

TRANSDISCIPLINARY COMMUNICATION IN WORKING GROUPS

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Abstract

Contemporary society is going through an extensive process of transformation, generated by a multitude of orientations, trends, theories and concepts in all fields of activity, a process marked by increasing divergences between science, technology and culture. Some authors perceive this situation as a transformation of humanity into an authentic Tower of Babel, which might trigger the end of civilisation. Transdisciplinarity is a concept which can build the necessary bridges between science, technology and culture, helping us understand that all fields of spiritual and material activity represent the components of an integrated knowledge process. Within this process, transdisciplinary communication represents the indispensable link for reconciling effectiveness with affectivity and eliminating destructive tensions between the material and the spiritual world. This article aims to synthesize the relevant conclusions, the results from the literature review on transdisciplinary communication and to contribute to a better understanding of its role in the forming and functioning of working groups, whose main objective is scientific research.

Keywords: *transdisciplinary communication, integrated knowledge, transdisciplinary working group, transdisciplinary integration, transdisciplinarity.*

1. INTRODUCTION

The 21st century began with a series of unprecedented magnitude for Humanity - from "climate change, biodiversity loss and global inequality - which are interlinked and cross-cutting, hence they cannot be resolved through siloed or sectoral approaches." (CHAUSSON & COLE, 2021). In this situation we face with, Brown et al argue that "it is precisely the lack of transdisciplinary learning, network building and innovations which are undermining the development of changes in society that can address longstanding planetary dilemmas including peace, human rights and democratic processes of development." (ODAME & ORAM, 2013)

Every human activity is related to communication because this was, is and will continue to be the link between people, between human communities and between different fields of activity. As it is well-known,

communication depends on people who differ according to their social status, their professional and moral ability, race, ethnicity, sex, age, education, political convictions, religious beliefs, culture etc.

The transdisciplinary working groups whose main objective is scientific research are confronted with multiple challenges, generated by the usual working barriers, alongside the specific ones, derived from the heterogeneity of component members, such as a different specialization (materialized in ontological, epistemological and methodological differences), the lack of trust in the professional and moral skills of the members who possess a different scientific specialization, reluctance to cooperate with other specialists, especially in the transmission of the results obtained through their own efforts, distrust or even underestimation of skills and understanding, research methods and results of scientific research by non-scientists (investors, entrepreneurs, NGOs representatives and of civil society, politicians etc.) but they are members of transdisciplinary working groups, etc.

The heterogeneity of the working groups represents a problem difficult, but not impossible, to overcome if and only if their leaders achieve an efficient transdisciplinary communication between the members, based on team spirit, the will to deepen scientific knowledge and overcome their own limits, a good knowledge and mutual trust, especially when it comes to the goal or the goals for which the working groups were formed.

2. THEORETICAL LANDMARKS AND CONCEPTUAL CLARIFICATIONS

The definition and content of transdisciplinarity

Analysing the situation of scientific knowledge in the 21st century, prof. Tiberiu Brăileanu

considered that “we are specialists in more and more narrow fields, we understand less and less of what is going on around us and we wonder why things get out of control.” (CIURCANU, 2005/2006)

The emphasis on specialization in scientific research, to the detriment of the integration of knowledge, led L.D’Hainault to state that: “nowadays, disciplines are invaded by a gigantism that suppresses them, deviates them from their simplifying role and closes them in the impasse of hyperspecialization.” (TRIF, 2018) Along the same idea of excessive specialisation in scientific research, Dincă Irina reminds us that there are over 8000 scientific disciplines which can make knowledge impossible or could be at the origin of a new form of knowledge, possible through the bridges created by the transdisciplinarity between all sciences and through the letting go of transdisciplinary boundaries. (DINĂ, 2012)

Hyperspecialization and “the excessive fragmentation of scientific knowledge” (VOLCKMANN, 2007) represented the main reasons for the appearance and deepening of the contradictions between the material and the spiritual world in the realm of knowledge. The reduction up to disappearance of these contradictions and the achievement of knowledge unity is possible through transdisciplinarity, an idea supported by many Romanian and foreign scholars and highlighted by Anca Mustea in her PhD paper from which I quote: “the transdisciplinary perspective is essential in the dialogue between science, tradition and art, as a form of knowledge in order to build a coherent model of Reality” (MUSTEA, 2010)

Transdisciplinarity was first defined by Jean Piaget in 1970 (NICOLESCU, 2010): “Piaget gives the following description of transdisciplinarity: “Finally, we hope to see succeeding to the stage of interdisciplinary relations a superior stage, which should be ‘transdisciplinary,’ i.e. which will not be limited to recognize the interactions and/or reciprocities between the specialized researches, but which will locate these links inside a total system without stable boundaries between the disciplines.”)” and later on it represented a field of activity for many authors. Up to the present,

many schools of thought and faculties were established, within some universities in which transdisciplinarity is being studied (GIBBS & BEAVIS, 2020: “There are a number of higher education centres of excellence in research and teaching as transdisciplinary. The centres at ETH Zurich and the University of Texas are among the most well established as is the Faculty of Transdisciplinary Innovation at UTS”). Conferences were organised and a Charter of transdisciplinarity was set up (MUREȘAN, 2012) and despite all these initiatives there is no unanimously accepted viewpoint in the scientific world which defines and explains this concept. Moreover, due to the deepening of scientific knowledge in different fields of activity, the opinions regarding multidisciplinary multiplied and became more divergent. This situation was described by Basarab Nicolescu as an authentic “war of definitions” (NICOLESCU, 2010).

Having in mind the fact that the purpose of this article is not that of formulating new approaches to transdisciplinarity, but of highlighting the way in which transdisciplinary communication facilitates cooperation between working groups and improves their efficiency, I shall limit myself to the presentation of some relevant opinions on this concept and its connections with other precursory concepts in order to assess the evolution stage of the debates on this field.

Anyone who studies the specialised literature on this field notices that some authors confuse transdisciplinarity with interdisciplinarity, pluridisciplinarity and intradisciplinarity or define one with the help of others. In this regard, Chausson and Cole stated that: “multidisciplinary, interdisciplinary and transdisciplinary working – these are often used interchangeably yet each approaches knowledge production differently” (CHAUSSON & COLE, 2021). For this reason I think that it is necessary to eliminate confusion by correctly defining all these concepts, prior to broader approaching the definition and content of the transdisciplinarity concept.

According to prof. Coca Stana, interdisciplinarity is achieved “through the insertion of a fragment in the structure of a

subject in order to clarify a topic, to harmonize some fragments within a subject, to solve some problems or to develop some abilities and skills." (COCA, 2013).

Prof. Trif Maria considers that "interdisciplinarity represents a mixture between different subjects in order to solve a problem which appears at a certain time" (TRIF, 2018). From a didactic perspective, "pluridisciplinarity (multidisciplinarity) refers to the situation in which a topic belonging to a certain field is analysed from the perspective of various fields, the latter preserving their structure and remaining independent one from the others" (DARII, 2007). In other words, "pluridisciplinarity (or multidisciplinarity) represents the study of a subject using methods belonging to various fields of study (DINĂ, 2012).

Talking about transdisciplinarity (TD) Brandt et al. defined it as "a research approach that includes multiple scientific disciplines (interdisciplinary) focusing on shared problems and the active involvement of practitioners from outside academia" (BRANDT et al., 2013).

Thomas Jahn et al. proposed us to understand transdisciplinarity as "a critical and self-reflexive research approach that relates societal with scientific problems; it produces new knowledge by integrating different scientific and extra-scientific insights; its aim is to contribute to both societal and scientific progress..." (JAHN et al., 2012).

On the other side, transdisciplinary research process has to be "based on profound knowledge of the conditions that govern transdisciplinary discourses. Such process knowledge needs to be theoretically sound, empirically tested, and methodologically reproducible." (RENN, 2021)

Adina Tătar considers that "the transdisciplinary type of approach leads towards a fusion of knowledge specific to various fields of study, to the discovery of new fields of investigation, to the conception of some new research programmes ... [being] centred on "real life" with important issues ... [an it is] regarded as "a new vision on the world", being capable of leading to the understanding and solving of multiple complex issues and challenges of the current world. (TĂTAR, 2018, p.152)

Prof. Ștefan Vlăduțescu stated that transdisciplinarity refers to "the shift from

postmodernism to transmodernism." (VLĂDUȚESCU, 2014, p. 13)

Basarab Nicolescu represents an important name in the field of transdisciplinarity, a specialist in quantum physics and with studies in other fields, a fact which allowed him to realize the fact that the world needs unity in knowledge with the help of transdisciplinarity whom he defines as "its prefix indicates "trans" - something which lies at the same time among other subjects and within various subjects and beyond any subject. Its finality is the understanding of the present world and one of its imperatives is the unity of knowledge" (NICOLESCU, 2007).

Although art.7 from The Charter of Transdisciplinarity states that "Transdisciplinarity constitutes neither a new religion, nor a new philosophy, nor a new metaphysics, nor a science of sciences," (NICOLESCU, 1994), Max-Neef considers that "transdisciplinarity is more than a new discipline or a super-discipline; it is "a different manner of seeing the world [that is] more systemic and holistic." (MAX-NEEF, 2005). In their turn, Gibbs and Beavis think that "transdisciplinarity is more than a methodology grounded in conventional logics: it is an ideology; a disposition; a way of addressing the world in which one is emergent. As such, at its core, transdisciplinarity is transformative as well as a translational" (GIBBS & BEAVIS, 2020).

In recent years it seems that many authors agree to focus knowledge and opinions on transdisciplinarity in two ways: "Mode 1" transdisciplinarity, which is mostly theoretical ... and "Mode 2" transdisciplinarity, which is mostly practical" (SCHOLZ & STEINER, 2015).

In conclusion, "compared to intradisciplinarity, interdisciplinarity and pluridisciplinarity, transdisciplinarity is multireferential and multidimensional [...] it completes subject approaches and facilitates the appearance of some new data and interactions between scientific subjects, offering a new vision on nature and reality" (NICOLESCU, 1994).

In fig. 1 Willie Caldwell presents a graphic variant regarding the differences between the approach manner of some subjects/objectives by the scientific fields and the multi-, inter-, and

transdisciplinary approaches of the same subjects/objectives.

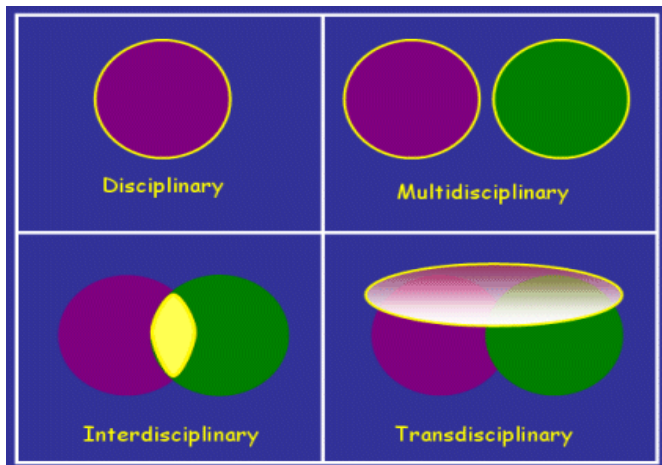


Fig. 1. Relations among discipline, multi-, inter- and transdisciplinary (CALDWELL,2015)

3. TRANSDISCIPLINARY COMMUNICATION

Defining transdisciplinary communication

Transdisciplinary communication represents a complex activity, a characteristic which generates divergencies among authors. Another reason for these differences is the approach method adopted by various researchers in the study and description of this type of communication. Wang et al. identifies some essentialized description manners of transdisciplinary communication with the help of the following terms: “boundary management,” “science-practice interaction” and “the role of translators.” (WANG et al., 2019). For Falk-Krzesinski et al. the phrase “team science” (FALK-KRZESINSKI

et al. 2011) represents the appropriate manner of defining transdisciplinarity because it has to achieve connections between scientists from all fields as well as among them and the people who do not possess a scientific training but represent different segments of the society – investors, entrepreneurs, people who implement and benefit from the results of scientific research (members of the civil society, of different NGOs, political decision makers etc). This characteristic of transdisciplinary communication is synthesized by O'Rourke, quoted by Wang et al., as following: “Transdisciplinary communication is best captured in a socio-cultural conception of communication as the co-construction of meaning in pursuit of a goal.” (WANG et. al, 2019)

Transdisciplinary communication “can turn out to be a new way of communicating among researchers in different disciplines based on a common conceptualization of reality. So, what is needed, besides interdisciplinary, or multidisciplinary teams, are transdisciplinary concepts to unify the knowledge applied, coming from areas that lie beyond traditional disciplinary boundaries” (PĂDUREAN & CHEVEREȘAN, 2010). On the other side, communication allows those involved into transdisciplinary research to “identify the attitudes, perceptions, and needs of each, and on that basis formulate explanations, recommendations and messages about policies and activities that best address the collective interest” (BAGNOL et al., 2016).

Wang et al. graphically present, in fig. 2, a viewpoint referring to the manner in which transdisciplinary communication takes place.

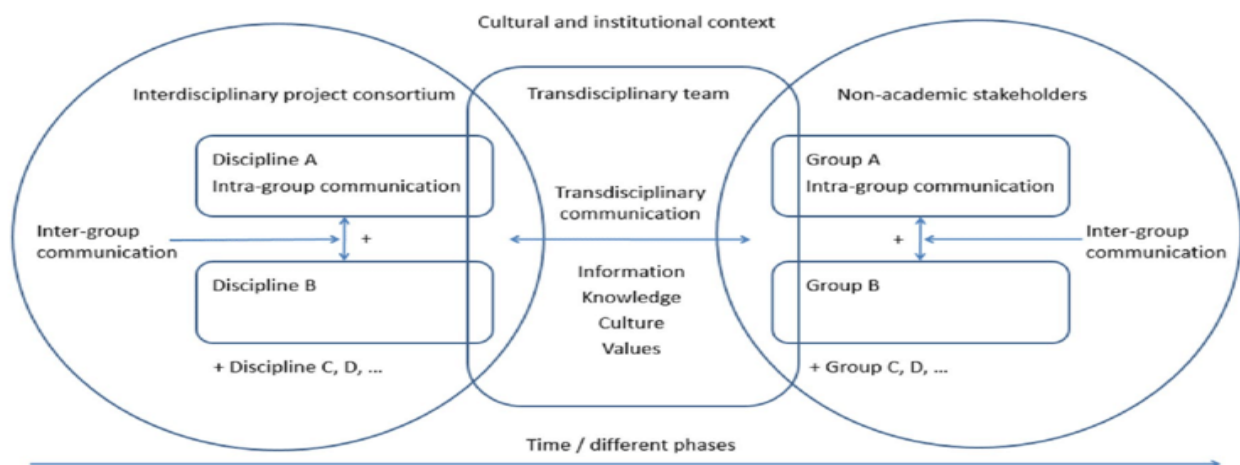


Fig. 2. A presentation variant of the transdisciplinary communication process (WANG ET AL., 2019)

The process of transdisciplinary communication in working groups

Transdisciplinary communication in working groups represents an authentic process whose stages/phases take place both sequentially and simultaneously (in parallel or they overlap).

As it was expected, both the defining and the content of transdisciplinarity, as well as the process of transdisciplinary communication generated and continue to generate various debates and opinions. Referring to the process of transdisciplinary communication, Thomas Aenis considered that it represents “an iterative process rather than a single direction process, i.e., all or parts of the process are repeated with the aim of widening and deepening knowledge” (AENIS, 2010).

A point of view regarding this process, supported by a number of well-known authors in the field consists in: “(i) the early involvement of all relevant knowledge carriers, (ii) a learning discourse with the users of knowledge in parallel with each research phase (from agenda setting to interpretation), and (iii) the use of innovative communicative procedures that enable an intensive exchange of arguments, observations, and experiences” (DARBELLAY, 2015).

Tuckman and Jensen promote the idea that transdisciplinary communication is made out of 4 stages: “(1) forming: coming together and

becoming orientated, (2) storming: power struggle and conflict resolution, (3) norming: development of cohesiveness and open exchange, and (4) performing: functioning as a team and engaging in highly productive cooperation towards common goals (TUCKMAN & JENSEN, 1977).

In my opinion, formed after studying the existing specialised literature, transdisciplinary communication represents a complex process and consists of carrying out several stages within the working groups, the most important of which are: intragroup communication, communication between groups and intercultural communication. Prior to these stages some organizational aspects must be achieved: the development of the working group and of its microgroups, the establishment of the objective and the plan of activity, the norms of conduct, the responsibilities of the microgroups and of each member within them, the ways of resolving possible disputes / conflicts, the elimination of communication barriers and of other aspects specific to each working group, depending on its objectives and composition.

Pohl et al. graphically present, in fig. 3, a viewpoint referring to the manner in which the transdisciplinary communication process takes place within a working group, whose goal is scientific research.

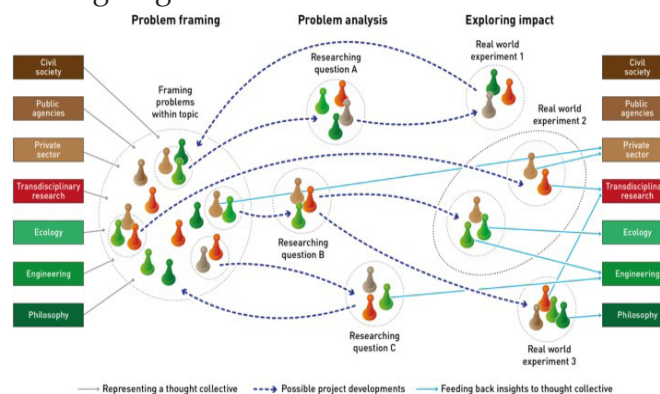


Fig. 3. A presentation manner of the process of transdisciplinary communication (POHL et al., 2021)

Intragroup communication

Communication within each group or microgroup assumes interpersonal communication, usually face to face and the elimination of common and specific communication barriers.

According to professors Gibbs and Beavis, the success of interpersonal communication depends

on personal qualities (perseverance, creativity, the will to learn from others, tolerance, the will to overcome one’s limits, team spirit etc.), on the skills of the group members (the capacity to work in uncertain conditions, the capacity to adapt to new situations, to model, to synthesize and to integrate the knowledge gained etc.) as

well as on those of their leaders who have to stop, at the right time, the appearance of problems and to take adequate measures in order to solve them. (GIBBS & BEAVIS, 2020)

Intergroup communication

Communication between microgroups within the working group is, usually, indirect and is achieved through their representatives. The accuracy of broadcasting messages and the efficiency of the relationships between microgroups in fulfilling the goals of the research depend, according to Thomas Aenis, on the communication ability and the credibility of the representatives, qualities influenced by "competence, character, motivation and personality, which is demonstrated by their leadership style" (AENIS, 2010).

Face to face communication, with the physical presence of two or more microgroups, is used when there are important issues that need to be discussed/decided and harmonized, such as for example the adaptation of the activity plan/plans or the correlation of the of the activity plan of some members or even of microgroups, the reassessment of some responsibilities, the assessment of some research results and possible adaptations / adjustments of the objectives of the stages or even of the general objective of the working group.

Intercultural communication

Approaching the field of intercultural communication, Knapp considers that this type of relationship refers to "interpersonal interaction between members of different groups, which differ from each other in respect of the knowledge shared by their members and in respect of their linguistic forms of symbolic behaviour." (KNAPP, 2015) It is important to mention that this type of communication assumes the harmonization both of the differences derived from organizational cultures and of those generated by the members of the working groups, respectively "the customary beliefs, social forms, and material traits of a racial, religious, or social group" (MERRIAM-WEBSTER DICTIONARY, n.d.).

The unprecedented development of science and technology was and is possible, among others, due to the international cooperation

between scientists, universities, economic companies and the states of the world. The beneficial effects of cooperation are also accompanied by the negative and unwanted ones, such as "communication difficulties and even conflicts because they fail to understand each other in their intercultural communication" (LIU, 2003). Communication difficulties can be overcome through flexibility and availability of the interdisciplinary working group members to adapt, and also through "confidence in the academic rigor and scientific standing of their colleagues from different fields." (BAGNOL et al., 2016)I

Some authors highlight the significance of the translators' contribution to obtaining some efficient intercultural communications. Other authors recommend that scientists/researchers to possess a foreign language very well so that they are able to use a professional language and therefore to avoid the appearance of understanding and interpretation errors during communication with the other members who have a different ethnicity or culture.

4. CONCLUSIONS

Although there are some confusions in defining and understanding the concepts of intra-, multi-, inter-, and transdisciplinarity, they are not opposed but complementary "in scientific research [...], because they have the common goal of understanding reality better" (ZAMAN & GOSCHIN, 2010). On the other hand, intra-, multi-, inter-, and transdisciplinarity represent, according to Basarab Nicolescu, "some arrows drawn from the same bow, that of knowledge" (NICOLESCU, 2010).

Transdisciplinarity is a necessity in order to correctly and fully understand real life because it allows us to accept the simultaneous existence of an object (phenomenon) and of its opposite, an aspect which is impossible in formal logic. (NICOLESCU, 2010)

Due to its characteristics of creating bridges between scientific branches as well as between them and other fields of reality, "transdisciplinarity today is characterised by its focus on 'wicked problems' (Cooper: "'wicked problem' refers to

problem that are difficult to define and inherently unsolvable”) that need creative solutions, a reliance on stakeholder involvement and engaged, socially responsible science” (COOPER, n.d.; GIBBS & BEAVIS, 2020, p. 3)

As Odame and Oram observe, “in today’s world, the field of communication as it applies to mobilizing globally on issues of change and development exists because the future of any community, region or nation rests on processes that involve learning, networking and creating innovations – both technical and institutional.” (ODAME & ORAM, 2013)

The significance of transdisciplinary communication is of the utmost importance as it “is crucial for enabling effective teamwork and engaging research users, regardless of the project’s focus. In transdisciplinary and interdisciplinary projects, effective communication supports a shared understanding of partners’ perspectives, objectives and challenges” (CHAUSSON & COLE, 2021).

The role and importance of transdisciplinary communication in any field of activity, but especially in that of scientific research, can be better observed when problems occur as they “can be partly attributed to inefficient and ineffective communication among transdisciplinary actors.” (HALL & O’ROURKE, 2014).

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