTRODUCTION

Systems thinking and collective action capabilities are increasingly needed to address societal challenges (Hogan, Harney, & Broome, 2015; Mulgan, 2018). There are many systems-thinking methods collective intelligence (CI) facilitators can use when working with groups that seek to address societal challenges (Jackson, 2019). However, educational training programmes supporting the development of CI group facilitation skills are not widely available (Hogan, Hall, & Harney, 2017), although awareness of the need exists (Penuel, 2019). Importantly, in addition to method-specific expertise, skill in the use of CI methods requires an understanding of group dynamics. While groups or teams may not be skilled in managing their own group dynamics, CI facilitators need to understand, monitor and manage group dynamics during the application of CI methods (Hogan & Broome, 2020 In Press). Therefore, training programmes designed to cultivate CI facilitation skills need a strong pedagogical focus on group dynamics. This paper presents a group dynamics framework for CI facilitators, outlining the relevant pedagogical domain territory for educational programme designers.

We have previously suggested that educational training focused on group process facilitation can be included as part of broader, integrated programmes focused on applied systems science and the management of complexity (Hogan & Broome, 2020 In Press; Hogan, Harney, & Broome, 2015). Given the quality of communication and reflective thinking required, systems-thinking applications generally involve working with small groups (e.g., 5–20 people; Wallace, Hogan, Noone, & Groarke, 2019), but methods can scale to larger groups (e.g., organizations and communities; Hogan et al., 2015) and the influence of CI and systems thinking can scale to global-level impacts (Domegan et al., 2016; Jackson, 2019; Mulgan, 2018). Our CI network support unit (CINSU) commonly uses Interactive Management methods (Warfield & Cardenas, 1994) to facilitate multi-stakeholder CI groups seeking to address a shared problem. These groups (typically 10–20 people) have varying levels of past experience working together and are always embedded in larger group dynamics that influence their functioning and societal impact.

Rather than make a distinction between small and large group dynamics, and given the process focus of CI facilitation, our framework distinguishes between proximal and distal group dynamics. It differentiates between dynamics that play out in the proximal interactions between group members during the facilitated CI groupwork phase (located in a central position in Figure 1) and the broader antecedent, contextual, transition and post-session group dynamics within which CI groupwork interactions occur. While most of the skilled engagement of the CI facilitator centres on understanding, monitoring and managing proximal groupwork dynamics, facilitators also need to have an understanding of distal dynamics—in particular, the antecedent, contextual dynamics that influence how CI sessions are brokered and organized in advance of groupwork; the transition dynamics that influence the coming together of a group and their initial productive functioning; and the post-session group dynamics that influence the ongoing CI process and outcomes. The application of CI methods generally involves different phases of work

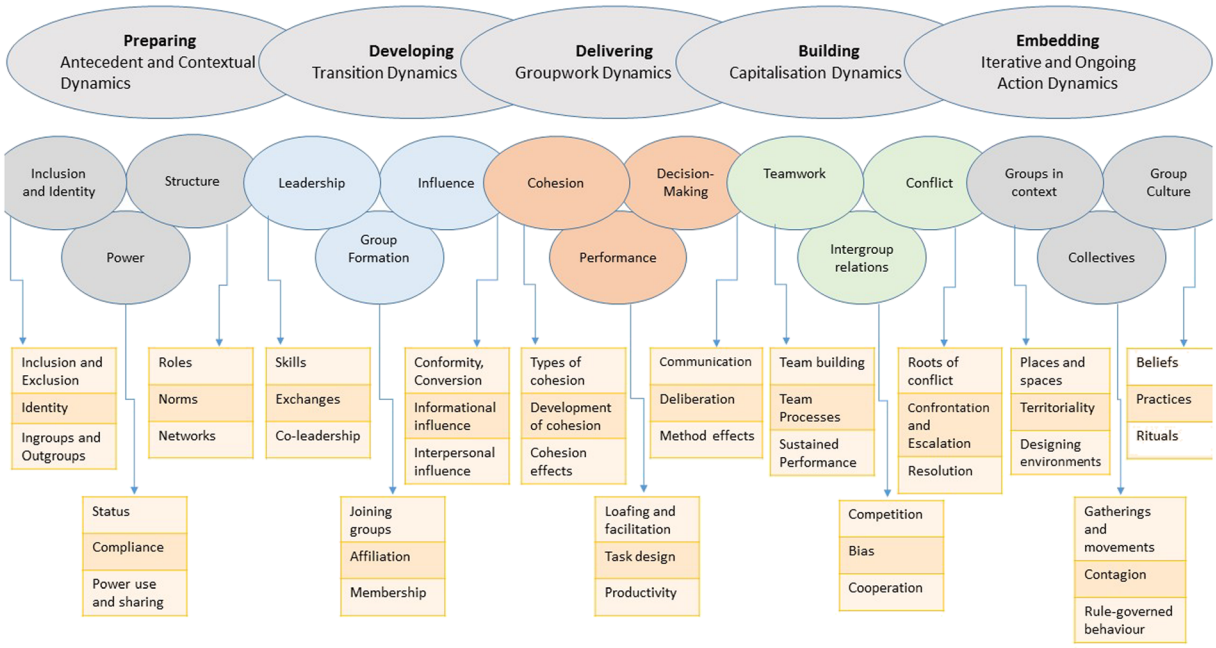

FIGURE 1 Group dynamics framework for collective intelligence facilitators [Colour figure can be viewed at wileyonlinelibrary.com]

where different group processes are required to advance the intelligence and collective action of the group. This implies that the CI facilitator needs to understand distinct but overlapping aspects of group dynamics during different phases of working with a group. While phases can vary depending on the method used, CI and applied systems science project work tends to have a duration that extends from months to years and even decades in some cases (Broome, 2006).

In line with the temporal and articulated nature of group project work (Strauss, 1988; Lervik, Fahy, & Easterby-Smith, 2010), our framework situates the group dynamics pedagogical landscape across five temporally linked themes—(1) Preparing, (2) Developing, (3) Delivering, (4) Building and (5) Embedding—which correspond to five aspects of group dynamics: (i) antecedent and contextual dynamics, (ii) transition dynamics, (iii) groupwork dynamics, (iv) capitalization dynamics and (v) iterative and ongoing dynamics. Consistent with a microfoundations orientation (Felin, Foss, & Ployhart, 2015) we utilize a multilevel framework structure, whereby themes organize domains and subdomains of interdependent group dynamic knowledge and understanding. The group dynamics literature pointed to in the pedagogical framework is covered in major textbooks. Upon review of this literature, the CINSU team identified key aspects of group dynamics that are important to understand in the context of CI facilitation. Our group dynamics framework for CI facilitators is presented in Figure 1. The relevant scientific literature and associated pedagogical domain territory for educational programme designers can be accessed across a variety of textbooks (e.g., Forsyth, 2014; Levi, 2017).

2 | PREPARING

The *Antecedent and Contextual Dynamics* to the left of Figure 1 remind us that, in advance of facilitating CI groups, we need to understand *Inclusion and Identity* dynamics. This includes basic aspects of group structure involved in mapping the stakeholder ecosystem, the effects of inclusion and exclusion on group behaviour, the influence of group identity on behaviour and intergroup interdependencies including in-group and outgroup dynamics. Also critical for brokerage and planning of CI groupwork is an understanding of *Power* dynamics, including the group dynamics linked to status, compliance and power use and sharing within and between stakeholder groups. While CI facilitators need to manage and monitor equality of input and influence during groupwork, they also need to understand how power dynamics influence group activity and productivity throughout the whole lifecycle of the CI project. More generally, an understanding of inclusion, identity and power dynamics cannot be achieved without an understanding of group *Structure*, including the roles, norms and network structure of groups. Immersion in the working context of group is needed to understand the specific dynamics at play.

3 | DEVELOPING

Making a move to productive groupwork is challenging, and under *Transition Dynamics*, we include *Leadership*, *Group Formation* and *Influence*. The role of leaders in supporting collective action capabilities is critical, and an understanding of leadership skills, leader-follower exchanges and coleadership dynamics is important for CI facilitators. CI groups come together with varying levels of shared work experience, and CI work is invariably novel, even for established groups; therefore, facilitators need to understand group formation dynamics: joining groups, affiliation in groups and group membership. Finally, in transitioning into the CI project and in the unfolding exchange of knowledge and deliberation that grounds systems thinking, the CI facilitator needs to understand fundamental aspects of group influence, including conformity and conversion dynamics, and the dynamics of informational and interpersonal influence.

4 | DELIVERING

When the CI group is established, they enter a carefully designed CI environment, and given the primary process role of CI facilitators, the optimization of *Groupwork Dynamics* rises to prominence. While sustained understanding of antecedent, contextual and transition dynamics is important for the facilitator throughout a project, when working with a group in situ, process facilitation begins to centre around issues of group *Cohesion, Performance* and *Decision making*. Different types of *cohesion* dynamics—emotional, task, structural, social and collective—are important at different times, and both the development of cohesion and cohesion–performance dynamics need to be understood. An understanding of the group *performance* dynamics is also important, including the conditions under which groupwork can facilitate or inhibit performance and how groups perform under different task structures—additive, disjunctive, conjunctive, compensatory and discretionary. Maximizing productivity, including creative and critical thinking outputs during different CI work phases, requires an understanding of the conditions under which these processes are optimized in a group. Importantly, a core outcome of the CI process is group *decision making* in relation to pathways of collective action. As systems thinking using CI methodologies involves the emergence of complex forms of group consensus and decision making, understanding group communication including types of talk, information sharing, bias and heuristics, transactional memory dynamics, risky shifts, polarization and groupthink is critical for CI facilitation. Method effects also influence the dynamics of group decision making and the outcome of any CI process, and careful consideration of the rules and procedures embedded in different decision-making methods is important for the CI facilitator.

5 | BUILDING

Groups that seek to address shared problems using applied-systems science methods often benefit when they actively seek to transform themselves from a group of loosely coupled members with distinct identities (e.g., stakeholders, content experts and leaders) into a cohesive and coordinated team. The science of teams and teamwork is important for CI facilitators to understand as part of *Capitalization Dynamics*. Emerging from CI groupwork with a shared appreciation of a complex problem, and clear goals and action strategies to address the problem is foundational for *Teambuilding*, as it provides a strong basis for effective team processes to develop. Key *Team Processes* include ongoing action processes (e.g., system and goal monitoring, team monitoring, backup behaviour and coordination) and interpersonal processes (e.g., motivation and confidence building, affect management and conflict management). Additional team processes involve iterative transition dynamics as teams update shared mental models and activity plans, transforming their vision and shared objectives over time. Also included under *Capitalization Dynamics* is a focus on *sustained performance*, which extends groupwork performance, specifically, by focusing on cooperative incentives, mutual accountability and sustained communication and coordination dynamics.

Related to sustained team performance is a focus on *Intergroup Relations*. CI facilitators must recognize that teams operate in the context of other groups, both within and outside of their organization. *Competition* dynamics play out in the broader working environment and can be a catalyst to productive or unproductive team dynamics. Furthermore, *bias* in the perceptions and interchanges between groups needs to be understood. At the same time, when multiple groups operate with overlapping goals in a shared ecosystem, *cooperation* is possible, and it is important to understand the conditions under which cooperative intergroup relations are established.

Conflict is a common feature of group dynamics, which can arise from mixed motives within and between groups; various social, commons, fairness and responsibility dilemmas; task and process conflicts; and personal conflicts. *Confrontation and escalation* dynamics often involve a shift from uncertainty as regards the source of problems to commitment to definitive views as regards

the source of problems and a parallel misperception of motives and misattribution of the cause of actions. This can result in a switch from soft to hard tactics of interpersonal engagement, a move from irritation to anger, reciprocity to retaliation and generalizing misperception and misattribution from the 'few' to the 'many' combatants in an escalating conflict. In addition to confrontation and escalation dynamics, CI facilitators need to understand *resolution dynamics*, which involve a move towards negotiation, understanding, mutual concern, conciliation and forgiveness and ongoing conflict management. Understanding conflict and conflict resolution becomes important in long-term projects where CI facilitators continue to guide groups in their capitalization dynamics.

6 | EMBEDDING

Finally, the pedagogical focus on *Iterative and Ongoing Action Dynamics* includes an understanding of groups in context, including how places and spaces influence group action. For example, selecting suitable places and spaces for groupwork is critical to CI project success, and understanding how places and spaces influence day-to-day group interaction is essential to monitoring and managing ongoing action dynamics in long-term CI projects. Even small changes in places and spaces (e.g., perceived pleasantness, safety and controllability, noise, crowding, temperature, overload and complexity, furniture and seating arrangement etc.) can have a significant effect on iterative and ongoing action dynamics. As part of organizational and intergroup dynamics, it is also important to understand the literature on *territoriality*, and the ways in which a group claims, marks, becomes attached to particular places and spaces and defends against intrusion by others. This influences intragroup and intergroup dynamics and distinctions between high and low control and long-term and temporary occupancy can influence power, status, conflict, privacy and sharing dynamics. Cooperative and productive group dynamics require a focus on *designing environments*, and it is important to understand research on synomorphy, the degree of fit between a setting and its human occupants and fitting form to function in the design of groupwork environments. Increasingly, this implies the design of flexible spaces for meetings, seclusion and creative work.

The broader social and organizational environment shaping iterative and ongoing action dynamics include the dynamics of *collectives* and *group culture*. In relation to *collectives*, the rapid unfolding dynamics of gatherings, crowds, mobs and panics are important to understand, as are the dynamics of diffusions (rumours and mass delusions), trends (fads and crazes) and more deliberate and organized social movements. Contagion dynamics are also important to understand, for example, in relation to the spread of emotion and mimicry in groups. CI efforts can be readily destabilized and significantly moderated by collective dynamics. Also under collectives, we include the more structural and rule-guided collective behaviour dynamics of organizations, which can take CI facilitators considerable time to understand in their efforts to support iterative and ongoing CI action dynamics.

CI facilitation by its very nature involves immersion in *group culture*, primarily the beliefs that shape systems thinking and collective action planning. Understanding how group behaviour is shaped by beliefs is important, as is an understanding of the practices and rituals of groups. Overall, while the domain territory for educational programme designers is broad, there is no escaping the pedagogical requirements: skill in the use of CI methods requires an understanding of group dynamics.

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