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Beyond the structural modelling for the analysis of organizational performances in the resilience management

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ABSTRACT

L'obiettivo di questo articolo è di esaminare e discutere le prospettive nell'analisi delle performance organizzative emergenti dalla teoria e applicate a studi relativi alla gestione della resilienza e dai concetti di Arena Organizzativa del Mintzberg e di Struttura latente del Merton. Entrambi gli Autori, provenienti da periodi storici differenti, possono contribuire notevolmente al rinnovo delle teorie manageriali, la cui complessità è espressa dalla Interpretive Structural Modelling che è stata proposta come metodo di analisi e sintesi dei risultati. Una alternativa può essere rappresentata dalla semplificazione della metodologia di valutazione la cui applicazione viene discussa in riferimento a tre casi di Progetti Internazionali attuati nei Balcani.

The aim of this paper is to examine and discuss the perspectives in the analysis of organizational performances emerging from the theoretical and applied studies on resilience management. In the non-standard situations of emergency, characterized by extreme challenges and by the submission of organizational structures and processes to severe stresses, it derives a model, useful to evaluate organizational performances, inspired to the concept of arena once proposed by Mintzberg. The target is to detect the latent aspects of organizational performances opposed to the manifest ones, concepts at the basis of Merton's functionalism in the study of social structures. Both Authors, coming from different historical periods and experiences, could give a fruitful contribution to the renewal of managerial theories, whose complexity is expressed in last times by the Interpretive Structural Modelling, with an approach founded on the simplification of the evaluation methodology. This could open a new perspective for the study of the gap between real and perceived performance. To this aim it was examined the application of this approach to three cases of International Projects in Balkan countries having the purpose of improving the resilience of High Educational Systems after the dissolution of previous regimes and consequent civil wars.

Keywords: performance evaluation, performance indexes, simplification, resilience management, organizational arena.

1 – In search of an interpretive model for all seasons

The analysis of organizational performances implies the discussion of many different items in a multi-disciplinary approach. This is the reason that, to avoid a dispersive

process, our analysis will start from a limited number of concepts although validated by the current literature.

The first step concerns the concept of latent structure, coming from classic sociological studies (Merton 1949, Lazarsfeld 1950) and the attempt to individuate, through qualitative surveys, the latent structure and functions of the social phenomena. The second approach, more connected to the practice, is the measurement of performances and evoked the concept of latency with the distinction between real (latent) and perceived (manifest) performances. Finally, there is the interpretative problem connected to the crowding of variables occurring in some critical events such in the management of disasters. The management of catastrophic events requires adequate tools to identify the most appropriate strategy beneath the surface of the no standard situations occurred with the aim to build a shared perspective for people engaged in the recovering of individuals, communities and organizations (Bianchi 2018).

Although of the reduction of topics involved, the exam of the concerning literature shows a series of theories mostly devoted to individuate a model valid for all different seasons of research mainstreams and practical purposes. Merton (1949) took advantage from the functional analysis in distinguishing the explicit purpose from the functional consequences. In the dismissal of an employee for dishonesty, he observed, the explicit purpose of affecting inappropriate behaviour joins the implicit strengthening, in the members of the organization, of a common goal. On the same subject, Lazarfield (1950 and 1958) applied the formal logical algorithms for the identification of the causal relationship between two attributes. Lazarsfeld distinguished complex social objects from the formation of variables, their interrelations and related changes over a certain period. The purpose was to describe the social world by a complex of variables and then to study the interrelations between them. Aside this process, some attentive scholars of management (Cameron 1966, Cameron and Whetten 1983, Cameron 1986) noticed that, in the practice, the analysis of organizational performances increases the number of appropriate indicators. Decades before Guttman called this set of indicators the "universe of indicators" (Guttman 1949).

It should be mentioned the application of the concepts regarding the hyperbolic increase of analytical components, to the study of hyperlinks. In hyperlinks, the multi-phase process theoretically link two elements, but, due to the number of passages, the beginning and the end of the connection remain in practice completely unrelated (Bianchi and Tampieri 2013). To face the uncontrolled proliferation of indexes, researchers and practitioners can choose, for practical purposes, a simplified or reduced pattern of indicators, or a set of grouped indexes that becomes the basis for an empirical work (Di Franco 1999).

In the nineties, the exponential growth of automated calculation and the increasing fastness of computational processes, allowed to overcome previous difficulties of complex calculations connected to factorial and matrix analysis. In last decade this limits practically did not exist anymore but the crowding of methodologies and the uncontrolled increasing of variables and possible interconnections lead to the proposal, still in discussion, of the Interpretive Structural Modelling. (Attri and Sharma 2013). ISM had the aim of supporting scholars in the inference of coherent explicative models otherwise not immediately detectable. In the meantime, the combinatory system thinking broke into organizational analysis connecting quantitative explications to qualitative ones (Mella 2017).

As it concerns managerial theories Mintzberg, after a critic analysis of approaches on the floor particularly as it concerns the study of organizational structures (Mintzberg 1983), proposed to restrict the analysis of complex organizations into five areas characterized by distinct modalities of coordination according to Thompson observations. Also comparing to Porter's simplified approach reducing the vision to three strategies (Porter 1985), the Mintzberg model seems preferred by empirical studies (Moore 2011).

The contribution of Mintzberg to the interpretation of organizational modelling is also connected to the concept of organizational arena in which different actors and ideas are

conflicting and try to prevail. The outweigh of one of the contender models didn't mean that it is the better or the truest but only that it override the others in the restricted time and place in which the confrontation is managed. This perspective was renewed in last times with the studies on the memory of organizations (Langenmayr 2016).

In these studies, concepts like autopoiesis and the process of organizational change (Grothe-Hammer 2018) are retrieved with the production of new forms and stereotypes that influences the change. In the concept of stereotype, the Literature underlines the simplified vision shared by people or groups of people (Buonocore 2009) which influences its perception and its decisions. Most of the studies oriented the research on the influence of stereotypes on the behaviour and the decision process (Burnette et al. 2010) but no attention was reserved to the organizational forms that, as a tool to represent organizations, consist themselves in a stereotype and an agent of metamorphosis. The interest of this idea is that it approaches the rise of stereotypical reactions in the processes of emergency management and highlights the contribution of catastrophic events to the change of organizational forms as once supposed (Churchill, William and Bygrave 1990) and after confirmed (Leybourne, Lyn and Vendelø 2014).

2 - An empirical challenge: from disaster management to structural modelling

In the disaster management, the resilience is viewed as a supportive and coherent process in which forces operate in a positive approach to prevent catastrophes, to face the emergency and to recover an acceptable situation of communities and organizations. Moving away from this optimistic vision, practitioners and researchers pointed up the flourishing of conflicts and disagreements among organizations engaged in the resilience activities (Majchrzak, Jarvenpaa and Hollingshead 2007) and the damages produced by an inadequate conceptualization of approaches to catastrophic events (Kaushal, Dilanthi and Haig 2007).

Furthermore, the connection of many catastrophes to the phenomenon of climate change and controversies on the topic increases the questioning about the definition of the arena involved in the resilience (Fabinyi, Evans and Foale 2014). The SWOT analysis included in most resilience plans, smoothly considers the resilience as an arena in which plays a confrontation among opposite subjects and structures. From the dynamic of this conflict, emerge stances and attitudes affecting the strategies and their evaluation in the management of catastrophes.

Based on the Mintzberg issue about the political arena in organizations (Mintzberg 1985), the arena is defined as a conflictual place occupied by different actors, interests and ideas with functional implications for the organizations. The next discussion on risk management and interpretive models (Pidgeon 1997; Rijpma 1997) evidenced several conflicting hypothesis and approaches whose incompatibility was equal to the damage that these conflicts could produce in dealing with the catastrophes. The arena model of analysis was after extended to the social risk analysis, for a better understanding of individual risk perception (Ortwin 1992; Georgakopoulos and Thomson 2008).

At the same time, in the arena of resilience were evidenced conflicts among different cultures, methodologies and approaches (Lucini 2014). This produces catastrophic effects comparable to the ones of material disasters, not only as it concerns the evaluation of risk but for its practical implications (Garven, and Lamm-Tennant 2003). Any case it remains the problem of evaluating approaches to resilience and of adjusting conflicting measures of performance.

Mintzberg (1985) evidenced four basic types of political arena and described a quite complex model of its life cycles with an extended number of variables and roles. In a next book (Mintzberg 1989) he confirmed this approach and its descriptive perspective but without expressing a clear methodology to evaluate the practical quantitative results. Effectively, the Author did not

explain how to measure different performances of the organization in which different typologies of arena were applied. This restricts significantly the possibilities to validate the model in concrete cases.

Scholars propose, for practical appliance in the management of technical structures, different solutions as it concerns the numerosity of elements to be considered in the evaluation of structural performances under emergency conditions. They start from a two-level taxonomy used to represent the metrics employed with the aim to bring together different taxonomies in a single unified model to simplify the situation (Steinberg, Schindler and Keil 2016) and to reduce evaluative elements in cloud computing services (NIST 2015). To this purpose, Steinberg spoke clearly: *“Optional requirements are those that are not necessary but simplify the implementation of a use case or increase its usefulness”*. Quite diffusion had models based on the concept of Balanced Scorecard and its development (Thakkar, Deshmukh, Gupta and Shankar 2006), which produce an increasing number of elements, and variables to be detected (Sarkis 2003). More complex are the elements taken in holistic methods although using quantitative multi dimensions (Rensher et al. 2011).

The structural modelling introduces a new perspective for the categorization of elements in extreme complex situations, categorization considered as a part of the problem and, consequently, of the model itself (Attri, Dev and Sharma 2013). It distinguishes Latent from Manifest or measured variables and it is described as a set of mathematical models, computer algorithms, and statistical methods that fit to data the networks of constructs. The picture of this model highlights its ability to assess unobservable 'latent' constructs for the evaluation of performances.

In mentors' intentions, the use of interpretive structural modelling in social sciences allows to impute relationships between unobserved constructs (latent variables) from observable variables (Kanungo and Bhatnagar 2002). Just to underline the bearing of this model to the topic, scholars propose its use to improve the Balanced Scorecard in the control of organizational performances (Thakkar et al. 2006). Summarizing, the Merton's initial intuition about the arena in the study of performances remained as a topic in the search of a model in the study of latent and manifest variables. The ISM was explicitly proposed as a tool for the clarification of the perceptions of different individuals in a managerial group in order to improve group decision making.

To limit conflict and increase shared knowledge in group decision making, there is a need to explain differences among group members at the cognitive level” (Bolaños, Fontela, Nenclares and Pastor 2005). At the same time, the evolution of the theory and of the practice in the detection of adequate indexes to measure performances produced an increasing of the numerosity of elements and variables considered in spite of the different levels and tools used to elaborate the acknowledgement process for a meaningful solution. This excess of data and details brought to what Mintzberg defined the fallacy and failure of formalization of managerial processes (Mintzberg 1994). Despite this influential proposal, the concept of organizational arena was no more evoked in this field. Many references to managerial dynamics and conflicts among people and ideas used to this purpose the term “understanding” or “misunderstanding” instead of conflictual or distorted perceptions (Bardach 2017).

3 - Good, cheap and fast. The dilemma of evaluators in performance measurement

There are many categories and variables applied to the evaluation of performances. Cameron (1978, 2010) refers to more of 130 indicators used to evaluate organizational performances in higher education but if someone asks to students what would be the characteristics that have to

be considered in a curricular path, they resume effectively the problem mentioning three qualities: cheapness, fastness and goodness.

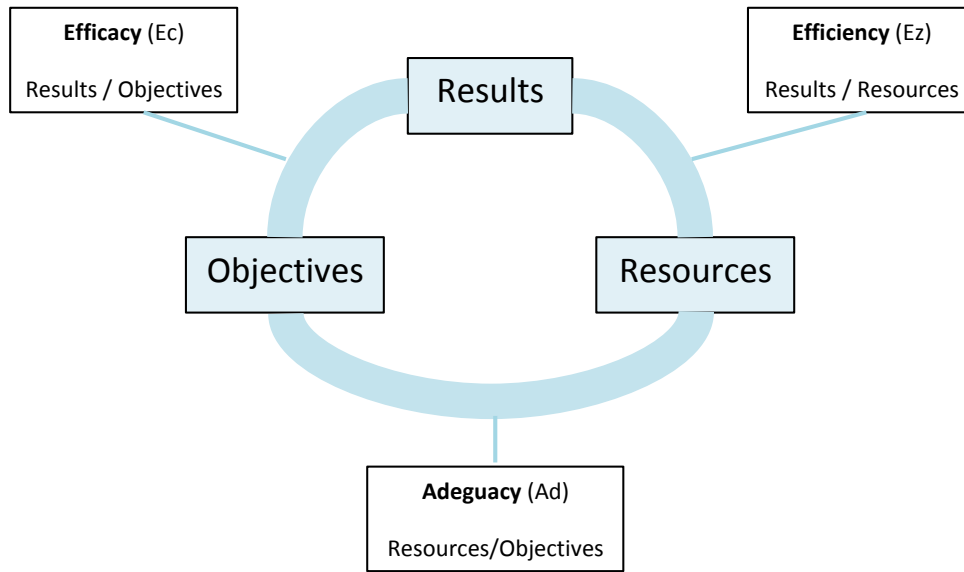


Figure. 1 – Performance indexes and element of organizational process (Source: Bianchi, Branchetti, Tampieri and Valli Casadei, 2014).

According to this inspiration and to the basic elements of an organizational process: Targets, Resources and Results, theory modelled the indexes of Efficacy, Effectiveness and Adequacy (**Figure 1**). These indexes express coherently a system of indicators meaningful for the organizational analysis of performances. This system of indexes represents a pattern of categories (Ec, Ez, Ad) susceptible to be treated as cardinal variables and usable to the emerging of latent aspects and consequently, the gap between real and perceived performances.

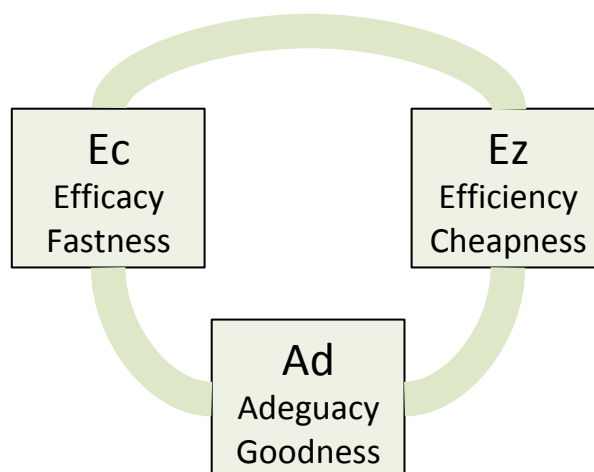


Figure. 2 – Identification of Indexes with the common-sense evaluation (Source: Bianchi and Caselli, 2015)

The hypothesis is to transfer into feasible indexes the common sense normally used in the evaluation as in the scheme at **Figure 2**. This approach can be applied to the evaluation of results in resilience projects as in other subjects and objects in which the performance has to be detected.

For instance, in a project with three main actors: the Staff (or the performers of the project), the Customers (or the beneficiaries) and the Stakeholders (or the surrounding), the survey on the results can be shared as at **Figure 3**, with this order:

1) Beneficiaries, with their main objective to realize in reasonable time the recovering of their previous situations or the impulse to a new restart and focused on the mission to get Results as far as possible near to Expectations. This means Effectiveness.

2) Operators who are mainly interested to the Efficiency of the process as a balanced ratio between results and resources and trust in the beneficiaries' collaboration and in local institution partnership.

3 The third part is represented by external evaluators or, in a wide sense, environmental stakeholders, concentrate their principal attention on the Adequacy of programs and in the institutional re-building



Figure 3 – Identification of data sources in the evaluation process of resilience projects
 (Source: Bianchi, 2010)

In this perspective, the perceptions of these three actors, as relevant in the appraisal of the learning process managed by project staff or operators, are once more interrelated in the whole process of evaluation. In fact, the success of recovering after a critical situation depends from the combined, balanced opinions of Project Staff, Beneficiaries and Stakeholders as Users of skills and initiatives produced by resilience interventions.

To estimate the gap between perceived and effective performance is possible to consider the evaluation of each categories of actors of the process, as representative of a specific point of view in the performance evaluation and applying the algebraic transformation:

$$\text{Adequacy} = \frac{\text{Effectiveness}}{\text{Efficiency}} = \frac{\text{Results}}{\text{Objectives}} \bigg/ \frac{\text{Results}}{\text{Resources}} = \frac{\text{Resources}}{\text{Objectives}}$$

This produces the relationship:

$$Ad = \frac{Ec}{Ez} \quad [1]$$

This result is solidly founded as derived from the main elements of the performance structure, but it produces an apparent contradiction in that it brings the Adequacy to increase with the decrease of Efficiency (Bianchi, Tampieri, Casadei and Paganelli G. 2014).

In practice, the paradox did not exist as applied to concrete cases. For instance, the increasing E_c of a Public Transport Service obtained reducing the number of bus runs can lead to the inadequacy of the decision from the point of view of users wanting more frequent adequate to their needs. Another classical dilemma is between the attempt to increase the E_z of Health Services and the pursuit of the maximum of E_c in ensuring highest life expectations. The derived policies are submitted to a severe criticism as it concerns the decision to reduce the hospital treatments in name of the costs containing.

Furthermore, with [1] we are in condition to calculate the Real Adequacy (Ad_e) corresponding to a real ratio between the organizational performances in E_d and E_z . This opens to the possibility of comparing the Perceived Adequacy (Ad_p) surveyed in the actors of the performance with the real one (Ad_e) calculated by [1].

Interventions in transition countries offer a wide example of organizational processes operating in non-standard and extreme situations (Bianchi, Miller, Bertini 1997). Most of these projects has the target to recover an acceptable situation in economies devastated by starvation, conflicts and climate or environmental catastrophes. The economic transition of eastern countries is another field of intervention of these projects. The challenge represented by the coordination of the project consortium composed by different cultures and competencies and the impact on a foreign and sometimes hostile environment, tests hard the organizational structures and processes pushing the project manager to invent innovative approaches and methodologies. Those features reproduce an adequate experimental space to verify performances and their evaluation methodology in a resilience perspective.

Let us examine this approach to the comparison of performances in three cases of Project Management in developing countries (Table 1). The study, reported in a research made by the Author with others (2014, 2015) was applied to Tempus Projects DOCSMES¹, CHTMBAL² and ISPEHE³.

Reference Category of Perceived Performances	DOCSMES	CHTMBAL	ISPEHE
Staff (Ad_p)	0,88	0,88	0,57
Teacher (E_z)	0,93	0,89	0,54
Students (E_c)	0,91	0,90	0,20

Table 1 - Survey results on perceived performance in three project management cases.

¹ Tempus Project “Developing a Regional Joint Doctoral Programme in Entrepreneurship and SME Management for the Western Balkans Countries” 2011-2013

² Tempus Project “ Network for Post Graduate Masters in Cultural Heritage and Tourism Management in Balkan Countries” 2012-2014

³ Erasmus+ Project “Innovate Strategic Partnership for European Higher Education” 2015-2016

Those projects, dedicated to Eastern Countries⁴, were managed by EACEA and had as Donors UE members⁵. Their purposes were oriented to the democratization of beneficiarys' economies particularly through the support of entrepreneurship and SMES' creation.

The beneficiary countries, Albania, Macedonia, Kosovo, emerged from the catastrophic management of economies by previous regime and from civil conflicts derived by the dissolution of Yugoslavia and of Enver Hoxha dictatorship in Albania. This created, under the pressure of national and international events, emergency situations in which the international community, specifically represented by the UE with its Projects, intervened to modernize the high educational institutions.

Level of Adequacy	DOCSMES	CHTMBAL	ISPEHE
Ad _e	0,98 ⁶	1,02 ⁷	0,95 ⁸
Ad _p	0,88	0,88	0,57
Gap = Ad _e - Ad _p	0,10	0,14	0,38

Table 2 -The gap between the perceived and the calculated level of adequacy.

To fulfil these results projects aimed to:

1. Upgrade curricula to improve their quality for current BSc/specialists, MSc and PhD students by adding new harmonized and standardized study modules in HEIs of beneficiary partners (Partner Countries) to enhance the quality and relevance of education.

2. Transfer European practices in education (learning and teaching tools, methodologies and pedagogical approaches including learning outcomes and ICT-based practices) from participating EU universities to PC universities;

3. Assist competence-related development of teachers within PC universities;

The survey made at the end of the interventions regarded 1) the External Project Staff not involved in the teaching, 2) the Teaching staff and 3) the Participants to courses and initiatives to promote entrepreneurship and self-achievement.

In details, to participants was submitted a questionnaire of 10 questions with five possibilities each graduated according to a different level of agreement from 5 to 1. The result was referred to the maximum of score attributed to each question and allows to obtaining an index comparable among subjects and projects. That surveys was assumed as detection of the perceived performance in which the External Staff represents the Adequacy, Teachers the Efficiency and Students the Efficacy (**Table 1**).

As the subject is the performance in Project Management, the Adequacy could be representative of this performance and calculated by the ratio between the Resources used by the project and the Results scheduled and assumed by the Perceived Adequacy (Ad_p). Aside this measure, applying the [1], is possible to obtain the calculated performance deriving from the ratio between Efficacy and Efficiency, accordingly with methodology above described, the

⁴ Albania, Kosovo, Macedonia.

⁵ France, Italy, Latvia, Spain, Poland, Slovenia.

⁶ Ad_e = 0,91 / 0,93 = 0,98

⁷ Ad_e = 0,90/0,89 = 1,02

⁸ Ad_e = 0,54 / 0,57 = 0,95

effective performance (Ad_e). The difference between the two results produces the measure of the eventual gap between Effective and Perceived Performance ($Gap Ad_e - Ad_p$) (**Table 2**).

In the restricted field of the evaluation of projects' management, this result confirms the situation stated by previous researches, in similar projects and locations (Transition Countries or situations after catastrophic events) in which the perceived performance was lower than the effective, opening the way to more extended validations. Some of these considerations were about the capability of Donors' Partners to evaluate correctly the real results fulfilled by the projects they support (mainly pessimistic, Lelè 1991, Moyo 2010) and the perspective in which the results have to be located (with a more optimistic approach). Although the short period the situation of Eastern Countries become better in the middle perspective confirming that seeds planted by the projects initiatives, by the teaching and the entrepreneurial fertilization were fruitful.

4 - Conclusions

In a wide sense, the proposed model could open a new perspective in the evaluation of performances in case of multidisciplinary approach and multidimensional measurement characterized by conflicting interpretations and exceeding number of indexing. If we accept the existence of a latent structure of organizational behaviour distinguished by the manifest one, the three indexes system and its interdependencies, theoretically founded, and the derived real and perceived performance could be submitted to a more extended trial of validation.

A serious limitation of comparison among the performances of Different Projects are connected to the variety of composition of Project Staffs and Participant and to the restricted field of HEIs Modernization processes. This limitation is understandable as we are moving in an experimental perspective of a new instrument with a very restricted area of literature concerned owing to its novelty. A contribution to the comparability of the performance indicators used could also derive from the improvement of a protocol accepted by the scientific community and by international organizations working in the quality of resilience procedures. This would allow a comparable measurement of the indices of Ec , Ez and Ad and a more reliable calculation of the GAP between real and perceived performance, allowing the resumption of a debate perhaps too soon abandoned after Cameron's studies on the subject (Sutcliffe and Vogus, 2003).

Further subjects of meditations was related to the relationship between the perception of performances and the level of emergency. In the wider concern of countries, studies considered distortions of perceptions related to the well-being and development of economic systems (IPSOS Mori 2014, 2018). At the same time is mentioning that the less rich countries and more frequent beneficiary partners of international projects for the development have a more optimistic idea about the future and the success of their efforts to better the situation.

People also under-estimate their performance with negative effects on the motivation. The mentioned study reveals the huge gaps between perceptions and reality on a number of key issues in different Countries. Istituto Cattaneo confirmed these data in a more recent study (Valbruzzi 2018). These misperceptions present clear issues for informed decision making of organizations. For example, the decision to innovate or to undertake projects to enhance companies may be differently accepted and supported according to the optimistic or pessimistic perception of the management and its view about the economic perspective and the opportunities of competitive advantage gained by the company (Mitran and Golder, 2006).

It is not the first time that the attention of scholars is attracted by these apparently disconcerting results in different fields. In the risk management it happens with the study on the role of communications and emotions in the decision making perception. In the evaluation of the social risks is discussing the difference between quantitative and qualitative estimation

of events. Also the gap between real and perceived risk and the discrepancy in the perception of quality, attracted scholars and technicians.

The distinction between real and perceived in a quantitative science such as meteorology has been the subject of criticism; however, they have not influenced the widespread use of the parameter and the search for adequate indexes to measure the real-perceived difference.

Although that, differences in perceptions do exist and the relevance of the phenomenon, particularly in resilience processes, open the way to more extended and focused researches.

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