

# A Phenomenological Method Based on Professional Descriptions of Community-of-Practice Members to Scientifically Determine the Level of Child Psycho-Social-Emotional Development

Gianni Jacucci

**Abstract**—Some sociology concepts have become common sense: Successful communication of meanings requires the sharing of “sedimentations” of previous meanings. A common professional basis is required for a correct sharing of meanings, e. g., “standardised accounting data among accountants”. The accounting of social events must be carried out in the same language used by the actors of those events in managing their practice. These concepts let emergence *ante litteram* the concept of Community of practice: We advocate professional descriptions of the community of practice members to scientifically determine the level of child psycho social emotional development. Our approach consists of an application to Human Sciences of Husserl’s Phenomenological Philosophy using a method reminder of Giorgi’s Descriptive Phenomenological Method (DPM) in Psychology. Husserl’s requirement of “Epoché,” which involves eliminating prejudices from the minds of observers, is met through “concept cleaning,” achieved by consistently sharing disciplinary concepts within their community of practice. Meanwhile, the absence of subjective bias is ensured by the meticulous attention to detail in their professional expertise. Our approach shows promise in accurately assessing many other properties through detailed professional descriptions of the community of practice members.

**Keywords**—Scientific rigour, descriptive phenomenological method, sedimentation of meanings, community of practice.

## I. INTRODUCTION

### A. Scientific Rigour out of Subjective Data: Giorgi’s DPM Method

TO get an opinion on the efficacy of a certain therapy supporting children with psychosocial emotional differences, one could directly ask the therapists involved in performing that therapy. To obtain a scientific proof of that efficacy, however, one must revert to an empirical method, as opinions are subjective. This is the mainstream view today, within the medical and special education communities. Yet, on second thought, the common opinion of a group of therapists cannot just be disregarded, and it should not be: Researchers need a way out.

One century ago, Husserl [1] stated that scientists should take phenomenology—not empiricism—as the correct philosophical basis for all sciences, especially those that address facts in the conscience, which lay outside of sensorial experiences and are

not accessible to empiric proof. The question about phenomenological investigations then arises: What method yields scientifically valid proofs? In the therapy dilemma above, how should researchers ask therapists about their opinions and how should the researchers treat their answers to obtain scientifically valid proof by following Husserl’s suggestion and using phenomenology as a philosophical basis? Furthermore, should researchers appropriately prepare in advance the therapists involved?

We provide answers to these questions in the field of paediatrics. We do so by using a method analogous to the Descriptive Phenomenological Method (DPM) defined by Amedeo Giorgi for Psychology in 1970 [2], [3]; see also [4]. A confrontation with DPM guides design choices of our Scientific Query Experiment (SQE). The answer requires the intentional construction of an appropriate ‘Actor-Network’, enrolling in it both human, and non-human or material actors, and the delegation to that network, of important action elements of the prescribed scientific analysis, while charting child development.

### B. The Scientific Query Experiment

To ensure the scientific rigour of results, Husserl’s Descriptive Phenomenological Philosophy (DPP) [1] provides controls while utilising intuition to access facts-in-the-conscience: devoid of references to prior knowledge, unconcerned with matching the real world, and incorporating checks of free imaginative variations. Giorgi [2], [3] has extended Husserl’s DPP, defining the methodology of his DPM for scientific research in Psychology. This method holds the potential for extension into other disciplines in the realm of Human Sciences. It presents a way to extract the genuine disciplinary meaning of relevant phenomena: what we are set to do here.

In the following we effectively apply DPP to define a Method, analogous to Giorgi’s DPM, to conduct an SQE successfully. Let us recall that Giorgi’s DPM declaratively entails meticulous descriptions of the observed phenomenon, captured from a natural perspective and faithfully conveyed by an uninitiated participant. To extract scientifically relevant meanings within the discipline, these descriptions are subjected

Gianni Jacucci is with the Department of Information Engineering and Computer Science (DISI), University of Trento, Via Sommarive, 9 I-38123 Povo (TN), Italy (e-mail: gianni.jacucci@gmail.com).

to analysis by a researcher who adopts a phenomenological attitude, devoid of reliance on prior knowledge and unconcerned with congruence to the real world. This process involves verification through various free imaginative variations, serving as stringent controls to ensure scientific rigour in capturing the essence of the phenomenon, expressed in an eidetic form.

In the experiments we intend to conduct, it is imperative that those exposed to the phenomenon hold the reference theoretical knowledge structure in their minds. In order to respond to the query, this structure, in its uncompromising details, is not to be "bracketed" but meticulously compared with the phenomenon by intuition. Let us see what measures we can employ to achieve this. We propose, for scientific experiments of this type, an approach that imposes directly on the observer part of Husserl's DPP requisites that Giorgi's DPM poses on the researcher. The approach amalgamates observation, description, and reporting, conducted by a conscious, experienced professional, within their professional attitude. It entrusts the scientific controls of Husserl's phenomenological perspective to the fusion of the professional's intuition with their tacit personal knowledge, the very one shared with their community of practice, mirrored by the structure of the reporting artefact. The therapists' personal professional knowledge grants the pure rendition of the object, by their immediate intuition in front of the phenomenon, correctly reported because of the alignment, by design, between structure of personal knowledge and structure of reporting artefact.

After recalling relevant theory elements of Phenomenology, the focus of the present paper revolves around the illustration and discussion of a sample SQE, along with the description and sustaining of its scientific foundations.

## II. THEORY

### A. Husserl's Phenomenology, Philosophical Foundation of all Human Sciences

As Giorgi points out [5], Husserl's research based on Transcendental Phenomenology [6], [7] has been able to capture the distinctively "human" aspect. Husserl phenomenology employs a descriptive approach, both as philosophy and method. For him, intuition is the basis for knowledge acquisition, while interpretation is a default position. Intuition is "... how phenomena present themselves to acts of consciousness. The modes of appearance of all objects are meant to be described ..." [5, p.20]. "... the phenomenological philosophical method ... consists of three basic steps: experience or imagine a concrete phenomenon and carefully describe it; second systematically but freely vary dimensions of the phenomenon in order to ascertain its essential features; and, third describe the essence that has been discovered, once the method of free imaginative variations has been completed. This is also known as the eidetic reduction of the concrete phenomenon..." [5, p.20].

"The ultimate outcome of phenomenological analyses are eidetic expressions concerning the meaning of experiential events. What phenomenology adds to normal scientific

analyses are the probing into subjective acts that are the correlates of worldly presentations." The term "correlates of worldly presentations" refers to "the inner experiences that correspond to, or are associated with, the external events or phenomena that we encounter in the world. Phenomenology recognises that our experiences are not just passive receptions of sensory inputs, but they involve active interpretation and consciousness. In mundane terms: the last statements emphasise how phenomenology contributes a unique perspective to scientific analyses, in contrast to more conventional scientific approaches. It focuses on understanding and exploring subjective experiences, particularly how individuals perceive and interpret the world around them. In "normal" scientific analyses, researchers often prioritise objective, measurable, and quantifiable data. They aim to uncover patterns, relationships, and general laws that apply to a broader population. This approach tends to overlook the intricate and rich nuances of individual experiences and the meaning people attribute to their encounters with the world" [8]. "Phenomenology, on the other hand, delves into the realm of subjective human consciousness. It seeks to understand the essence of human experiences, the way individuals make sense of their interactions with the world, and how they perceive and interpret phenomena. By examining the subjective acts (thoughts, feelings, perceptions, etc.) that accompany our encounters with the world, phenomenology adds depth and context to our understanding of reality" [8]. "The result of the application of the scientific phenomenological method are eidetic descriptions that are general and based upon intuitions that are clarified with the help of the procedure of imaginative variations" [5, p.22]. But the connection to the real world requires, in principle, further analysis. After solving this vulnerability, in the sequel we shall see how in the case of the SQE, descriptive phenomenology can lead to the establishment of scientific evidence.

### B. Phenomenological Research

Let us see what specifically is phenomenological understanding. For Heidegger, a philosopher very close to Husserl and one of his students, "The phenomenological understanding is nothing else than an intuitive going along the meaning. It must stay close and present to the total situation of the phenomenon ... capacity to accompany—being intimate—"love." Love as motivating ground of the phenomenological understanding—given necessarily in its sense of enactment" [9, pp.185 and 262].

The strength of Husserl's innovative philosophy lies in the recognition that facts derived from the researcher's conscience, transcending natural objects, are considered just as real as those regarding natural objects. Husserl's phenomenology concentrates on capturing the essence of a phenomenon by accurately describing it, and clarifying its meaning of essence – prioritizing description over interpretation, construction, explanation. Descriptions of the essence of phenomena are taken as real and scientifically valid. When carefully cleaned by phenomenological Epoché (no reference to expectations from past experience) and transcendental reduction (no

preoccupation of actual reality), phenomena are found in their factual details. These details are guided by the subject's intention, illuminated by discovery through phenomenological intuition, shared by intersubjective dialogue with the participating research community, and subjected to free imaginative variations [1], [6], [7], [10]-[13]. We shall keep this in mind in the following.

#### *C. Giorgi's Modified Approach: The DPM Method for Scientific Rigour*

The scientific foundation of humanities is based on Husserl's phenomenological philosophy. Psychology, in particular, can be founded scientifically as a science of subjectivity, preserving the distinctly human elements within it, as Giorgi [2], [3], [5], [8], [14], [15] has established. Giorgi performs methodical, critical, systematic, and general research. He uses a descriptive approach founded on intuition, detail, and intersubjective validation [16]. For our purposes, however, Husserl's philosophy alone is insufficient. We require Giorgi's method [2], [3] to bridge the gap from philosophy to science – just as he has achieved psychology, and beyond, as we are set to do.

“Since Husserl's method is philosophical, any strict application of this method will produce philosophical results. As psychologists, we desire results that are psychological and scientific, not philosophical; consequently, some modifications were made to Husserl's method in order to produce results that are scientific and psychological. The justification for these modifications has been published elsewhere [3], so we will only list the modified steps here. The scientific phenomenological method encompasses the following steps: (1) One obtains a description of a concrete experience from participants; (2) One then assumes the phenomenological psychological reduction as well as an attitude that is sensitive to the phenomenon being researched; (3) One reads the description provided by the participants in order to get a sense of the whole; (4) The researcher then rereads the description and establishes meaning units - i.e., parts of the description that have a relatively coherent sense; (5) One then transforms the meaning units into phenomenological and psychologically sensitive expressions; (6) Finally the researcher integrates the data and uses free imaginative variation to help determine the psychological essence of the experience” [5, p.21].

DPM declaratively entails meticulous descriptions of the observed phenomenon, captured from a natural perspective, and faithfully conveyed by an uninitiated participant. To extract scientifically relevant meanings within the discipline, these descriptions are subjected to analysis by a researcher who adopts a phenomenological attitude, devoid of reliance on prior knowledge and unconcerned with congruence to the real world. This process involves verification through various free imaginative variations, serving as stringent controls to ensure scientific rigour in capturing the essence of the phenomenon, expressed in an eidetic form.

#### *D. Subjective Experience and Reflection, in Human Sciences*

Having established DPP and DPM for Psychology, we shall now move in the direction of the social sciences. We do so, with

the concept of *Community of Practice*, from sociology of professions.

Let us see what leads to the subjective divergence both among facts-in-the-conscience of different individuals, and between those and facts in the real world. Essentially, subjective divergence is caused by individual prejudices and hallucinations. Let us see how these can be cured by recurring to a social dimension.

As facts-in-the-conscience central to human sciences – perceptions, intuitions, emotions – are not directly accessible to objective verification, prejudices and hallucinations, of auto-poetic origin [17], [18] or not, pose challenges to basing human sciences on facts in the conscience. This is a central concern of Husserl's phenomenology, addressed with his commitment to Epoché. Let us see how Epoché can be applied in a practical situation. We note that rectifying perceptual biases necessitates cultivating awareness through experience and diligent critical sharing with peers, as seen, for example, in professional training within a community of practice. And, let us see what are the practical evidences of interference of consciousness and subjectivity with the scientific discourse. And, finally, let us also see who else has ever considered explicitly the very existence of such an interference. Let us go back to the very beginning of phenomenology, by recalling Schutz, as done by Bednar and Welch [19]:

“When elaborating upon ‘meaningfulness’ Schutz (in [20]) questions how it is possible for any mutual understanding or communication between people to take place ... He reflects that such possibilities can only be approached via ‘sedimentation’ of pre-interpreted experiences built up through conscious life. Any justifiable methods for interpreting social interrelationship must then be based on careful description of underlying assumptions and their implications. He goes on to suggest that the methods of the social sciences cannot be regarded as adequate to this task.” [20] We note that, at Schutz times, human sciences performed with the objectivist epistemology of natural sciences. Bednar and Welch then go on: “They require a philosophical analysis. And phenomenology ... has not only opened up an avenue of approach for such an analysis but has in addition started the analysis itself” [20, p.56]. This concept of a ‘sedimentation’ of pre-interpreted, lived experience comes about, for Alfred Schutz, through reflection. ... Thus, meaningfulness can only be attributed in retrospect. ...”

The authors then go on to link these first thoughts on phenomenology to the first thoughts on information systems, formed in what goes under the name of socio-technical perspective:

“In considering Schutz's view, the authors are reminded of the work of Börje Langefors, in the mid Sixties [21], with the “Infological Equation”. Reflecting on the nature of information systems, Langefors suggests that those people who are to interpret data in order to inform themselves must be viewed as part of the system. ... Meaning (information or knowledge) is thus created by each individual. Pre-knowledge ... is considered to be created through the entire lived experience of the individual concerned (cf Schutz's concept of

'sedimentation'). ... He observes that communication may be seen to approach success most closely where individuals interpreting the same data belong to a group, definable for example by ... common professional interest, e.g., standardized accounting data among accountants" [22, p.144].

These rather profound considerations form the theoretical basis for defending the nature of our SQEs, which focus on a community of practice members as phenomenological observer-describer actors in a DPP approach illuminated by Giorgi's DPM.

### III. SITUATING THEORY IN CONTEXT

In the sections to follow, we shall illustrate and then discuss an example of SQE. For this, we shall immerse the reader in *medias res*, with details of studying phenomena by accurate descriptions of observations, unveiling, for example, the intersubjective dialogue between child and mother.

In our SQE, the objective is to obtain a rigorously scientific answer to a specific question. This question is formulated in the context of an approximate, available theory, which is employed as a point of reference, used as comparison, while observing and intuiting. As anticipated in the introduction, it is imperative that those exposed to the phenomenon hold the reference theoretical knowledge structure in their minds. Furthermore, it is mandatory to maintain observation and analysis in direct contact, precisely at the juncture of professional intuition, thus amalgamating observation, description, followed by reporting. As a result, most of the human activity in observation and analysis is conducted simultaneously by a conscious, experienced professional actor, within a professional attitude. As a consequence, the scientific controls inherent in Giorgi's DPM must be directly applied to the activities of this individual. Who is helped in the task by a design of the SQE that entrusts the scientific controls, linked with Husserl's and Giorgi's phenomenological perspectives, to a fusion of the professional's intuition and tacit personal professional knowledge, as well as the mirrored structure of the reporting artefact, while the observer-analysing-reporter confronts the phenomenon with knowledge, both structured in their uncompromising details.

In the present section, we see how this is accomplished by introducing and discussing a specific case: the determination of the level of development of children with psychosocial emotional differences. We will begin by defining the concept of child psychosocial emotional development, along with its observation and description. Then, we will present our case study: a phenomenology guided SQE evaluating the efficacy of the "DIR" protocol in facilitating the development of special needs children. Finally, we frame our theories within the SQE, presenting ideas supporting the adaptation of the phenomenological method to this case.

#### A. Studying Child Phenomena by Accurate Descriptions of Child Observations

Phenomenology is defined as the study of phenomena in the world as experienced by conscious beings and as the method for investigating such phenomena [12]. "A phenomenological

analysis of a research situation is performed to demonstrate what is essential to it..." [13]. Phenomenology is dazzling, original, profound. Our example of descriptive phenomenological approach to the investigation of phenomena is based on child observations, with the noticing of facts about the level of development of their psychosocial emotional behaviour. Here, we anticipate views from the pioneer on accurate, phenomenological child observations, an authentic phenomenological researcher. We quote in his own words Daniel Stern [23, p.2]:

"The observations on which this book was based began in the late 60s. At the time only a handful of people were observing parent-infant interactions, especially naturally occurring ones, in minute detail. Such close observations had only just become possible, thanks to the new availability of portable television and movie cameras that were reasonably priced and not impossibly heavy. TV became the new microscope for seeing behaviours that passed in a split second. You could look in slow motion, freeze a frame, review as often as needed. A fascinating world opened up - a small world, but the foundation for so much else. When you have the opportunity to be among the first people to see a new world, many of its surprising features are striking enough that they force you to re-evaluate your preconceptions. You quickly grasp a new perspective and new realities, such as the fact that nonverbal behaviours like those observed in animal ethology - a head pushed forward, or tilted up, or turned away rapidly to the side and down -, need to be the starting points for observing human social behaviour. This original perspective and the ideas that it gave me have played leapfrog with the ideas of many others over the years ... Unexpectedly, the people that were originally most interested in these kinds of observations, were choreographers and dancers."

Continuous video recording: our therapists enact the same micro observation of child behaviour.

#### B. Child Development

A child's personality is shaped by the ongoing and individualized interplay between "nature" and "nurture" during their interactions with their parents. Parents can significantly influence how a child utilizes their innate abilities, thereby making a dramatic difference in their development. A child desires to be present and participate. They learn everything from their early experiences. Through careful phenomenological research [23]-[25], we have recently come to understand that in their early months and few years, children learn new abilities mostly from relating to people, not just interacting with objects of the world. Caregivers' nurturing of a baby is essential for social and intellectual growth. Emotions they feel in their experiences of relating during nurturing provide motivation, serve as catalysts, and act as glue on their neurones for capturing, consolidating, and developing. Communication always consists in both content and relation; the communication with their caregivers consists of relation in greater art than in content. Nonverbal and verbal elements that

are exchanged enmesh feelings rather than pieces of information. The opposite is true with respect to words in a book. Communication acts flourish in the infants private, exclusive environment of shared understanding, of complicity: an intersubjective dialogue takes place. When this is insufficiently present, therapy needs to resume and substitute for this dialogue, as it is precisely the process needed. Stern believed that the ability to engage in intersubjective dialogue and establish meaningful relationships with others, especially during infancy and early childhood, is crucial for the survival of the human species. He argued that human infants are born with a predisposition for social interaction and communication [23]-[25]. Infants are not passive recipients of sensory input but actively seek out social and emotional connections with their caregivers. Development never stops; this mechanism works for school-aged children, teenagers, and even adults, as indicated by Brazelton and Greenspan [26].

### C. The Context: Assessing DIR Practice as an EBP, with an SQE

As already reported in [27], the case study was hosted at the Joy Center [43], an American paediatric clinic for children with special needs of English-speaking military families from NATO bases in Italy. Joy Center also simultaneously hosted a related intervention study on innovation [28].

Here is the research question of the case:

Can we enact scientific research based on a descriptive transcendental phenomenological method, assessing child psychosocial emotional development from daily therapist treatment notes, in a way that is credible to the concerned professional communities?

We answer this research question in the positive, by verifying the applicability in an SQE of the phenomenological requisite of Husserl's DPP, complemented by other ones analogous to those of Giorgi's DPM.

The specific question of our SQE is whether special children under the DIR/Floortime treatment defined below - resume their halted psychosocial emotional development. Five therapists of the Joy Center clinic with five children each in their care participate in our study. The experiment lasts 3 months. The data consist of 25 pairs of Daily Treatment Notes (DTN), filled in and reported for each child: one at first session (child evaluation) and one after 3 months of clinical treatment. The therapists insert meaningful excerpts into the appropriate DTN slots. The resulting DTN are recorded onto the clinic Information System (IS) and later offered for offline analysis. Comparing the DTN pair for each child is instrumental in showing eventual improvement. We extract the overall trend of progress.

In substance, our SQE is about using an ad hoc scaffolding support in a clinic's information infrastructure to promote and record descriptive data expressed by therapists based on their subjective observation and evaluation and in the authentic language of their profession, in which they are well trained, as part of an intentional and accurate descriptive phenomenological investigation of a child's behaviour, under treatment. Human functions of reporting and analysing are

enacted through the information infrastructure that crystallises, for automation, portions of the intended human performance. Scaffolding support structures and functionalities are primarily designed to carefully respect, record, and render the original genuine conscious events and meanings. Meanwhile, therapists observe the phenomenon and simultaneously analyse the data on child behaviour. The core feature of the present approach, which helps researchers implement an analogy to Giorgi's scientific method, is the fact that the conceptual framework employed by therapists in performing their specific therapy, namely the Developmental, Individual differences, Relational (DIR): the DIR/Floortime treatment theory developed by Greenspan and Wieder [29]-[31], supporting children with psychosocial emotional differences, offers in its detailed and coherent articulations — the FEDL scale—guarantees of controlling for researchers, in analysing descriptions of child behaviour, the basic dimensions of scientificity in Giorgi's method [8]; the FEDL describing in fine detail the behaviour of children at any level of development [45].

We cannot overvalue Greenspan and Wieder's DIR/Floortime [29]-[31] theoretical framework in this endeavour. In fact, our ad hoc scaffolding support for a clinic's information infrastructure is the precisely construed and articulated DIR treatment approach, including the FEDL scale: i.e., the same professional language routinely used by therapists in their work. Without the efficacy of this theoretical framework, socially shared in the professional community of skilled therapists in the clinic and employed as the ad hoc scaffolding support for both capturing the essence of therapists' thoughts in their own conceptual terms and guaranteeing the respect of Giorgi's requirements [8], we would not be able to go beyond the collection and display of, albeit possibly useful, arbitrarily collected and reported opinions.

What we are after is the acceptance of our SQE as a legitimate procedure to eventually grant the status of Evidence Based Practice (EBP) [32], [33] to treatments under test [34]. To be sure, our research outcome needs to gain credibility and recognition of its scientific validity among concerned professional communities - paediatric [32], [34], [35] and educational [33], [35]-[37].

## IV. METHODOLOGY

### A. Design of the SQE Experiment

Giorgi's DPM [3] for investigating phenomena is contingent upon precise descriptions of observations captured from a natural perspective, and faithfully conveyed by an uninitiated participant, analysed *a posteriori* by a researcher in the phenomenological attitude.

SQEs are based on accurate observations, including video recording, carried out by professional members of a community of practice; and on articulated descriptions, expressed and recorded in the conceptual language of their profession; structure and dynamics of SQEs being carefully designed by researchers who are conscious of basic aspects of the phenomenological attitude. By defining the features of the SQE, we define a descriptive phenomenological method for

human sciences, for which we take responsibility. This method is different from Giorgi's DPM. By considering Giorgi's DPM method in detail has assisted us, however, in the selection of appropriate design-choices for the SQE, ensuring that, *mutatis mutandis*, Giorgi's requisites for scientific rigour be in fact met in detail also in SQEs.

In the SQE described in Section III, the entire experimental design is intended to be formulated by adopting the SQE method. By design, all adept therapists are members of a Greenspan's DIR Community of Practice. In their professional attitude, they observe child behaviour both directly and offline from video recordings. In fact, as in Stern's research [23], video camera recordings serve as the unbiased back up source for depicted observations. Immediately after the adept therapists detail their observations within structured DTN the structure of which has been previously formulated by same researchers as above, adopting the SQE method, rigorously based on the conceptual framework of their therapeutic profession. Perception, executed purposefully, is the distinct privilege of each therapist, performed professionally: no hallucination, no distraction, no bias - except a solid DIR FEDL view of children behaviour. Description, guided by phenomenological intuition, is undertaken individually by therapists when compiling DTN from their perceptions. While describing their observation in the DTN language, therapists encounter their familiar professional expressions only. Particularly within the concluding section of DTN, therapists assess qualitatively to each stage of Greenspan's Functional Emotional Development Level (FEDL) scale, denoting the child's level of achievement in that behavioural step, and then allocate conventionally a value from 1 to 7 to their assessment. That is, a Likert scale helps translating qualitative statements into numerical values. Thus, a tailored scaffolding support within a clinic's information infrastructure facilitates the promotion and documentation of therapists' descriptive data. These data, expressed in their expertly trained professional language, are based on their subjective observations and are objectively gathered in a professional attitude. This process forms an integral part of a meticulous and precise descriptive phenomenological investigation into a child's behaviour during treatment. Human reporting and analytical functions are executed through the information infrastructure, which crystallises select aspects of the intended human actions for an automated analysis.

The key strength of this approach, facilitating the application of a scientific method by researchers, lies in the utilisation of the conceptual framework employed by therapists within their specific therapeutic practice. Specifically, the (DIR)/Floortime treatment psychological theory developed by Greenspan and Wieder [29]-[31] forms the basis for articulating child development behaviour across distinct Functional Emotional Development Levels (FEDL). The tailored scaffolding support within the clinic's information infrastructure (accounting) aligns precisely with Greenspan and Wieder's DIR/Floortime treatment approach [29]-[31], which constitutes the language employed by therapists in managing and executing their therapeutic work.

Basic assets of the methodology are: the FEDL Scale, and the structure of DTN. These are available in detail, for eventual reference, in [44], both for the evaluation of the soundness of the SQE method used in this case, and for providing the reader with useful guidelines in future applications of the SQE method in other areas of interest.

Let us consider the structure of the DTNs. DTN at the Joy Center consist of descriptions and predications of various aspects of child behaviour in the session, including assessing development stage status and plan for future treatment, which the therapist in charge for documentation compiles and later references. DTN support seamless, streamlined compilation. They are routinely accessible to management and all therapists. DTN are the basis for intersubjective dialogue, sharing, continuous training in their community of practice, for mentors' supervision, and for extracting information to parents and insurance companies. DTN also help researchers who read about the reporting therapist's conscience. Further, they encourage open, volunteered comments that allow critical thinking and control. Yet, when incorporated in a scaffolding structure, they enforce the method, system, generality, and completeness. Direct inspection helps showing that the methodology described satisfies all mentioned science requisites.

#### *B. Robustness of Theoretical Foundations for a Rigorous SQE*

Let us consider critically the SQE, to which all phenomenology requisites must be applied, and acknowledge that our peculiar phenomenological SQE is characterised by the presence of "an elephant in the room", or actually "two elephants": 1) an arbitrary knowledge structure in the mind of both therapists and researchers, and, 2) the involvement of therapists in the analysis of the observed facts. Circumstance 1) is somewhat original in the literature of the subject; it would disturb the generic phenomenological investigation of a phenomenon; but it does not, and it is in fact essential to the experimental set up of SQE. Therefore, it should not be bracketed, as it provides the reference point during observation while granting the observers with the necessary professional attitude, and it guides researchers in the design of both the experiment and DTN. Circumstance 2): normally, reporting and analysing activities are kept separate to avoid any suspicion of bias in the analysis. Consequently, the present situation of an observer-analyser-reporter is generally avoided, e.g., in psychology applications of Giorgi's DPM [8, pp. 180-181]. We cope with this situation in the following ways:

- *Circumstance 1*: Facts in the conscience of our therapists - and researchers - while confronting phenomena regarding child development, are not impaired but promoted by their personal professional knowledge, and they can safely compare them without prejudices or hallucinations.
- *Circumstance 2*: The use in SQE of a minutely detailed scaffold structure in defining and confronting the observed phenomena - consisting in the finely differentiated descriptions of child behaviour corresponding to the FEDL scale's steps and Likert scale sub-steps-both elicited in

detail in the Appendix - generates a peculiar, uncompromising situation, granting unbiased analysis and reporting of the observed facts.

This is a complex research situation. Professional descriptions come via therapist reports or data taken by another person. The DTN structure enforces the methodology of gathering facts from therapists' consciences, making facts available to the researchers' consciences. Part of analyses, meaning discrimination, and intuition into crisp data phenomenologically takes place, beforehand, in the researchers' consciences, while designing the experiment. The rest is delegated to capturing therapist intuition through a carefully designed, non-intrusive information infrastructure, along classical critical considerations of the relation between computers and cognition, including phenomenological aspects, and the semantic and pragmatic analysis of natural language use. The connection between DTN structure and intended methodology is the intellectual epistyle, or architrave component, of the study. We provide detailed information on our DTN, as transparency, openness, and replicability are crucial to trustworthiness [36]. We invite others to use the DTN in their studies as a scaffolding conceptual structure. The key point is that the analysis process is foreseen ahead of time, partly prefabricated, and carefully crystallised into the original-DTN structure of our ad hoc Information System (IS). The IS limits itself to recording bits of therapists' descriptions in appropriately prepared slots as pre-analysed data, strictly in the conceptual language of the profession. Then, we automate part of the analysis.

### *C. Respecting Phenomenological Requisites for Scientific Rigour in SQEs*

Our starting point is Amedeo Giorgi: "The phenomenological approach dwells on how consciousness presents itself and its functions. This focus results in two factors that are necessary whenever studying consciousness. The first is that consciousness is intentional. (...) The second feature (...) is that consciousness is essentially nonsensorial. (...) In order for a method to be fruitful in researching consciousness, it has to respect the two characteristics just described" [8, pp.177, 178]. Following Giorgi, the method resulting from these attention points consists essentially in three steps: addressing and careful description of the things themselves, phenomenological reduction (pure consciousness that in no way is shared with empirical reality), and free imaginative variation (systematically varying key dimensions of the concrete phenomenon). These steps are addressed after bracketing (put aside and rendered non-functional) all knowledge coming from research attitudes other than the phenomenological attitude (Epoché) of addressing the "things for themselves" [8, pp.178, 179].

The requisites in performing the study include [5], [8], on the one side, Husserl's requirements for resilience against contamination and variation: "a) descriptions are carefully cleaned by phenomenological Epoché" (no reference to expectations from past experience) and b) transcendental reduction (no preoccupation of actual reality), c) grounded in

their factual details, d) guided by subject's intention, e) illuminated by discovery through phenomenological intuition, f) shared by intersubjective dialogue with participating research community, and g) subject to free imaginative variations. And, on the other side, Giorgi's additional requirements emphasise h) an attitude sensitive to the phenomenon, i) parsing descriptions in meaning units, j) keeping a sense of the whole, and k) transforming the meaning units into sensitive expressions within the discipline.

In Giorgi's DPM, researchers in the phenomenological attitude perform the analysis of descriptions data produced by another person, who has observed the phenomenon. In SQE, part of the researcher's analysis work is performed directly by the observer, acting in the professional attitude. The rest of the analysis is performed beforehand by researchers through experiment design choices and is delegated to be performed automatically by the theoretical scaffold of the FEDL scale in DTN while therapists compile their report. As a consequence, there are two key theoretical phenomenological issues arise in SQE: first, is therapists' professional attitude adequate for that part of the analysis in place of the phenomenological attitude of researchers? Second, is the analysis delegated to the scaffold an adequate substitute for the other part? Other issues appear to be under control.

Let us proceed to a check of requisite satisfaction in detail. The descriptive phenomenological process appears to consist in general of four aspects:

- i) address intention, simultaneous with
- ii) observation and intuition, then
- iii) description and reporting, and
- iv) analysis and sharing; combined or separated, in various forms, in their assignment to observer and researcher.

We separate i) from ii), for clarity, as the intention is shared between all actors, while observation is not. Main actors in the SQE process are: therapists, researchers, and vitally contributing non-human or material actors: the information infrastructure DTN, and the DIR FEDL scale. Therapists are involved in all four aspects, but they are the solely involved in beta. Researchers design the tools contributing to alfa, gamma, and delta, so that the information infrastructure, too, embodies elements of alfa, gamma, and delta. Basically, therapists obey some DPM requisites (all but g: directly, a to f, and h; or by filling in the DTN slots: i to k) by acting professionally, as members of their community of practice (concentrating on the object in intuiting: no sensory disturbance, no hallucination, no bias). We see that requisites are intentionally embodied by researchers in the design of the infrastructure with DTN (f-k), and by other design choices of the experiment, like involving therapists from the appropriate community of practice, and employing their professional language FEDL in structuring DTN (a-f).

## V. RESULTS OF THE SQE EXPERIMENT ON DIR AS EBP

### *A. Qualitative Results in Quantitative Language*

The analysis of the results is simplified in our approach. The low-level-meaning data from the therapist report are already

herded into the desired, predisposed, FEDL, scaffolding structure. The higher-level, invariant (in terms of the mean) meaning remains to be extracted. Details of the result are expressed in the language of child therapy and in Likert scale values. Data consist of bits of recorded therapist responses inserted into the pre-prepared meaning slots of the scaffolding DTN structure. DTN details are provided to help the reader to understand and evaluate the process without having to master the meaning of clinical treatment jargon. The analyst researcher widely checks the consistency between the qualitative data and the Likert scale's values, which the therapists have filled in. The actual analyses, beyond browsing appreciation, are left to statistical data handling procedures. What remains for the analysis is the extraction of meaningful trends from the entire data set. This is best done in numerical language.

### B. Meaning of the Results

A sample DTN comparison, of the DTN of two therapeutic sessions of the same child, taken three months apart: one taken at the moment of assessment, the other taken after three months of treatment, is available in detail, for eventual reference, in [44]. Let us inspect closely a small portion of this sample DTN comparison, that includes intertwined the text of the DTN items at evaluation, with corresponding DTN items after 3 months. Please note that only the first three FEDL levels are present, as appropriate to age and proficiency of the children examined:

*Work and Productive Activities:* Assessment: K. was unsafe and threw a weighted ball at therapist's head; was hiding; needed to contain him physically to control his body and process the incident. Visual drawing did not work; instead, physically held him for 10 seconds, then resumed when calm. Twenty minutes before, he was able to self-regulate, needed body sensory input and physical input.

#### • Compare:

*Work and Productive Activities:* Assessment: K. engaged in therapeutic activity to promote skills in meal preparation and tool use, which were required for increased independence in feeding, preparing meals, and engaging in social mealtimes. Therapist supported him using verbal and gestural instructions, dividing the activity into four steps and providing a visual schedule. K. was able to follow the steps with medium-level therapist support.

A comparison of these two subsequent qualitative expressions, *Work and Productive Activities*, shows unambiguous progress for this child. Other points of the comparison are similar. In particular, here is the sum up of the values of the session for the first three FEDL levels:

Sum of the values of the session for the first three FEDL levels:

- At evaluation: Values of first three FEDLs: 3, 2, 2
- Compare: Values of first three FEDLs: 4, 4, 3

Emerging from the notes is a rich picture of changes brought about by clinical treatment, also shown by FEDL values. INCREASE in the first three FEDL values in 3 months: +1, +2, +1 (exhibited by scaffolding). Extending the comparison to all children allows the overall trend to emerge.

Five therapists at the clinic were involved in the experiment, and each had five children in their care, resulting in a final dataset of 75 entries: 25 children, with 3 FEDL sub-step values for each child.

Simple comparison of observations for a single child before and after 3 months of treatment is often not conclusive. Data are blurred, preventing the immediate and direct derivation of a clear-cut conclusion from partial results. However, when the values for many children are considered together, the description of behaviour shows clear progress in a short time, after just 3 months of treatment following evaluation, including the time needed to build a relationship with the child and parents.

### C. Overall Results

The average difference of values before and after treatment, calculated across all 75 entries—five therapists, five children per therapist, three FEDL sub-step values per child (5x5x3)—is distinctly positive, with an average value change of +0.33 units. Accounting for the average's error, calculated as the mean square deviation (0.4 units) divided by the square root of 75, yields (+0.33 +/-0.05 units). This positive trend is denoted as "significantly surpassing statistical noise," a robust finding in any quantitative inquiry.

Therapists' reports effectively convey the positive message, on the validity of the DIR treatment:

- "We affirm its reality" (+0.33 +/-0.05 units)

The resultant impact of the DIR treatment over three months is positive, with a final mean value some seven standard deviations away from the control point (0.0 units). The likelihood of a positive result of 0.33 units stemming from a statistical error is represented by an exceedingly small number, in the vicinity of  $10^{-23}$ . Statisticians consider such as an unlike event as an implausible occurrence, signifying that the result must be taken as incontrovertible.

Therapists' subjective knowledge is firmly grounded in scientific, rigorous, objective foundations. This opens avenues for future experimentation with great statistical weight over extended timeframes, amalgamated outcomes across large therapist-child cohorts, and confirmation through comparable, independent experiments. The DIR treatment has now and here been proven to be an EBP, via SQE. An EDP declaration can now be claimed by this experimental outcome.

## VI. DISCUSSION

For clarity, let us consider again, list, and then briefly illustrate, the key ideas contributing to granting the foundations of scientific rigour to our SQE.

Here is the list, from inside out: 1) community of practice and web of shared understanding; 2) alignment of accounting and management language; 3) three pertinent instances of imaginative variations.

In the Section IV B, we identified two key theoretical phenomenological issues of SQE: first, is therapists' professional attitude adequate for that part of the analysis, in place of the phenomenological attitude of researchers? Second, is the part of analysis delegated to the scaffold an adequate



substitute for the other part? Although the three key ideas form a unity, the first one contributes more to solve the first issue, the remaining ones, the second issue.

#### A. The Community of Practice of Therapists Treating with DIR/Floortime

DIR was arrived at with a vast phenomenological research effort lasting decades [29]-[31], [35]. DIR is one of the most promising methods available as a base of clinical practice for children with psychosocial emotional differences. Connection between parent and child is key in DIR. In this approach, child development is marked by successive milestones indicated by FEDLs (see [44]). Floortime, the DIR systematic way of working with a child to help them climb the developmental ladder, is the heart of the DIR developmental approach to therapy. To climb the developmental ladder, a child needs intensive, one-to-one work during which the child learns something. DIR/Floortime creates opportunities for a child to learn critical lessons for development. These aspects are communally shared within the proficient therapist community of the clinic, functioning as a cohesive Community of Practice [38], [39], which members benefit from a Web of Shared Understanding [40]. This shared framework acts as scaffolding support, enabling the accurate encapsulation of therapists' insights in their usual conceptual terms, while simultaneously ensuring adherence to Giorgi's stipulations. Devoid of the efficacy underpinning the FEDL theoretical framework, and of DTN, it would all amount to haphazardly collected and reported opinions. Essential is that the FEDL structure interrogating therapists' consciousness be rooted in a shared understanding of therapists as part of clinical treatment, not made of arbitrarily chosen concepts.

#### B. The Ethnomethodological Recommendation

The ethnomethodological alignment by design is a crucial condition. The significance of language usage and the utilisation of routine conceptual language hold profound importance in Ethnomethodology. Therapists convey observations on child behaviour within DTN using the language specific to their therapeutic profession and practice. We cite phenomenologist Harold Garfinkel, the pioneer in ethnomethodology: "The ensuing studies seek to treat practical activities, practical circumstances, and practical sociological reasoning as subjects of empirical study. By bestowing attention on everyday life's most ordinary activities with the same scrutiny reserved for extraordinary events, we endeavour to understand them as phenomena in their own right. The central assertion is that the procedures by which members generate and manage organized daily affairs settings are identical to members' processes for rendering those settings 'account-able'" [41, p.1]. In our study, the language, structure, and scale employed to depict child development (accounting) align with the clinical treatment (create and manage) language, structure, and scale.

#### C. Three Instances of Free Imaginative Variations

Three circumstances stand as evident candidates for significant, free imaginative variations: the DIR theory, the

FEDL scale, the clinic in which the experiment is conducted.

- *One: Reference theory.* Naturally the aligned structures of personal knowledge and mirroring reporting artefact cannot necessarily correspond meticulously to the structure and nature of the real world. And, the rigorously scientific answer of the experiment to the original question might be dependent on them. If the chosen knowledge structure is not too far from reality, the answer will be nonetheless meaningful, thus satisfying the SQE question with scientific rigour. The choice of DIR/Floortime as architrave of description and analysis, besides being by very definition the choice of the treatment, is intentional, predetermined, and governed by the experiment's design. Different choices of reference theory of child development are not appropriate, naturally, for many reasons, including ethnomethodological aspects. Different choices could be envisioned, of course, for the present scope of circumscribing the validity of the experimental results. However - apart of the difficulty of training therapists on the new reference theory - we expect them yielding only marginally different numerical outcomes. What is imperative for a meaningful conclusion is not absolute accuracy or scientific validation of the reference theory, but solely its basic utility as a child development indicator. A reasonable assumption in our case.
- *Two: FEDL scale.* This holds true for diverse Likert scale selections or even modifications to the DTN structure, within certain confines. The meaning of the FEDL scale is fixed in DIR. All useful work of free imaginative variations were done by Greenspan and Wieder in stabilising their DIR theory [29]-[31], including the FEDL scale and Likert sub scale used in experiment. The eidetic meaning to be extracted from each child observation is just the qualitative character and corresponding numerical values of the behaviour of the child for each step on that scale. For this to make sense, the FEDL scale needs not be scientifically proven - rigorous validation has not been established. It is sufficient for the scale to have a general correspondence with the direction and magnitude of children's socio-psychical development. Any differences in the scale would manifest as numerical variations in the results, but not be enough to alter the algebraic sign. All reasonable scales would yield a positive measurement result, provided that the DIR treatment positively influenced child development.
- *Three: Clinic.* Envisioning the experiment conducted in an alternate DIR clinic with different organisational, cultural, and therapist training dynamics prompts a different perspective. Here, we acknowledge a limitation: the SQE experiment simultaneously informs us about the efficacy of DIR as well as the proficiency of the specific DIR clinic under scrutiny. If the answer is affirmative, it signifies the effectiveness of DIR treatments, and the quality of the clinic at the same time. Yet it does not automatically guarantee uniform outcomes of a potential experiment in other DIR clinics.

In sum, we state that the resulting general meaning of the experiment are robust and stable upon "free imaginative

variations” of relevant contextual conditions.

## VII. CONCLUSION

We proposed the method of SQEs to derive scientific conclusions based on facts in the conscience of (only) members of a community of practice. The method exploits the peculiar sharing of “meaning sedimentations” among professionals of the same discipline.

Our approach consists in an application of Husserl’s DPP using a method reminiscent of, but distinct from Giorgi’s Descriptive Phenomenological Method, in which: a) therapists observe and describe child phenomena in their *professional* attitude; and b) they intuitively *confront them* in their consciousness with their personal professional knowledge. The observers’ descriptions are then articulated and recorded *in the very language* of their profession. Husserl’s requirement of Epoché, or the elimination of prejudices in the mind of the observers, is granted by “concept cleaning” in the *constant sharing* of disciplinary concepts, and facts, within their community of practice; while the absence of subjective bias is granted by the *uncompromising details* of their professional knowledge.

As an example of SQE, we use professional descriptions by their DIR therapists to scientifically determine the level of development, under treatment, of children with psychosocial emotional differences. We have intervened in a situation where DIR was not considered an EBP yet by the professions concerned. Because the usual approach to EBP, based on objective monitoring of the treatment arena, fails for the impossibility of performing a scientific control of parent behaviour during the EBP test [42]: with the incredible result of deleting the most effective treatment from the list of approved treatments, supportable with public money, for the very reason - parent involvement - for which it is effective. Albeit all involved therapists volunteer positive indications. Our SQE test *validates* the DIR treatment as an Evidence Based Practice, based on a *subjective*, phenomenological approach.

We underline the general relevance and value of the proposed method of SQEs, to come to scientific conclusions based on facts in the conscience of members of a community of practice. Performing a *re-definition*, by inclusion of facts-in-the-conscience type data, of the EBP.

The proposed phenomenological method shows promise in accurately assessing many other properties, through detailed professional descriptions, as a general application of Husserl’s DPP using a method reminder of, Giorgi’s Descriptive Phenomenological Method.

## ACKNOWLEDGMENTS

We thank the Joy Center Personnel; the Center Director Doctor Amy Zier for guiding co-constructing DTN scaffolding structure and Likert scale; Katherine Fletge, Ruby Salazar, Lucia Dileo, Renato Troffa, and Claudia Cattani, for discussions; Marie Carrothers, Antonio Cammarota, Raffaele Elia, Jacopo Marziale, Antonio Polito, Andrea Sanfilippo, for DTN material; Don Cohon, for private communications.

## REFERENCES

- [1] E. Husserl, *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy: First Book: General introduction to a pure phenomenology* (F. Kersten, Trans.). Kluwer Academic Publishers (1982). (Original work published in 1913)
- [2] A. Giorgi, *Psychology as a human science: A phenomenological approach*. Harper & Row (1970).
- [3] A. Giorgi, *The descriptive phenomenological method in psychology: A modified Husserlian approach*. Duquesne University Press (2009).
- [4] J. Morley, *Giorgi's descriptive phenomenological method* (2019). YouTube. <https://www.youtube.com/watch?v=uhSdSRBdGAY>
- [5] A. Giorgi, *Reflections on certain qualitative and phenomenological psychological methods*. University Professors Press (2018).
- [6] E. Husserl, *Logical investigations*. Humanities Press (1970a).
- [7] E. Husserl, *The crisis of European sciences and transcendental phenomenology: An introduction to phenomenological philosophy* (D. Carr, Trans.). Northwestern University Press (1970b).
- [8] A. Giorgi, B. Giorgi, and J. Morley, *The Descriptive Phenomenological Psychological Method*, BK-SAGE WILIG\_STAINTON-170067 CH11 indd 176-192 (2017).
- [9] M. Heidegger, *Gesamtausgabe -Band 58 - Grundprobleme der Phänomenologie (1919/20)*, Frankfurt am Main: V. Klostermann (1993). Cited in Ciborra (2004/2009)
- [10] M. Heidegger, *Being and Time* (J. Macquarrie & E. Robinson, Trans.). SCM Press (1962).
- [11] M. Merleau-Ponty, *The structure of behavior* (A. L. Fisher, Trans.). Beacon Press, (1963).
- [12] M. Merleau-Ponty, *The visible and the invisible* (A. Lingis, Trans.). Northwestern Un. Press (1968).
- [13] M. Merleau-Ponty, *Phenomenology of Perception* (C. Smith, Trans.). Routledge (1996).
- [14] A. Giorgi, The theory, practice, and evaluation of the phenomenological method as a qualitative research procedure. *Journal of Phenomenological Psychology*, 28(2), 235–260 (1997).
- [15] A. Giorgi, Psychology as a human science. *Journal of Humanistic Psychology*, 40(3), 56–73 (2000).
- [16] M. H. Applebaum, Amedeo Giorgi and psychology as a human science. *NeuroQuantology* 9(3), 518–525 (2011).
- [17] H. Maturana and F. Varela *Autopoiesis and Cognition: The Realization of the Living*. Boston Studies in the Philosophy of Science. Paperback (1979).
- [18] G. Jacucci, *Autopoiesis and cognition, an outstanding outcome of phenomenology: What is in it for a physicist?* Seminar. GBB.60. workshop, Rome, Italy. <https://www.academia.edu/12204390/> (2015).
- [19] P. Bednar and C. Welch, Second Order Discourse: Critically Informed Research. ECRM2006. [https://www.researchgate.net/publication/264057721\\_Second\\_order\\_dis\\_course\\_critically-informed\\_research](https://www.researchgate.net/publication/264057721_Second_order_dis_course_critically-informed_research), (2006)
- [20] H. Wagner editor, Alfred Schutz on Phenomenology and Social relations: Selected readings. University of Chicago Press, Chicago (1970).
- [21] B. Langefors, *Theoretical Analysis of Information Systems*. Lund: Studentlitteratur (1966).
- [22] B. Langefors, *Essays on Infology - Summing up and Planning for the Future*. Lund: Studentlitteratur (1995).
- [23] D. N. Stern, *The first relationship: Infant and mother*. Harvard University Press (1977).
- [24] D. N. Stern, “The Interpersonal World of the Infant: A View from Psychoanalysis and Developmental Psychology” Basic Books, New York (1985).
- [25] D. N. Stern, “Motherhood Constellation”. Basic Books, New York (1995).
- [26] T. Brazelton, and S. I. Greenspan, *The Irreducible Needs of Children: What Every Child Must Have to Grow, Learn, and Flourish*. Da Capo Press (2000).
- [27] G. Jacucci “We know it is real”: harvesting consciousness with a descriptive information system. [http://www.itais.org/ITAIS2020\\_proceedings/pdf/24.pdf](http://www.itais.org/ITAIS2020_proceedings/pdf/24.pdf) (2020).
- [28] G. Jacucci, Double Loop Learning elevates the innovation design of a paediatric clinic from media to Intersubjective Dialogue. AIS eLibrary MCIS 2019 Proceedings, Naples. <https://aisel.aisnet.org/mcis2019/7/> (2019).
- [29] S. I. Greenspan, & S. Wieder, Developmental patterns and outcomes in infants and children with disorders in relating and communicating: A chart review of 200 cases of children with autistic spectrum diagnoses. *The*

- Journal of Developmental and Learning Disorders, 1*, 87–141 (1997).
- [30] S. I. Greenspan, & S. Wieder, *The Child with Special Needs*. Da Capo Press (1998).
- [31] S. I. Greenspan, & S. Wieder, *Engaging Autism*. Da Capo Press (2006).
- [32] S. L. Odom, E. Brantlinger, R. Gersten, & R. H. Horner, Research in special education: Scientific methods and evidence-based practices. *Exceptional Children, 71*(2) (2005).
- [33] R. Horner, E. Carr, J. Halle, G. McGee, S. Odom, & M. Wolery, The use of single-subject design research to identify evidence-based practice. *Exceptional Children, 71*, 165–179 (2005).
- [34] R. L. Solomon, J. Necheles, C. Ferch, & D. Bruckman, Pilot study of a parent training program for young children with autism: The PLAY Project. *Autism, 11*(3), 205–24 (2007).
- [35] ICDL: Interdisciplinary Council on Development and Learning. (2019). <http://www.icdl.com/>
- [36] B. G., Cook, B. A. Nosek, J. W. Lloyd., D. Mellor, & W. J. Therrien, Promoting Open Science to Increase the Trustworthiness of Evidence in Special Education, *Exceptional Children, 85*(1), 104–118 (2018).
- [37] M., Pugach & V. Richardson, Qualitative studies in special education. *Exceptional Children, 71*(2), 195–201 (2005).
- [38] J. Lave & E. Wenger, *Situated learning*. Cambridge University Press (1991).
- [39] E. Wenger, *Communities of Practice*. Cambridge University Press (1998).
- [40] A. Baskin, Preface. In A. Baskin, G. Kovacs, & G. Jacucci G. (Eds.), *Cooperative knowledge processing in engineering design* (pp. xvii–xx). IFIP, Kluxers Academic Publishers (1999).
- [41] H. Garfinkel, *Studies in Ethnomethodology*. Paradigm Publishers (1967).
- [42] D. Cohon, “DIR/Floortime™ Evidence, Research, and SCD Methods” Italia DIRImè—12 June, 2016, seminar draft (2016), private communication.
- [43] <https://joydirsi.org/>
- [44] [www.appendices.info](http://www.appendices.info)
- [45] <http://www.icdl.com/>