Sustainability of E–Collaboration

António Dias de Figueiredo
University of Coimbra, Portugal

INTRODUCTION

In spite of its recognition as a field of research and practice with a lineage of several decades of prolific development (Kock & Nosek, 2005), virtual collaboration is still a domain where mixed results occur and failure crops up without warning (DeSanctis, Poole, Dickson, & Jackson, 1993; Blythin, Hughes, Kristoffersen, Rodden, & Rouncefield, 1997; Kock, 2004; Kock & Nosek, 2005). Even as its theoretical, technical, operational, and conceptual boundaries expand (Kock & Nosek, 2005), we still feel powerless when a promising experience of e-collaboration, which we could swear would last for a long time, suddenly collapses. In this article we discuss some fundamental conditions for sustainable e-collaboration. We start by introducing the concept of value proposal, the common ground of compatible interests required to make collaboration last, and we distill from it what we call the principle of sustainable e-collaboration. We then move to a discussion of the variable levels of collaboration and their relationship to group development, leadership and purpose. Finally, we briefly expound five groups of theories that we view as promising candidates for the future establishment of the theoretical foundations of sustainable e-collaboration. Figure 1 summarizes the key concepts of the article.

VALUE PROPOSAL AND SUSTAINABLE E-COLLABORATION

For any collaboration to be sustainable it must fulfill in permanence the interests and motivations of *all* the parts. Otherwise, sooner or later some of the parts will lose interest, a number of them will break up, and a few may even oppose to the maintenance of the collaboration. This applies to any kind of collaboration, be it within a project involving many collaborators, a business relationship, or the partnership between research student and advisor. It also holds both offline and online.

We use the term *value proposal* to express a common (often tacit) agreement between *all* the parts that keeps them willing to collaborate. The clarification of the value proposal requires that all the *parts*, as well as the *relationships* between them, be identified and the *benefits* of each part plainly recognized. Given the expectable differences of interests between parts, the value proposal tends to emerge from negotiation processes, which may be explicit or implicit. On the other hand, since the interests of the various parts tend to change with time and context, as the collaboration develops, the value proposal needs to keep being negotiated all the time, even if tacitly. A crucial aspect of this negotiation is that each part must be permanently concerned, not just with the satisfaction of her *own* interests, but also with the satisfaction of the interests of all the other parts. Otherwise, the collaboration ceases to be sustainable, and everyone will lose. This primary concern with the interest of all the other parts, which is so often overlooked in most forms of collaboration, justifies the formulation of a principle:
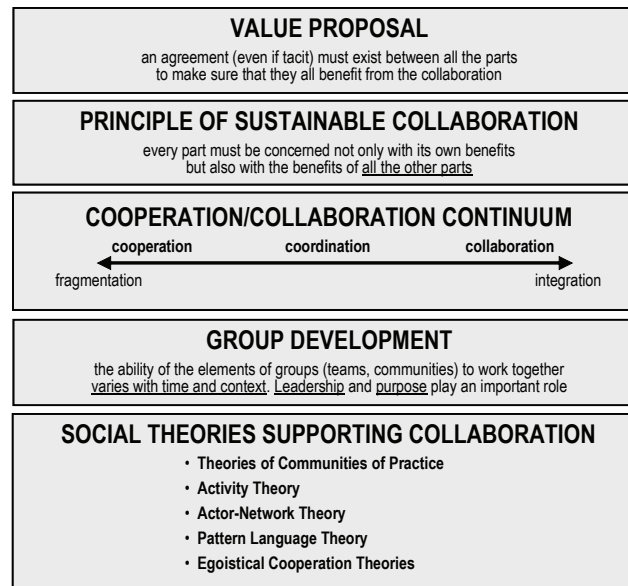
- **Principle of sustainable e-collaboration:** E-collaboration is only sustainable as long as each part feels it is gaining from it and acts so as to grant that all the other parts feel likewise.

The principle of sustainable e-collaboration does not hold, of course, for the cases where e-collaboration is unwilling, which will be discussed later in this article.

SUSTAINABLE E-COLLABORATION AND GROUP DEVELOPMENT

Although the terms "cooperation" and "collaboration" are used interchangeably in everyday language, their frequent application in education, management and politics has led to the refinement of their semantics in different directions. It has also led to their frequent

Figure 1. Key concepts of sustainable e-collaboration

VALUE PROPOSAL
an agreement (even if tacit) must exist between all the parts to make sure that they all benefit from the collaboration

PRINCIPLE OF SUSTAINABLE COLLABORATION
every part must be concerned not only with its own benefits but also with the benefits of all the other parts

COOPERATION/COLLABORATION CONTINUUM

cooperation   coordination   collaboration

◄──►

fragmentation   integration

GROUP DEVELOPMENT
the ability of the elements of groups (teams, communities) to work together varies with time and context. Leadership and purpose play an important role

SOCIAL THEORIES SUPPORTING COLLABORATION
• Theories of Communities of Practice
• Activity Theory
• Actor-Network Theory
• Pattern Language Theory
• Egoistical Cooperation Theories

linking to a third term, "coordination." As the three words hold different connotations in the above fields, we attempt here a compromise between these connotations. In *cooperation*, each part recognizes the benefit of working together and is willing to support collective efforts, provided its individual aims and autonomy are not sacrificed. In *coordination*, the recognition of the benefit of working together is not critical, but each part needs to know what, when, and how to do what needs to be done, while accepting the alienation of some of its autonomy in the process. *Collaboration* requires collective commitment to a common mission and a shared effort to get results that would never be achieved by any of the parts in isolation. The distinction between cooperation, coordination, and collaboration has proved to be very useful when studying social groups. However, the insistence on a sharp distinction between the three terms, with no room for integrated visions, often stands in the way of a valuable discussion of subjects such as e-collaboration. Should we be talking about e-cooperation, e-coordination, or e-collaboration, or about them all? Brown and Keast (2003) helped solving this problem by proposing a continuum of patterns of interaction, along an axis of fragmentation/integration, where cooperation stands at the lower extreme, coordination somewhere in the middle, and collaboration at the upper extreme. This image of a continuum, instead of a break, between collaboration and cooperation lets us see cooperation as a soft kind of collaboration and collaboration as a strong variety of cooperation.

Another advantage of figuring a cooperation/collaboration continuum is that it lets us explore more naturally the theories of group development. These theories make clear that collaboration is exposed to ups and downs, and that some of these ups and downs actually correspond to predictable patterns. Three such theories will be presented here to illustrate how, for a single group, collaboration can change through time. The, earliest, and most influential has been proposed by Bruce Tuckman (1965) who identified four sequential stages: forming, storming, norming, and performing (later expanded with a fifth stage: adjourning). In the forming stage the group members tend to interact superficially and politely while trying to recognize their positions and roles within the group. In the storming stage they begin establishing norms of common behavior, which invariably generate conflict. In the norming stage agreements begin to emerge and the group starts working together as a unit. Finally, in the performing stage, the group becomes more relaxed, flexible, and productive as a collective endeavor.

Another popular model for group development, sequential like Tuckman's, is the punctuated equilibrium

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