TARGET ARTICLE

Compartmentalization and unity of professional psychology. A road map for the future of the discipline

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Abstract

The compartmentalization of psychological science and of the profession prevents the progress of the discipline. Compartmentalization is a collateral effect of the impressive scientific, methodological, and technical development of psychology, which has led to the emergence of specialized segments of knowledge and practice that unavoidably tend to progress separately from each other and weaken their reciprocal linkage. The work highlights the limits of compartmentalization and discusses motives that call for the unity of psychology. Three approaches to unification are outlined: I) the identification of the ultimate causal explanation; II) the progressive extension of the explicative capacity of specific theories; III) the building of a metatheoretical framework. Finally, the paper proposes the intervention as the criterion to compare the capacity of the three approaches to unity. According to this criterion, approaches can be validated by reason of their ability to enable professional psychology to address the current challenges that people and society have to face.

Keywords: Compartmentalization, Unity of Psychology, Professional Psychology.

A Century of Progress of Professional Psychology...

The last century has witnessed an impressive development of professional psychology, alongside two intertwined directions. On the one hand, professional psychology has extraordinarily expanded its range of interest – contemporary psychology addresses a huge set of phenomena that practically span every domain of human life. From health to traffic behavior, from mental illness to organizational processes, from political dynamics to sport, from tourism to school, from cognitive decline to cultural processes, from media communication to economic decision making – in these as well as many other fields, psychologists have developed interpretative frameworks, assessment procedures, and methods of intervention, techniques and measures that support people, institutions, and communities to cope with issues and to pursue their goals and projects. On the other hand, in each of these

fields, psychology has accomplished major advances that have provided a deeper understanding of phenomena and problems and enabled efficacious interventions, increasingly appropriate to the specificity of phenomena and problems, thanks to the growing specialization of the professional intervention. A paradigmatic example of this progressive specialization of contemporary professional psychology is the field of psychotherapy, where one meets approaches and techniques which have been designed and validated to address specific forms of psychopathology and personality profiles, in accordance to the tenet of tailoring interventions to the characteristics of patient and therapist (e.g. Norcross & Cooper, 2021). Another example is related to intervention models and innovative methodologies applied by school psychology to children and adolescents with both learning disabilities and behavioral difficulties (i.e. attention deficit, hypertensive behavior, autism spectrum) and aimed at promoting psychosocial well-being (i.e. bullying, homophobia, affective and nutritional psychoeducation) through the use of serious games, apps and virtual reality (Lamb *et al.*, 2018). Finally, another innovative field of application concerns psychological well-being interventions in the workplace from an ecological perspective, in order to improve positive outcomes such as increased work performance and stress reduction, as an alternative to the traditional paradigm related to the organization of leadership and workplace behaviors (Prilleltensky, 2012).

The two lines of development of professional psychology – expansion and specialization – are clearly intertwined. The increasing capacity of psychology to be more and more specific and impactful fosters investment in the discipline and its social valorization; in turn, this determines the socio-institutional and economic conditions for further advances. Psychotherapy is also in this case an example of this virtuous cycle – alongside the increased capacity of psychotherapy to develop interventions and to show their effectiveness, the social demand for psychological treatments has increased. In several countries this has led to major institutional and financial investments – e.g. the coverage of psychotherapy by insurance companies, and welfare systems – which motivated and fostered further progresses in clinical research and practice.

... with a Collateral Effect

Specialization is a characteristic of any scientific-professional system – e.g. lawyers, physicians, engineers tend to increase their expertise and to specialize in progressively restricted domains of competence. The two processes are clearly interrelated – the scientific knowledge on which professional practice is based consists of growing repertoires of information and techniques, each of which is focused on a specific segment of the whole domain of professional expertise; therefore, to become an expert of any of those repertoires – e.g. cardiologists that are experts in arrhythmia, sound engineers that are experts in open space, lawyers that are experts in intellectual property and so forth – requires time and expenses that leave one little room to become an expert in other – even close – segments of knowledge and practice.

This trend characterizes professional psychology too. The technological apparatus of research has grown enormously, giving rise to a parallel growth of expertise specific for each particular research domain. As a result, fields of analysis have multiplied and separated from each other, in a process similar to that of other professional systems, as observed above. This specialization process represents the form of progress of the discipline, of its capacity to address relevant problems and phenomena in more and more specialized and effective ways. However, what we see as differentiating professional psychology from other professional systems is that in the case of psychology the links connecting the specialized areas of knowledge and expertise are weak. Physicians, engineers, lawyers may count on a general framework that provides common shared semantics – e.g. the biochemistry at the basis of the anatomy-physiology of the human body, the mathematical language of physics, the logic of law – to connect the specialist repertoires of knowledge with each other. Accordingly, specialization is conceived and translated into actions as an intellectual division of labor within the shared domain of competence targeted by the professional system. Instead, within the field of professional psychology, we see a void of conceptual and methodological common ground horizontally linking the specialized repertoires of knowledge. As a result, the repertoires of knowledge of most professional psychology are based on or comprise short-range models that tend to operate in reciprocal isolation, as self-contained systems of theory and practice, ending up

being separate territories, with weaker and weaker reciprocal connections. What we observe is that today, the vast majority of psychologists – both in research and professional practice – are specialized in one or a few sub-sectors; they acquire advanced knowledge and skills in the language, theories, methods, tools that substantiate those sub-sectors; the knowledge and skills developed in other areas are often so widely different that they are practically irrelevant, or at least are considered to be so. For example, researchers and professionals dealing with psychotherapy do so with theories, methods and tools that have only marginal overlap with theories, methods and tools used by those who operate, say, in fields like work psychology, voting behavior analysis, community interventions, and so on. This separation is sanctioned and further fueled by the separation between scientific communities, each with its own organizational structures, contexts, and communication tools (conferences, journals, scientific associations). Thus, more than a single doctrinal corpus, within which professionals specialize, contemporary professional psychology appears to be a cluster of compartmentalized fields of knowledge and practices, having their own languages, methods as well as institutional modes of propagation (e.g. scientific societies, journals). Here we will call this process *compartmentalization*.

One example could be related to the study of the development of the individual's potentials identified by different areas of specialization such as learning psychology, psychology of aging, clinical psychology, and psychotherapy, using specific theories, methods and tools which communicate with each other only marginally. Another example is the study of learning healthy behaviors. Also in this case, specific specializations of psychology, such as cognitive psychology or neuropsychology, use theories, methods and tools that are not always connected with each other, creating partial and specific readings of the individual's complex learning process in relation to the culturally and socially constructed environment (Di Clemente *et al.*, 2002).

Reasons for Discontent

There are several reasons for considering the compartmentalization of professional psychology as a critical issue that prevents its

development and, in the final analysis, reduces the impact of the significant advances accomplished in the field over the last century.

First, it must be recognized that the discontent with compartmentalization reflects the ambition, underlying any scientific effort, to build general theories on their object of study. Physics is emblematic of this epistemic tension. The history of that discipline can be told as the systematic effort to unify the theories concerning the fundamental forces that operate in nature. We know that this effort has already led, in the second half of the nineteenth century, to modeling electric and magnetic forces as two local forms, contingent on certain field conditions, of a single more fundamental dynamics – electromagnetism. More recently, electromagnetic force has been combined with weak nuclear force (responsible for radioactive decay). The horizon towards which contemporary physics is moving is the complete unification of forces, the so-called supergravity: a single, fundamental dynamics underlying all natural phenomena. Needless to say, the search for an overarching, generalized comprehension does not mean giving up short-range theories focused on specific classes of phenomena. On the contrary, as physics teaches, the stronger the general framework, the higher the explicative power of short-range theories based on it as well as their technological spill-out.

Second, the compartmentalization of professional psychology leads to a decrease of learning opportunities for psychologists. Sectors tend to be closed communities of practices, characterized by languages, technical apparatuses, traditions, standards, and rituals with increasing mutual separation. This discourages the possibility of transversality: the opportunity to use information and knowledge produced in one sector to increase the ways of operating in other sectors is severely limited. Indeed, nowadays researchers and professionals are encouraged to pursue their progress, in terms of the growing accumulation of expertise and accomplishment only within their specialized domain of interest. This follows two complementary lines: on the one hand, through the progressive differentiation of the phenomena of competence – see for example the tendency in the field of psychotherapy to identify specific treatments for specific disorders, or even for subclasses of disorders; on the other hand, an enhancement of the technical and technological content of the professional action – for example, increasingly sophisticated data analytic models, use of apps and

other devices deriving from robotics and artificial intelligence. Needless to say, this is anything but a bad thing. What is critical is the absence of a complementary trend enabling the integration of the drive towards specialization with the ability of specialists to communicate with each other in order to develop a general framework that further strengthens their capacity for innovation and influence.

Third, the compartmentalization of professional psychology weakens its social image and impact on society. The inability of psychology to anchor specialist explanations and strategies to a general disciplinary framework prevents the valorization of professional psychology in its different domains of intervention. For instance, psychologists have demonstrated the efficacy of psychotherapy, yet this has been done from within that specific professional field, without valorizing the evidence coming from other professional fields – e.g. the intervention in organizational contexts – and/or domains of investigation – e.g. the analysis of the framing effect in social communication. Society and institutions trust in concepts and solutions that engineers and physicians propose not only because of their validity to address the specific target phenomenon, but also because they are seen to be grounded on and to be the expression of a whole scientific-professional corpus that has accumulated broad acknowledgment across a long history. As to the importance of the unity of professional psychology for its institutional and social legitimization, it is worth referring to the words of Kazdin (2008), in his role as President of the American Psychological Association, stating:

«Insufficiently discussed is the importance of the unification of psychologists. Our scientific advances depend on increased specialization, broad collaborations and interdisciplinary networks. Yet, to keep our specialties robust requires that we bring to bear the discipline and profession acting as a unified whole on a daily basis. This facet of the unification of psychology is critical as we make the case to the public and policy-makers of what might make a difference (e.g. in health care and reimbursement of services, funds for basic research). Here, acting as fractionated or narrow special interests is not as adaptive as it is in making the substantive advances of our field. When it comes to making strong cases, partnering with other national and international organizations, and achieving goals that will concretely help our subspecialty interests, the heft of a large professional organization presenting a unified front, with experts in moving legislation, accumulated know-how,

and contacts that can make things happen are for the good of individual segments of the field. It is stunning to see APA teams form on multiple specific and specialized interests (e.g. in research, education, practice) and respond to issues of public as well as professional importance».

Forth, compartmentalization reflects and at the same time favors the subordination of psychology to social demand. The sectors in which psychology is divided mirror how society organizes itself in spheres of life and contexts of activity. Care, school, sport, tourism, stages of life cycle are not objects of nature having self-contained ontological status – rather, they are social formats founded on and regulated by specific symbolic and institutional apparatuses, subjected to historical evolution. When psychology assumes these social forms as its core targets, in fact it is accepting that its scientific agenda is dictated by the historical evolution of the ways in which society reproduces itself. Obviously, here we are not contesting the attention that psychology reserves to social issues. Rather, we mean to highlight the problematic consequence of leaving the definition of scientific objects of the discipline to society. This weakens the autonomy of the discipline, enslaving its progress to exogenous dynamics.

Last but not least, compartmentalization reduces the chance to provide interpretations and solution to the challenges that current times present to individuals, groups, and institutions – climate change, war, economic inequality, demographic transformation, migrations, crisis of representative democracy, health insecurity, urbanization, ageing, digital forms of subjectivity and relationship, and so forth. Needless to say, each of these processes and related problems/chances of development call for a specific form of understanding and action. Yet, at the same time, they lend themselves to be recognized as the protean manifestations of global trends of systemic change, which are redrawing the human condition at its core. Accordingly, we need general theories in order to complement the specialist understandings with interpretative frameworks enabling us to comprehend the fundamental socio-psychological dynamics underway and thus to orient the design of interventions accordingly.

The Pursuit of Unity

The unity of psychology and, within it, of professional psychology, is an enduring issue in the field. Concerns as to the fragmentation of the discipline, calls for unity, and strategies to pursue it appear regularly in debates (just looking at the last 15 years e.g. Gaj, 2009; Henriques, 2011; Kimble, 1990; Mandler, 2011; Melchet, 2016; Sternberg, 2005; Valsiner, 2009; Salvatore, 2017; Zagaria, Ando' & Zennaro, 2020). In 2013, the *Review of General Psychology* dedicated a special issue to the topic, hosting 19 contributions. The variety of contributions testifies to the interest in this topic; at the same time, it is indicative of how wide-ranging the discussion is and how hard it is to identify a unifying perspective of unification. Accordingly, what is currently possible and useful is to draw a map of the major strategies of unification and to identify a general criterion to compare their effectiveness.

In this vein, so it seems to us, the approaches to unification proposed by the literature can be clustered into three overarching strategies: I) the identification of the ultimate causal explanation, from which phenomena could originate; II) the progressive extension of the explicative capacity of specific theories to phenomena other than those for which the theory was originally elaborated; III) the building of a metatheoretical framework providing the language to map the conceptual connections among short-range theories.

The Search for the Ultimate Explanation

According to several authors, the unification of psychology requires psychological theories to be grounded in a general explicative framework provided by sciences that have already reached a paradigmatic status. For instance, this view frames Kimble's (1990) claim that physics should provide the basis for the unification of psychology. In the same vein, Lickliter and Honeycutt (2013) conclude that evolutionary theory is the appropriate meta-theoretical framework on the grounds of which the unity of psychology can be built.

Recently, Zagaria, Ando' and Zennaro (2020) have highlighted the theoretical precariousness of psychology and provided further arguments for the idea of evolutionary theory as a unifying framework that

would allow psychology to move beyond the current pre-paradigmatic condition (a status in which conflicts between rival schools of thought hinder the development of a true unifying paradigm). Consistent with a small but robust scientometric research tradition aimed at examining the status of psychology as a scientific discipline (Fanelli, 2010; Fanelli & Glanzel, 2013; Friman *et al.*, 1993; Robins *et al.*, 1999; Roeckelein, 1996a, 1996b, 1997; Simonton, 2002, ch.13; 2004; 2015; Tatman & Gilgen, 1999; Tracy *et al.*, 2005; Spear, 2007), the authors selected 12 popular university-level introductory psychology books and the APA Dictionary of Psychology. All books and the APA dictionary were published between 2012 and 2019. The authors then selected 18 psychological core-constructs (*psychology, mind, behavior, attention, cognition, consciousness, decision-making, intelligence, language, learning, memory, perception, problem solving, reasoning, thinking, emotion, motivation, sensation*) and searched each of the 12 sources for the definitions of each of the 18 core constructs. From this they showed that there seems to be no agreement on the fundamental definitions of *mind, thinking, cognition, consciousness, emotion,* and *intelligence*. On the other hand, *attention, behavior, decision making, language, learning, memory, motivation, reasoning, perception, problem solving,* and *sensation* seems to be less controversial; however, these latter concepts are ambiguous, overlapping, and circularly defined by the previous ones, resulting in empty recursion. In other words, psychological core-constructs are poorly defined and ambiguous, which is seen as an example of the theoretical precariousness of the discipline. These findings are consistent with various scientometric and bibliometric studies that reveal the "softness" of psychology (Fanelli, 2010; Fanelli & Glanzel, 2013; Friman *et al.*, 1993; Robins, *et al.*, 1999; Roeckelein, 1996a, 1996b, 1997; Simonton, 2002, ch.13; 2004; 2015; Tatman & Gilgen, 1999; Tracy *et al.*, 2005; Spear, 2007). They are also consistent with the recognition of theoretical uncertainty in psychology made regularly since the 19th century by many authorities such as James, Vygotsky, and Cronbach (Cronbach, 1957; Heidbreder, 1933; James 1894; Kuhn, 1962; Koch, 1993; Miller, 1985; Henriques 2011; Toomela, 2020; Vygotsky, 1927/1997). Zagaria, Ando' & Zennaro (2020) propose evolutionary psychology (EP) as the most compelling means to improve this status through the development of a psychological metatheory. There are many

controversies and criticisms surrounding EP, but according to the authors, many of them stem from misconceptions (see Zagaria, Ando' & Zennaro, 2021). For example, EP is usually associated with biological reductionism and determinism (the view that biology and genetics are self-sufficient to explain psychological functioning, somehow leaving aside culture and social environment). However, if one follows the authors' argument, an evolutionary approach resolves the usual dialectic of nature and nurture because genes are "blind" to what is "innate" and what is «learned» (see Tooby & Cosmides, 2015): «In a nutshell, we are naturally selected to be cultural. At the same time, our cultural lives have a biological impact on us; we are culturally shaped in our nature» (Zagaria, Ando' & Zennaro, 2020, p. 539). Regarding other controversial facets of EP (e.g. computational assumption, massive modularity), the authors argue that these are undoubtedly useful heuristics, but they do not appear to be strict requirements for the existence of EP. In other words, the authors claim that a broad evolutionary assumption seems inescapable unless the basic tenets of Darwinism and Neo-Darwinism are denied, which would be very demanding if we want to maintain a scientific perspective on the human mind.

Melchet (2016) provided a normative version of this view, claiming that nowadays the discipline has made significant progress in the understanding of human behavior, and this lays the conditions – and compels professional psychology – to assume a unitary framework.

> «The evolution of psychology to a paradigmatic natural science discipline poses critical questions for PP [professional psychology] as well. As a science-based profession, PP needs to identify outmoded frameworks and practices and replace them with approaches consistent with the best available scientific knowledge. Before recent years, there essentially was no alternative but to rely on the various theoretical orientations for guiding clinical practice, because scientific knowledge regarding the tremendous complexity of human psychology was too limited. Now that a paradigmatic scientific understanding has emerged, however, it might be considered irresponsible for PP not to systematically transition to the new scientific framework (...).
>
> Though difficult in some ways, transitioning to a unified science based approach to education and practice in the field will be a very welcome development for many psychologists. This has always been, after all, the goal of the profession from the start. It would also mean that many of the perennial pre-paradigmatic conflicts between the theoretical camps in the field can

finally be left behind. More importantly, it would mean that PP would become a true clinical science guided by an integrated body of scientific knowledge that is consistent with the rest of the scientific disciplines and clinical professions. Moving ahead with a unified voice grounded firmly in science will allow PP to more effectively address people's behavioral health and biopsychosocial needs. This is critical not just for the future of the profession but also for the health and well-being of the public who we serve» (p. 494).

The Strategy of Extension

The trust in natural paradigmatic sciences as a unifying framework has raised criticisms of reductionism by authors (e.g. Green, 2015; Stam, 2004) who maintain that psychology has to elaborate its own paradigmatic foundation from within the language of the discipline. The strategy of extension is a way to address this kind of criticism.

Since psychology exists as a scientific discipline, multiple attempts to extend some relevant discoveries concerning mental functions as paradigmatic explanations of multiple phenomena have been developed. Just to give an example here, the original discovery of operant/instrumental conditioning, i.e. the mechanism operating in animals by which rewards and punishments generate an association between a behavior and a consequence for that behavior, led to the use of this knowledge in many fields, apparently distant from psychology – e.g. in financial economy, as happens with behavioral economics. Actually, the extension of a physiologically-based learning model such as operant conditioning to understand multiple domains of human systems (just to name a few, individual psychopathology, career development, macro-economy, collective adherence to public health indications) is one of the many possible examples of how specific psychological models may well extend beyond their original intention, and cover multiple, if not all, domains of human functioning.

Another example is the classical Freudian theory about the role of sexual drives and the Oedipus complex (Freud, 1905) in individual development: psychoanalysts have applied this theory to treat individual psychopathology of course, but also to understand mass psychology and the rise of nationalism, anthropological determinants such as the taboo of incest, and even organizational behaviors in institutions

(such as in the work of French socio-analysts in the 1960s). Notably, we currently know that sexuality is just one among different motivational systems embedded in mammals (e.g. attachment, caregiving, cooperation, and ranking; see Lichtenberg, 2003). On the epistemological level, the power of explanation of a single theoretical model cannot exceed the power of explanation of a whole set of models that entail that specific model. However, this is true only if the array of theoretical models that include the specific model is not arranged in a hierarchical structure. So, if the motivational systems are conceived in a hierarchical structure, in which sexuality is considered on the top of the structure, the power of explanation of the single overarching model corresponds to the power of explanation of the whole set of models. In other words, one could contend that without sexuality there is no reproduction, and without reproduction there is no human species with its motivational systems: in this example, considering sexuality at the top of the hierarchy would imply that the other systems in the model depend on sexuality, which thus entails the definition and specification of other motivational systems as its own substructures.

Now, it becomes evident that the extension strategy moves in the end toward the ultimate causal explanation framework, in which a common origin of all psychological processes can be inferred. However, the question remains on the capacity of the extended theory to explain local (i.e. specific) phenomena. In this context, it becomes critical to understand that paradigmatic shifts of the interpretative framework can also occur in the process of extension of a given psychological theory.

To remain in the psychoanalytic field, attachment theory (Bowlby, 1969, 1973, 1980, 1988; Duschinsky & White, 2019) emerges from psychoanalytic principles but belongs to a perspective that differs from the original psychoanalysis in many respects. Mainly, the shift in perspective derives in this case from the level of extension of the theory. Unfortunately, only few scholars know that John Bowlby originally conceptualized attachment theory as a general theory of love (R. Bowlby, 2004), and that the choice to call such a theory "attachment theory" rather than "theory of love" was closely related to theoretical and institutional conflicts within psychoanalytic circuits in the years when the theory was developed. Actually, the process of extension in attachment theory consists of accepting most psychoanalytic principles, but also considering attachment (that is, the need to maintain

closeness with attachment figures) rather than sexuality as the overarching system by which the human mind develops and operates. Epistemologically, attachment theory extends psychoanalytic theory, in that it includes an overarching force (love/attachment) that is responsible for the development of the other dynamic forces in play, including the development of sexual drives. In this vein, one could examine almost any human behavior through the lens of attachment—and in fact attachment theory has been used to explain a variety of mental processes, behaviors, and phenomena at individual and social levels (e.g. affect development, individual psychopathology, psychology of migration, organizational behaviors, reaction to war and pandemics, behaviors in relation to climate change, etc.).

This is relevant in understanding how the extension paradigm may serve the integration of psychological theories. Specific theories are tested across a number of contexts, and theories that are able to cover, and ultimately generate predictions about more contexts become generalized. Within this paradigm, it is likely that attachment theory currently receives more consensus than classical psychoanalytic theory among scientists because the attachment is a construct easier to represent empirically than classical psychoanalytic constructs. That is, the question here is not only the empirical testability of a given model, which is a problem of methods; rather, the question concerns how the extended model, originally developed to understand specific human behaviors, may extend over other behaviors generating new knowledge on those behaviors. To maintain the example of attachment, every human being experiences love in its multiple forms: thus, understanding that love means closeness to significant others—as implied in the principal tenets of attachment theory – may help understand multiple phenomena in multiple contexts and at different levels of observation (e.g. clinical disorders, nationalism, response to catastrophes, relationship with nature, organizational behaviors, just to name a few), and thus intervene based on the principles of the same theory, using languages that can be easily exported toward other disciplines across society while maintaining its specificity and rules within the psychological framework.

The Metatheoretical Framework

In his comment on the paper by Melchet (2016), Henriques (2017) expressed his perplexities as to the trust in the capacity of the current scientific understanding of human behavior to ground the unity of professional psychology. According to Henriques, this could be accomplished only if psychological science were to work «as a coherently organized body of knowledge that provides a theory of the person, a theory of psychopathology, and a theory of psychological change processes» (p. 393). To do so, psychology needs a meta-theoretical framework grounding a single, clear definition of the basic concepts of the discipline – e.g. mind, self, behavior. *The Tree of Knowledge System* (Henriques, 2011) is maybe the most advanced attempt to achieve this. It provides a conceptual landscape mapping the relations between the plurality of levels of psychological phenomena – physical, biological, psychological, and social – and, in so doing, enabling precise definitions of the core concepts of the discipline.

Thus, for Henriques, unity is not to be pursued as the search for a single ultimate causal mechanism, but as the building of a metatheoretical framework: a general language providing the ultimate meaning of psychological core concepts – i.e. the concepts that in turn ground short and medium-range theories. In a partially similar vein, Marsh & Boag (2014) envisaged the unity of psychology as emerging from the conceptual analysis of the ontological premises underlying the current medium-range psychological models.

Within psychoanalysis, the effort to achieve a coherent and comparable theoretical structure has been advanced since the 1960s, particularly in the United States, thanks to several authors, among whom Rapaport's work certainly remains a point of reference. The far-sighted research programme undertaken by Rapaport (1960), though unfinished, aimed at revising the structure of psychoanalysis, in order to bring order within a theoretical landscape that had become increasingly varied over time, but in a non-systematic manner. It was still necessary to elaborate criteria that would allow the different psychogenetic, pathogenetic and treatment formulations that had emerged over time to falsify or modify each other. Rapaport's research was driven by the hypothesis that psychoanalysis could constitute the most coherent and comprehensive model of a scientific psychology of that time.

In this same vein, a recent study by Riolo and colleagues (2021) has shown a basic problem in such a project of revision and systematisation of the general psychoanalytic theory. With the exception of Freud and Hartmann, the various authors of psychoanalysis (Klein, Winnicott, Bion, Kohut were the others considered in this study) developed special theories adequately correlated with clinical observations, but they did not give rise to strictly axiomatic systems. In other words, their formulation was not characterized by precise definitions and theoretical links of interdependence and derivation such as to allow necessary and unambiguous inferences. In their study, Riolo and colleagues start by identifying through an analysis of Freud's texts (*Some Elementary Lessons in Psycho-Analysis*, 1938) the axiomatic structure of Freudian theory divided into descending theoretical levels (basic axioms, general theory, observational theories, operational theories). They then proceed to isolate the axioms of the other authors considered as well. Subsequently, they compare the statements (by the different authors) of the same theoretical level, in order to distinguish *concordant* from *alternative* statements, subdividing the latter into two classes: alternative but *not mutually exclusive* statements, thus able to coexist within the same general theory; alternative but *mutually exclusive* statements, thus incompatible within the same general theory. Their analysis initially only concerns the logical consistency of the utterances, not their content. However, the authors soon realise that this type of analysis is impossible since the majority of the utterances they manage to isolate in the text are syntactically and semantically too heterogeneous – the same terms often appear as belonging to different theoretical levels and conveying different meanings – to be able to compare them with a purely formal criterion. Therefore, Riolo and colleagues argue that it is necessary to move from a propositional comparison to a conceptual comparison: i.e. to shift the focus on the specific articulations and meanings that assumptions take on within the overall conceptions, in order to identify which concepts underlie fundamental theoretical divergences (e.g. a drive or a relational conception of the mind). In this way, they manage to outline relevant theoretical developments that occurred over time, reaching the conclusion that although none of the post-Freudian theoretical proposals explicitly question the Freudian paradigm, the changes introduced into it are such as to assume paradigmatic significance.

According to Salvatore (2016, 2017), the metatheoretical framework has to be built in terms of *abstractive generalization*. He argues that the compartmentalization of the discipline reflects the empiricist vision of the scientific knowledge, which has been taking possession of the discipline since the Second World War (Toomela & Valsiner, 2010). According to the empiricist view, scientific knowledge consists of identifying empirical relationships between psychological constructs and between these and the phenomena investigated, through controlled procedures, capable of guaranteeing the reliability of results. A relevant implication of this vision is that it leads to conceive psychological constructs in strict connection with the experience, in order to make their meanings self-evident, therefore objectifiable.

Empiricism's preference for constructs close to experience has been accompanied by the downgrade of abstract constructs, that is to say constructs whose meaning is defined on the basis of the theoretical framework they are embedded in, rather than on the basis of their factual content (Valsiner & Salvatore, 2012). Think of Gestalt concepts of good form and closure (for a review, see Wagemas, 2018), the Piagetian constructs of assimilation and accommodation (e.g. Piaget, 1936), and notions of mediation (e.g. Vygotsky, 1934/1986), scheme (Neisser, 1976), liminality (Stenner, 2017). These constructs are abstract in nature, rather than empirical – as such, they can be used to conceptualize an infinity of phenomena, which are also very different from an empirical point of view. For example, Piagetian concepts can be used to describe human thinking as well as organizational development.

It is worth highlighting that the fact that abstract constructs are not defined on the basis of specific profiles of empirical characteristics does not mean that they are anti-empirical; rather, it means that it is the theoretical framework that establishes how empirical data have to be interpreted to produce information relating to these constructs. Continuing with the example of Piagetian constructs, it is not the child's behavior that defines the (empirical) meaning of assimilation, but the (theoretical) meaning of assimilation that allows us to interpret the child's behavior in a given sense.

According to Salvatore (2017) there is a structural connection between the centrality adopted by empirical constructs in contemporary psychology and its compartmentalization. Empirical data are by

definition inscribed within a context and their meaning depends on this embeddedness. Attachment behaviors occur and are recognizable as such in the context of relationships with significant others, the therapeutic alliance within the context of psychotherapy, the sense of community within the context of the relationship with one's community, and so on. Thus, according to the abstractive generalization strategy, the compartmentalization of psychology – psychology of mental disorders, hospital psychology, tourism psychology, etc. – finds its foundation and constraint in the centrality attributed to empirical concepts and in the specular marginalization of abstract constructs. And this leads to the conclusion that to overcome compartmentalization, psychology needs to rediscover the role of super-ordered abstract concepts. More specifically, this rediscovery involves two steps.

Firstly, psychological science and profession have to aspire to *single definitions of the discipline's core concepts*. Just as physics shares the same meaning of concepts like quantum, atom, gravity, and economists use notions like value and demand within the same constraints, psychologists have to work to arrive at giving the same meaning to categories that operate as the bricks of their scientific buildings, whatever the contingencies (i.e. circumstances, phenomena, plans) of their use.

This result can be reached only if psychological science moves from the currently prevalent *extensional* way of defining its concepts to the *intensional* mode (Salvatore, 2016; Valsiner, 2007). The extensional definition consists of the linkage of the concept with the piece of the world it refers to. In other words, the meaning of the concepts consists of the description of the object (or of the operation to measure it). By contrast, the intensional definition consists of the map of the semantic relations the concept maintains with the other concepts of the theoretical framework. The meaning of concepts as autopoiesis, market, social system, sign – to mention categories from life and social science – does not consist of the reference to empirical phenomena – rather, they are categories defined from within the theory and then they are used to model reality. Concepts like primary process, assimilation and accommodation, schema, are examples of psychological concepts defined in an intensional way – their meaning does not consist of the reference to a given piece of the world; rather, they are defined in terms and by reason of the theory.

Extensional definitions are unable to provide the single meaning of concepts because they cannot avoid depending on the socio-cultural context. This is true for any science, but even more for psychology, because psychological phenomena are shaped by and represented by means of culturally framed commonsensical formats. Therefore, defining concepts in terms of the empirical content of the phenomena they refer to, makes their meaning vary due to the contingencies of their use. For instance, behaviors considered indicative of "agency" change across cultural contexts and social circumstances; therefore, no definition referring to the manifestations of agency can aspire to be unitary.

Secondly, the intensional definitions of psychological core concepts have to be made at abstract and generalized level (Kazdin, 2008; Salvatore & Valsiner, 2010; Shepard, 2004). In doing so, the compartmentalization limiting the development of the discipline can be addressed. Short range theories are necessary, because they provide forms of knowledge close to experience, therefore at the level of problems, where demands and objectives are defined. So, they must not be substituted; rather, they have to be framed within an abstract, metatheoretical framework (Henriques, 2011), in order to be understood as local instances of fundamental dynamics. In so doing, instead of seeing them as alternatives, psychological science can pursue the contextual specificity of psychological knowledge and the opportunity of making local theories communicate with each other together – e.g. cross-fertilizing the understanding of the psychotherapy process and of populism.

Physics provides a paradigmatic example of abstractive generalization – the apple falling on Newton's head, the orbit of planets, the trajectory of a bullet are modeled as local instances of the same fundamental dynamics – gravity. Psychology has a rich tradition of abstract, general theories – e.g. cognitivism, behaviorism, psychoanalysis. Yet recent decades have witnessed the progressive weakening of the interest in this level of theorization, substituted by the commitment to more and more specific models, each of them focused on a particular domain of reality.

The Intervention as Regulative Criterion

As recognized above, psychologists agree that the discipline is fragmented but have different ideas as to how the issue can be addressed. Thus, we need a criterion to compare the different approaches, in order to prevent the fragmentation afflicting psychological science from being replicated at the very level of the efforts to address this issue.

Our proposal is to identify this criterion in the (broadly speaking) *intervention.* As intended here, intervention refers to the capacity of scientific knowledge to ground and channel the ability of professional psychology to contribute to human progress. This is achieved by providing interpretative frames, forecast scenarios, strategies, and devices to deal with problems and projects considered relevant by people, institutions and societies. This is how we see the epistemic mission of professional psychology – to provide psychological science with a "third position", in relation to which meta-theoretical frameworks can be validated. This validation concerns the capacity of the frameworks to work as hub of theories that support human efforts to govern the relation with the world.

To give an example, consider the copious literature on the socio-cognitive impact of uncertainty (Arkin, Oleson, & Carroll, 2013). In this field of investigation, several theories have been developing in parallel, reflecting the different, implicit, ontological and anthropological assumptions on the basic needs (e.g. the sense of control over events, the anguish related to the awareness of one's own mortality, the stability of one's system of meaning) which, when challenged by uncertainty, motivate the reaction. In taking the intervention as the basis for comparing theoretical frameworks, the evidence supporting the various socio-cognitive theories of uncertainty is a necessary but not sufficient criterion. Theories have to be also compared in their capacity to support interpretations and strategies of intervention on the psychosocial manifestations of the response to uncertainty.

Possible Scenarios

We do not express a unique view of how the three approaches outlined above can/will interact with each other. It may be possible that

they will enter in competition with each other, and that one of them will prove to be the most effective path to the unity of professional psychology. It may also be possible that the approaches will undergo a process of progressive integration. As already observed, this would not be unexpected for the first two approaches (search for ultimate explanation and strategy of extension), that share the same bottom-up, data-driven logic of knowledge building, and differ from each other in where to look for the basic explicative tenet – within and outside psychological science, respectively. However, integration is a scenario that might involve the third approach as well. This is so because a prerequisite for the use of any data-driven form of knowledge for a mature psychological science is the anchoring to a theoretical framework that describes psychological phenomena, inspires hypotheses to be tested, explains phenomena and guides predictions of changes.

It is useful to keep in mind that science «proceeds by models to find its core concepts and build broader theories» (Di Nuovo, 2020, p. 703). In other words, scientific knowledge does not describe nature itself, but conceptual models that are usually ideal. In order to gain predictive power, those ideal models are compared to observable reality and to limitations of the validity of the models identified. These comparisons provide feedback that modify the theories, letting them become broader and able to explain a bigger portion of reality.

Thus, according to this integrative perspective, the unifying empirically grounded theoretical research in psychology domains would emerge from the capacity of eliminating gaps in theories, reducing redundancy, and increasing parsimony. This can be accomplished via: 1) paying attention to "the bigger picture" in terms of how to translate research into practical recommendations that will have real effects on real people in the real world; 2) selecting the essential psychological variables and processes that do most of the "work" when it comes to predicting and explaining behavior at the individual, relational and organizational level; 3) proposing and testing integrated theory-based interventions.

In all domains of psychology (basic, applied, social, clinical etc.) specific micro theories have proliferated and their usefulness is very limited. For instance, in health psychology, many specific theories have been proposed for describing and explaining health beliefs and healthy behavior. However, when past behavior is taken into account, most of those theories lose their predictive value (e.g. Hagger, 2009).

Thus, the development of a generalized theoretical framework can be the means of both extending the heuristic value of micro-theories and of empowering their capacity for guiding the empirical understanding of phenomena.

Moreover, a further advantage of this perspective lies in the fact that it can help to address the major crisis that science has witnessed as a consequence of the replication failure in our field, after the findings that only 30% of all psychological experiments, although deriving from very influential theories, have been replicated. Similarly, more than half of researchers have failed to reproduce their own studies (Baker, 2016). The answer of researchers to this replicability crisis is the open science movement; this movement parallels the search for unifying broader theories and both may increase the predictive value of each micro-theory and contribute to overcome compartmentation.

Conclusion

The compartmentalization of psychological science and the profession prevents the progress of the discipline and its impact on the capacity to respond appropriately to old and new challenges that individuals, groups, institutions, and societies have to face. Compartmentalization is a collateral effect of the impressive scientific, methodological, and technical development of psychology, which has led to the emergence of specialized segments of knowledge and practice that inevitably tend to progress separately from each other and weaken their reciprocal linkage.

Thus, overcoming compartmentalization does not mean giving up the specialization of the discipline, which is an inherent marker of its advancement, but it means establishing conditions to make specialization even more efficacious and impactful. Accordingly, the search for the unity of psychology has to be conceived as the effort to bridge the specializations in order to enable them to cross-fertilize and learn from each other as well as to provide a coherent image of the discipline to society and users.

The authors of this paper agree on the analysis of the current scenario of psychological science and the profession (i.e. the critical role

compartmentalization plays in it) and on the bigger picture (i.e. the search of unity). Instead, they have different views as to the ways in which unity can be pursued. These ways have been outlined in terms of three general approaches, which have been presented above without expressing any preference for one over others. This is where the specificity of this paper lies – a road map of the field, highlighting the different options at stake and a shared "rule of the game" in terms of which the different standpoints can debate with each other and in so doing make the discipline develop. Intervention is the "rule of the game" proposed – we disagree as to what the most efficacious path to unity is; but we agree that the measure of such effectiveness is the capacity of the advancing of scientific knowledge to empower the psychological intervention – namely, the ability to understand and address problems and issues challenging the contemporary human condition.

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