

Inter-Disciplinary Communication Rigor

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(Short initial draft)

Elsewhere, we examined the meaning and the importance of interdisciplinary communication. (Callaos & Horne, 2013) (Callaos N. , 2017). Here we will very briefly refer to what is, or should be, rigorousness in the context of interdisciplinary communication. It is frequent to read or to hear the phrase that interdisciplinary research, education, and/or communication is not rigorous. This could not be farther from the truth if the communication is based on rigorous and critical thinking and specially it is based on a previous intra-disciplinary peer review. We will shortly show that, contrary to what some disciplinarians believe, a rigorous inter-disciplinary communication could even be more rigorous than intra-disciplinary communication, it will briefly be described in situation C (below) with which we will start the project of interdisciplinary written communication conceived to complement the verbal inter-disciplinary communication the International Institute of Infomatics and systemic (IIS) has been implementing through its conferences during 23 years.

This is a very short article oriented to communicate the reasoning supporting what we just wrote in order to collect more information, knowledge and opinion (episteme and doxa) with regards to this issue. In order to provide a brief context for the following three listed situations, let us mention what highly referenced authors wrote with regards to “inter-disciplinary rigor”.

Julie Thompson Klein (Interdisciplinarity: history, theory, and practice, 1990) who, up to our knowledge, wrote the most comprehensive book on Interdisciplinarity. About the 40% of the book was used to list her references. With regards to interdisciplinary rigor she wrote:

Interdisciplinary work is often attacked for lacking rigor. However, rigor is not diminished. Rather, it is shifted from disciplinary criteria to a new interdisciplinary *objective*, to what (Singleton, 1983) a core sense of “interdisciplinary rigor.” There are no scholarly defined standards for judging interdisciplinary works but Stephen Schneider’s three criteria for disciplinary excellence are quite appropriate. Excellence of interdisciplinary research can be measured in terms of (1) disciplinary clarity, (2) clarity of cross-disciplinary communications, and (3) the utilization and combination of existing knowledge from many fields to help solve a problem or to raise or advance knowledge about a new issue (Shneider, 1977).

Consequently, if we add the restriction of complying with the Means-End Logic (e.g. Achieve a goal, objective or purpose) to the disciplinary rigor, what we get is *more, not less, rigor*. This will get clear in the below listed Situation C, of interdisciplinary situation, where *after, and just after disciplinary rigor had been judged via disciplinary peer review, then, and just then, an additional rigor is added, according the Means-End Logic or the Singer-Churchman’s Pragmatic-Teleological Truth of the Systems Approach* (Churchman, 1971), *as judged by interdisciplinary peer review*.

It is our understanding that interdisciplinary communication is produced, at least, in the following situations:

- A. **Interdisciplinary** research via multi- or **cross-disciplinary** teams, where multi-disciplinarity is understood as *informal juxtaposition* of insights from two or more disciplines and cross-disciplinarity include some level of knowledge integration among two or more disciplines. This requires a minimum of **common** knowledge in order **communication** them. We might suggest that multidisciplinary team are related via insights and opinions (Doxa) while cross-disciplinary teams are also related via knowledge (epiteme)
- B. **Transdisciplinary** topics or conceptual structures.
- C. **Translating** (partial or total re-writing) of peer reviewed ***intra-disciplinary*** research and communication with the objective of **interdisciplinary** communication.

Situation A requires disciplinary rigor **AND** the rigor of strictly solving the problem for which the team was formed. This problem may be a technological, methodological or organizational innovation, a health issue, and effective medical diagnosis and remediation, a solution of a socio-political problem, etc. The best real life test of meeting the additional rigor, beside the intra-disciplinary rigor is the solution of the problem which can be observed by any peer and even non-peers. Consequently, effective multi- or cross-disciplinary teams are more rigorous the rigorousness of their interdisciplinary communication can be observed, verified and validated by peer and, eventually, by non-peers.

Situation B requires *general disciplines* as, for example, Cybernetics, System Approach, Philosophy, Mathematics, Logic, Design, critical thinking, etc. and *meta-disciplinary approaches* as, for example, meta-science, meta-engineering, meta-research, meta-design, meta-education, meta-philosophy, meta-logic, meta-history, etc. consequently, the intellectual rigor in situation B is the rigor associated to the respective discipline or meta-discipline.

Situation C requires both the disciplinary rigor verified by known and very used peer-reviewing processes **AND** another layer of rigorousness; which is to be restricted to what is **common** to different disciplines; which is, usually, an adequate use of the natural language. The latter does should not lower the rigor, but increase it. *Disciplinary rigor should not be confused with disciplinary precision.* Using natural language may lower the level of disciplinary rigor, but not be an excuse to lower the disciplinary rigor. The author of an article based on an intra-disciplinary communication should interpret, translate it into a more common language, which might be less precise but not less rigorous, The author may refer to an article written for intra-disciplinary communication for those readers who are interested in more precision and/or to appendixes attached to the same article and/or two footnotes. Frequently, to interpret and translate intra- to interdisciplinary knowledge require to, not just understand, but also comprehend the intra-disciplinary knowledge and who is better than the intra-disciplinary article's author to interpret and translate such a paper with the objective of making it accessible to other disciplinarians? Notice, please, that this adds another layer of rigorousness which is to ALSO be restricted to the end-means logic without violating the respective disciplinary logics. This requires an additional mental effort and an additional creativity potential. This brings to

mind a Charles Mingus' famous phrase "*Making the simple complicated is commonplace; making the complicated simple, awesomely simple, that's creativity*" intra-disciplinary precision is frequently achieved with the cost of increasing complexity in what is being described in an intra-disciplinary communication. This is, in our opinion, a **necessary condition** for disciplinary scientific and technological advancement, but it is not a **sufficient condition** for relating disciplines, i.e. for any kind of knowledge integration: be it 1) for the partial integration required for a specific real life problem solving or 2) for a more general integration required by the advancement of human beings as human beings.

To finish this very short article, let us use the words of Julie Thompson Klein (1990). Referencing (Shneider, 1977), she affirms that "excellence is not to be measured in terms of disciplinary originality but, instead three criteria [mentioned above] that acknowledge the importance of disciplinary accuracy while allowing the creation of new meaning: disciplinary clarity, the clarity of cross-disciplinary communications and the combination of the existing knowledge to help solve a problem or to raise or advance knowledge a new issue ... Ultimately, then, the [inter-disciplinary communication] depend on the quality of both disciplinary and interdisciplinary communication, on a fuller reciprocity of "text" and translator" (Thompson Klein, 1990, p. 94).

This is what we are trying to achieve the above mentioned situations, especially, but not uniquely, situation C, as among the initial steps we are planning to continue fostering interdisciplinary communication. For 23 years we have been trying to ofster this kind of communication via conferences in which we tried to integrate traditional intra-disciplinary with interdisciplinary presentations. The later have been, mainly *verbal* communications at the plenary sessions and conversational sessions and interdisciplinary workshops and participative panels the first day of the conference. In this new phase we are trying to foster *written* interdisciplinary communication.