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A conceptual analysis of the use of systems-psychodynamics as an organisation development intervention: A neuroscientific perspective

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Author:
Dirk J. Geldenhuys[1]

Affiliation:
[1]Department of Industrial and Organisational Psychology, Faculty of Economic and Management Sciences, University of South Africa, Pretoria, South Africa

Corresponding author:
Dirk Geldenhuys,
geldedj@unisa.ac.za

Orientation: Systems-psychodynamics as a consulting stance offers learning experiences that not only have links with the first organisation development interventions but also remains a popular approach for organisational consultation. Here, the argument is made that neuroscientific principles, as embedded in neuropsychotherapy, offer a lens for evaluating and improving the effectiveness of systems-psychodynamic interventions.

Research purpose: The purpose of this study was to hypothesise about the effectiveness of systems-psychodynamic interventions, and to offer propositions for improvement.

Motivation for the study: Studies on the effectiveness of systems-psychodynamic interventions from outside the same network of science-practitioners, are limited. Furthermore, no evidence of a similar study using a neuroscientific framework could be found in the English literature.

Research approach/design and method: This was a conceptual analysis with theory adaption as an approach. Systems-psychodynamics was chosen as domain theory and was discussed first, followed by neuropsychotherapy as method theory.

Main findings: It was hypothesised that, using the lens of neuropsychotherapy, systems-psychodynamics – with its focus on insight into unconscious processes – would most likely enhance fear-based learning. To facilitate transformational learning, the experience could be augmented through a better alignment with neuroscientific principles.

Practical/managerial implications: There is a need to augment the role of the consultant as science-practitioner with the skills of a reflective practitioner. This will enable consultants to continuously critique and adapt preferred interventions, by integrating new neuroscience-related knowledge in those interventions.

Contribution/value-add: This study contributes to the literature on organisation development interventions, and the reflective practice of the science-practitioner.

Keywords: basic human needs; interventions; learning; group relations; memory; neural networks; neuropsychotherapy; organisations; systems-psychodynamics; organisation development; organisational psychology.

Introduction

Systems-psychodynamics (SP) that originated from the Tavistock Institute's group relations programme, is an interdisciplinary field that integrates practice of psychoanalytical, open systems perspectives, and group relations theory and practice (Fraher, 2004; Sher, 2013). Systems-psychodynamics refers to collective psychological behaviour, and provides a perspective on the forces or dynamics at play within and between groups, conceptualised as social systems (Fraher, 2004). As a consulting stance, it offers learning experiences that not only have links with seminal organisation development (OD) interventions that are aimed at improving productivity and quality-of-work life, but it also remains a prevalent approach for organisational consultation (French, Bell, & Zawacki, 2000). For that reason, it is regarded as an emerging field of study and practice, and is hence open to adaptation (Sher, 2013). This conceptual article is about using applied neuroscience – more specifically, neuropsychotherapy (NP) – to theoretically evaluate, and adapt, the use of SP as an OD intervention.

The contribution of SP interventions to OD is well recognised in the literature. In a review of articles on SP, however, it was found that, despite employing sound qualitative research designs, most were based on the researchers' interpretation of the data from an SP frame of reference, with

only a few reporting on SP as a consulting stance. This supports the view of Sher (2013), who stated that:

> [G]roup relations as a force for change requires more published critical research. Group relations as a movement, as it has often been termed, tends to be self-authorising, and has a poor record of critiqued analysis. […] Consequently, conversations in the group relations network often sound like people talking to themselves …. (p. xxvii)

The argument put forward in this article is that, similar to Appreciative Inquiry (Geldenhuys, 2020), NP offers a scientific lens by means of which to evaluate and adapt the use of SP as a change intervention. Although neurology and psychology have a common denominator in their psychobiological foundation, the disciplines were distanced when Freud moved away from the biological roots of psychology (Cozolino, 2017). Notably, breakthroughs in neuroscience, caused by advances in sophisticated imaging technology, have again enabled the integration of the different disciplines in a scientific model of NP, that 'propose[s] a strategy, an intervention process to facilitate change – to shift the current presentation towards higher levels of being – increasing quality of life' (ed. Rossouw, 2014, p. 1). Considering the above, NP offers a unique perspective on the integration of knowledge from different disciplines, and is, as a consequence, regarded as a relevant method for undertaking a conceptual analysis of SP.

The purpose of this article is to apply neuroscientific principles theoretically, as embedded in NP, in evaluating and adapting SP interventions in organisations. This is in line with the focus of the group relations tradition, which employs multidisciplinary approaches to generate new knowledge aimed at advancing both organisations and societies (French & Vince, 1999; Gould et al., 2001; Sher, 2013). Therefore, this article constitutes an attempt to contribute to the discipline of OD by reflecting on an OD intervention, and in so doing laying the foundation for future empirical studies. Furthermore, it is envisaged that this analysis might contribute to the development of science-practitioners as reflective-practitioners (Lane & Corrie, 2006), by creating in them an awareness of the need to continually reflect on their consultancy practice.

Research design

Research approach

This study is a conceptual analysis which employs theory adaption as an approach (Jaakkola, 2020). Theory adaption expands or adjusts the conceptual scope of a specific domain, by offering an alternative perspective (Lukka & Vinnari, 2014). For this study, SP as change intervention was chosen as the domain theory, and NP as the method theory.

Research method

A two-phased strategy was followed in this research. Firstly, SP as an approach to OD interventions is conceptualised as a domain theory. Secondly, the method theory is used to evaluate SP. Having explicated these two issues a discussion

follows that indicates the strengths and shortcomings as well as the possible adaption of SP as an OD intervention. This hopefully, will allow for greater flexibility in applying interventions according to preference (Zimmerman, 2018).

Targeted body of literature

To obtain consolidated, integrated theories, scholarly publications by seminal authors were primarily consulted. This was augmented by e-journals located in databases such as EBSCOHost, Emerald, Google Scholar, ProQuest, SAE Publications and Science Direct, which cover multidisciplinary subjects. Access to these databases was facilitated through http://www.unisa.ac.za/library web portal. Data were also retrieved from the reference lists of publications found during the database searches.

Data-gathering method

Inclusion and exclusion criteria were used to ensure the retrieval of relevant data for this study. This was done by reading the table of contents of books, as well as article abstracts of peer-reviewed articles published in English. The time frame for inclusion was not limited, but was chronologically dealt with, starting with 2020, and working backwards. The keywords used in the search included 'systems-psychodynamics' (339 relevant articles), 'systems-psychodynamics and organizations' (28). No articles were found with 'systems-psychodynamics and neuroscience' as keywords, or 'systems-psychodynamics and neuropsychotherapy'.

Data analysis and presentation

Links will be made between the domain and the method theories. Theoretical explanations (and, at times, representative quotations) will be offered to substantiate these claims (Hirschheim, 2008; Jaakkola, 2020).

Systems-psychodynamics

Systems-psychodynamics, also referred to as the Tavistock approach or Group Relations Training (Sher, 2013), originated at the Tavistock Institute in the 1950s and 1960s (Miller, 1997), and was formally introduced by Miller and Rice (1967) as an interdisciplinary framework which integrates insights from open systems theory, psychoanalysis and group relations theory (Fraher, 2004; Gould, 2004; Stein, 2004). Still an emerging field, it encompasses different models. Sher (2013) defined it as:

> [O]pen socio-technical systems informed by psychoanalytical perspectives that illuminate unconscious processes in individuals, [the] organisations with which they work, and the physical and social environments in which these organisations are located. (p. xii)

Open systems theory

Systems-psychodynamics was originally influenced by Lewin's (1947) contributions concerning the Gestalt properties

of human systems, with the emphasis on studying the group as a whole, the tendency of systems to move toward a state of quasi-stationary equilibrium, action research, and his view that the only way to understand a system, is to change it (Gould et al., 2001; Miller, 1997). Action research, as a way of combining research in the social sciences with professional practise, is still considered the core challenge of the Tavistock Institute (Miller, 1997; Sher, 2013).

The open systems theory of Von Bertalanffy (1950), with its focus on the significance of boundaries and interactions across boundaries, also played a key role in the development of the underlying theory regarding SP (McCollom, 1995; Miller, 1997). In accordance with open systems theory, organisations exist and survive only through continuous interaction with their environment, with the latter serving as a source for its inputs and as the recipient of its outputs (which include information, people, ideas, values and phantasies), with the management of boundaries between systems and subsystems as a core concept (Gould et al., 2001; Miller, 1989; Sher, 2013). Because these boundaries are not stable, and are non-linear and subject to continuous negotiation, the term 'boundary region' is preferred (Gould et al., 2001). This is regarded as a region in which self-organising activities occur to protect the system from disruption as a result of external influences, but also to allow the system to adapt to external changes (Gould et al., 2001). In individuals, boundary management relates to the ego function; and in organisations, the management of these boundaries is regarded as a leadership function (Sher, 2013).

Psychoanalytic concepts

Although the similarity between individual and group psychology was already indicated by Freud (1913), it was subsequent developments in psychoanalysis – such as Klein's (1959) developmental theories (Hinshelwood, Robinson, & Zarate, 1997), and their relevance for adult relationships – that became known as object-relations theory (Diamond, 2017; Miller, 1997; Stacey, 2003), together with Bion's work on basic assumption groups, which became the benchmark of SP (Gould et al., 2001; Miller, 1997; Sher, 2013).

According to Klein's (1959) theories, the infant instinctively seeks pleasure maximisation and pain avoidance, and accordingly splits the world into good and bad objects (Hinshelwood et al., 1997). Anxieties related to the splitting are complicated by the discovery that the good and the bad are manifestations of the same person (the mother). Defences are developed against these intolerable threats and anxieties which eventually become a permanent part of psychic life, together with feelings of guilt, reparation, and love (Miller, 1997; Sher, 2013). These defensive strategies (splitting and projection), for example, enable the individual to retain a positive self-image, whilst externalising (projecting) the unwanted image onto the other (Diamond, 2017). It can therefore be said that object relations theorists study the internal, infantile, narcissistic world of the individual (Diamond, 2017).

Group relations theory

The application of the above concepts to groups and organisations is augmented by Bion's (1961) theory of basic assumption groups, so called because he suggested that groups meet, based on unconscious assumptions inferred from their members' behaviour, which differ from the stated aim of the meeting (Gosling, Miller, Turquet, & Woodhouse, 1967). Accordingly, a group functions on two levels, namely as a workgroup or a basic assumption group. Membership of the former is conscious and voluntary, with clear roles that align with the primary task of the group, and there is a reliance on rational procedures, such as problem solving and delayed gratification. Membership of the latter group, however, is involuntary and spontaneous, with an emphasis on action, and the satisfaction of impulses (Bion, 1961; Eisold, 1985).

Bion (1961) identified three basic assumptions, namely dependency, fight–flight and pairing. In a dependency group, members meet with the unconscious purpose of being dependent on someone, and finding a leader who will embody the assumed purpose, that is, a group member who can be persuaded (for the time being) to give the impression of omnipotence. The fight–flight group meets with the purpose of fighting or fleeing from a threat, and will choose a decisive leader who can identify a threat. In an assumption group pairing, members become preoccupied with a leader who is still to be born, or an idea that will emerge as their saviour (Rioch, 1975). A group member's predisposition to participate in one basic assumption group rather than another, is referred to as his/her valency (Bion, 1961). One basic assumption group is always active, whilst a workgroup is in operation. At times, it supports the functioning of the workgroup, and in other instances it works against the task. The assumption group can also be obstructive when its effect exceeds a certain point (Gosling et al., 1967). Two more assumption groups, namely me-ness (Turquet, 1985) and we-ness (Lawrence, 1999) were later added, and studied. Awareness of these unconscious group dynamics assists practitioners in understanding and managing change proactively (Miller, 1997).

Group relations training

Training in the SP tradition is known as group relations training, a group relations conference, or a Tavistock conference (Gould et al., 2001; Sher, 2013). It is an experiential method for studying the causes of organisational distress, with the focus on the dynamics of the group as a holistic system, and the impact which group phenomena have on the exercise of leadership and authority. Recently, the method was amended to include the study of other group phenomena, such as boundaries related to the task, time, role, territory, and export; roles and role configurations; organisational structure and design; work culture; gender; team building; race and diversity (Cilliers & May, 2012; Cilliers, 2000; Czander, 1993; Huffington, Armstrong, Halton, Hoyle, & Pooly, 2004; Sher, 2013).

The conference is designed as a temporary organisation, which offers participants an opportunity to study covert processes as they unfold within small groups (8–12 members), large groups (> 90 members), and between various small groups. The conference is managed by a director and consultants, who are authorised by the sponsoring institution to manage the boundaries of task, time, and space (Hayden & Molenkamp, 2003).

The conference accommodates several events, such as plenaries, small study groups, large study groups (in spiral format), intergroup events, institutional events, role analysis or review groups, and application groups. The last two of the events mentioned here, are designed to be reflective, thus offering an opportunity to reflect on the learning that took place during experiential events, and the application thereof in real work-life situations (Hayden & Molenkamp, 2003).

During experiential events, the primary task of the participants is to study the behaviour of the group, by focusing on the surfacing of defensive processes in real time. The task of the consultants is to offer working hypotheses to facilitate insight into the manifesting dynamics, by means of interpretations; confrontation; the clarification of common issues, expectations and intentions; and the emotional process of working through resistance to change (Kets de Vries & Miller, 1984).

The assumption underlying the method is that the conference affords members opportunities to learn how to authorise themselves in their roles, and hence to become less constrained by group dynamics (Miller, 1989). The assumption is that they can develop the capacity to differentiate between, and manage, their psychological boundaries when challenged by the dynamics of the group. Arguably, critically reflecting on the social and political forces of the group, during the review and application groups, enhances an understanding of defensive structures, such as regression away from a changing reality. The intention is thus not to resolve, but to 'investigate' issues, so that participants can more clearly identify them when they encounter them in other situations (Hayden & Molenkamp, 2003, p. 3).

Applying systems psychodynamics as a consultancy practice

Action research as a way of combining research in social sciences with professional practice, is regarded as the core challenge of the Tavistock Institute (Miller, 1997; Sher, 2013). Because of the broad spectrum of consultation practices that employ an SP perspective, it is difficult to categorise the different interventions (Stein, 2004). This might be attributed to the interdisciplinary nature of the approach, and/or the fact that it is (in many instances) applied in conjunction with other interventions (see, e.g. Diamond, 2017; Neumann, Kellner, & Dawson-Shepherd, 1997). For this study, interventions which align with the work of the Tavistock Institute, with change-oriented action research as a hallmark

and with psychoanalysis playing a major role (Sher, 2013), were chosen as the target.

That said, one way of categorising SP interventions, is to differentiate between the use of in-house group relations conferences (which are markedly similar to those offered as group relations conferences), and consultation to teams and individuals (Gould et al., 2001, 2004; Miller, 1993; Stein, 1996). In-house conferences, which are mainly used to change organisational cultures (Miller, 1993; Sher, 2013), involve surfacing, interpreting and working through collective social defences, enlarging organisation's capacity to make appropriate changes in terms of authority relations, role and boundary management, and regulation (Gould et al., 2001).

Although in-house conferences are similar to Tavistock group relations conferences in structure, the focus of the consultation differs. Whilst the focus of interpretations in the Tavistock conference is on the relationship or relatedness between the group and the consultant, the focus in consulting situations tends to be more on the relations between the group members themselves, on their relationship with, or relatedness to, the institution, and on the task to be performed (Gould, 2004).

Two prominent designs of in-house conferences were identified in the literature, namely the Tavistock group relations conference (discussed above), and the 'double-task' model developed by Bridger (2001), a founding member of the Tavistock Institute. According to the double-task model, participants focus (in line with Bion's [1961] theory of the workgroup and the basic assumption group) on two tasks, namely an external task (which serves to accomplish a specific rational aim), and an internal task (which explores, at different times, group dynamics as these influence the execution of the external task) (Bridger, 1990, 2001).

Systems-psychodynamics consultation to teams is often executed collaboratively with team members, when teams experience an impasse in accomplishing their task because of group dynamics, or even other unknown factors. When consulting individuals, organisational role consultation is mainly used as a psycho-educational developmental process, and not as a form of counselling or psychotherapy (Gould et al., 2001, 2004; Miller, 1993; Stein, 1996).

The systems-psychodynamic consultant

The SP consultant engages in 'psychoanalytic process consultation' (Gould et al., 2001, p. 8), or what Bion (1961) referred to as 'therapy of the group'. Whereas the consultant focuses on analysing the dynamics of the different groups and the emerging culture of the conference as an institution during group relations training conferences, in organisations the focus is more on analysing boundaries, roles, structures, and organisational design (Bain, 1982). The consultant observes and interprets the covert dynamics of the client, especially in terms of relatedness, and the way in which authority is exercised when anxiety is experienced (Atkins, Kellner, & Linklater, 1997). The consultation focuses on

'how a variety of unwanted feelings and experiences are split off and projected onto particular individuals and groups that carry them – that is, their process roles' (Gould et al., 2001, p. 8).

Neuropsychotherapy as a method theory

In essence, NP, as a relatively new field of study and practice, refers to a neuroscientific perspective on the shortcomings of psychotherapy, and the practical implications identified by this perspective (Grawe, 2007). Consequently, it does not give preference to any school of Psychology (Cozolino, 2017; Grawe, 2007; ed. Rossouw, 2014). Departing from a neurological basis that underlies all aspects of human functioning, including pathology and wellbeing, it not only offers a standalone model for psychotherapy, but also serves as a meta-theory for translating neuroscience research into other disciplines (Grawe, 2007; ed. Rossouw, 2014). Neuropsychotherapy, therefore, differs from the classical field of neuropsychology, which focuses on brain injuries and related disorders (ed. Rossouw, 2014). By adopting complexity theory from the natural sciences, to understand and promote mental health (Arden, 2019), NP also differs from a pharmacological perspective, with its focus on neural chemicals and medication (Cozolino, 2017; Grawe, 2007). Furthermore, it includes different perspectives from neuroscience, such as interpersonal neurobiology, cognitive neuroscience, affective neuroscience, and psychoneuroimmunology (Arden, 2019; Cozolino, 2017).

Functioning of the human brain

From a complexity perspective, the estimated 100 billion neurons in the brain collaborate to form several neural networks that fulfil specific functions (Arden, 2019; Grawe, 2007). Of these, NP focuses on three large operating networks, known as the task-positive or executive network (EN), the default mode network (DMN), and the salience network (SN) (Arden, 2019; Cozolino, 2017; Wilkinson, 2017). Through positive and negative feedback loops, these networks coherently self-organise to attain homeostasis (Siegel, 2012). Integrative functioning within, and proper balancing between, these networks are vital for optimal functioning and development, and are therefore the focus of NP (Arden, 2019; Grawe, 2007). In this sense, wellbeing is developed by enlarging the flexible region between internal stability, and the capacity to adapt to the changing, external environment (Arden, 2019).

The EN is located in the cerebral cortex, which incorporates the last brain regions to develop and function optimally (Cozolino, 2017; Rossouw, 2013). The cerebral cortex is 'first organised by, and then comes to organise, our experiences of how we interact with the world' (Cozolino, 2017, p. 61). The EN is responsible for higher-order functions such as complex decision making, planning and goal-directed action. It enables integration and serves to arrange information (including emotional experiences) into context, as well as the

capacity to focus on the current reality (Wilkinson, 2017). In this sense, it also serves to regulate emotions that might otherwise have a negative impact on long-term planning and relationships (Arden, 2019; Cozolino, 2017). Overactivation of the EN, at the expense of the SN, is associated with a lack of emotional awareness, and an inability to emotionally engage with others (Cozolino, 2017). The ineffective functioning of the EN is also associated with attention disorders, the experience of information overload, difficulties with decision making, and a lack of spontaneity (Arden, 2019).

The DMN functions at times when the EN is not operational, or is in a resting state (Arden, 2019). Given the brain's need for consistency (Grawe, 2007), the DMN uses long-term memory to predict the future. It thus provides the capacity for reflection, daydreaming, and creativity (Cozolino, 2017). It is largely involved in self-referential knowledge (Buckner, Andrews-Hanna, & Schacter, 2008), and plays a significant role in developing a sense of self. This is done by establishing a connection between the self and others. Self-reflection therefore focuses on the role of the self in relationships, assumes the perspective of others, and considers the possible future outcomes of interpersonal behaviour (Buckner & Carroll, 2006; Cozolino, 2017).

In respect of the brain's focus on safety (Cozolino, 2013; ed. Rossouw, 2014), reflecting on the past will often involve focusing on negative experiences, to avoid future threats (Cozolino, 2017; Zimmerman, 2018). Over-activation of the DMN during stressful situations might thus lead to rumination, instead of positive future possibilities being considered. Furthermore, especially if the DMN and the SN are simultaneously operational, it may adversely affect a person's sense of control, self-efficacy, and self-esteem, and hence lead to rigidity and even depression (Arden, 2019).

The SN, also known as the meaning-making network (Wilkinson, 2017), involves bodily sensations and the development of emotions, thereby allowing us to experience ourselves as emotional human beings (Arden, 2019). It detects stimuli and, because of the presence of spindle neurons with long axons, directs immediate attention to those stimuli that we deem to be in our best interests on an emotional level, especially those related to the experience of safety (Arden, 2019). If these stimuli are novel, or regarded as potentially harmful, the hypothalamus-pituitary-adrenal (HPA) axis (known as the stress response) is activated, thereby preparing the body for defensive responses which include the urge to fight, flight or freeze, in order to survive (Dahlitz & Rossouw, 2014). In this sense, visceral and emotional information always influence functions related to the EN, such as decision making, judging, and even interpersonal responses (Arden, 2019; Cozolino, 2017).

The SN also serves as a switch by activating either the EN or the DMN, and hence between focusing on the inner or the external world, between the self and others, and between

stability and adaptability (Arden, 2019; Cozolino, 2017). Over-activation of the SN is associated with an inappropriate sensitivity to threats, hyperarousal, hypervigilance, and anxiety, whilst under-activation is linked to interpersonal avoidance and a lack of motivation or pseudo-depression (Arden, 2019; Lanius, Frewen, Tursich, Jetly, & McKinnon, 2015; Wilkinson, 2017).

Upon studying the functioning of the human brain, it is evident that SP is also based on an interdisciplinary framework which integrates insights from open systems theory, such as complexity, quasi-equilibrium, the impact of the social and technical environments, and the important role of boundaries (Fraher, 2004; Gould et al., 2001; LeDoux, 2002; Rossouw, 2014; Siegel, 2012; Stein, 2004). Whereas NP differentiates between three large neural networks, and acknowledges the influence of the DMN on the functioning of the EN, SP differentiates between rational and unconscious processes only, but also considers the influence of unconscious processes, such as those based on the theorising of Klein (1959) and Bion (1961), on rational functioning. With the management of the boundaries between the individual and group dynamics as the foci of SP interventions, SP probably focuses on, and hence contributes to, the development of a more coherent DMN.

Memory and learning

Multiple memory systems serve as a dynamic information bank for the three different neural networks (Arden, 2019). The working and explicit memory systems feed information into the EN. Working memory is defined as the amount of information which can be held in the mind for about 20–30 s (Arden, 2019); explicit or declarative memory includes episodic memories of personal events (autobiographic memory); and semantic memory is used to learn new facts, concepts or words (Schacter & Wagner, 2013). Explicit memory matures gradually, along with the development of the hippocampus and higher cortical structures, to eventually provide contextualised learning that is constantly being modified in the current situation (Arden, 2019; Cozolino, 2017).

The DMN obtains its information from both the explicit and (mainly) implicit memory systems, whereas the SN obtains it solely from implicit memory systems (Arden, 2019). Implicit systems are non-conscious (Zimmerman, 2018), and already start developing before birth. They are therefore biased toward the more primitive brain structures (which include the amygdala), are activated first, set the emotional tone for encoding explicit memories, and even override explicit memories in stressful situations (Arden, 2019; Cozolino, 2017).

Implicit memory includes genetic memories inherited from past generations that control bodily functions and reflexes, and procedural and emotional memories (Cozolino, 2017). Procedural memory systems comprise motor skills (e.g. habits) that can be recalled without thinking (Arden, 2019).

Based on the neural principle according to which neurons that fire together, wire together (Hebb, 1949), habits that initially involve input from the EN become automatic, after repetition (Arden, 2019). Emotional memories are divided into two types, namely those that contain specific, intense personal experiences that intrude on our awareness through flashbacks or addictions, and those that form generalised schemata to create meaning in novel situations in which similar features appear (Ecker, 2018).

Given the above, implicit, emotional memory systems facilitate powerful and durable learning, are motivated to avoid threats, and are known to enable fear-based learning (Rossouw, 2017). The latter type of learning is conducive for effecting protection in appropriate contexts, but if these memory systems are excessively activated, or for too long, the learning becomes deeply ingrained, at the expense of exploratory-based learning, which is biased towards the hippocampus, and motivated by the open neural activation of the EN (Cozolino & Sprokay, 2006; ed. Rossouw, 2014).

Despite the preoccupation with unconscious processes in psychoanalysis, 'memory […] plays a very small part in our thinking about organisations, and, indeed in our practice of consulting to organizations, including the temporary organizations of group relations conferences'. (Levy, 2011, p. 65). Even though unconscious processes, so-called in SP, are not the same as implicit memory systems (Cozolino, 2017), arguably, because of the large overlap between these two concepts, the focus of SP interventions is largely on implicit memory systems, which are characterised by profound emotional learning. This profound learning, which is often reported by SP consultants (French & Vince, 1999), might be indicative of learning that is limited to implicit memory systems (Ecker, Ticic, & Hulley, 2012); that primes the brain for identifying and preventing group members from being a victim to group dynamics. Rossouw (2017) refers to learning that is based on anxiety as fear-based, protective or survival learning, because of the activation of the fear-based system. 'Fear is easy to learn and difficult to forget; the brain is biased toward remembering the bad and forgetting the good' (Cozolino & Sprokay, 2006, p. 14).

That said, in comparison with the Tavistock model, with its exclusive focus on unconscious processes, it is reasoned that the two-task model developed by Bridger (2001) might be more conducive to the integration of neural networks, as it permits an oscillation between content and process, and here-and-now and then-and-there (see, e.g. Erlich-Ginor & Erlich, 1999).

Basic human needs

To create integration and homeostasis in the activation of the different neural networks, Grawe (2007) developed the consistency model of mental functioning, according to which humans always strive to fulfil four basic needs for – attachment, control and orientation, pleasure maximisation or distress avoidance, and self-esteem enhancement or

maintenance. This is done by utilising approach motivational schemata, or, to prevent them from being violated, using avoidance schemata. Satisfying these needs provides a sense of safety, which is an essential requirement for regulating and maintaining consistency in mental functioning and human flourishing (Allison & Rossouw, 2013; Grawe, 2007; ed. Rossouw, 2014).

The basic need for attachment develops during infancy, when the EN and explicit memory systems have not yet developed, and the caregiver is instrumental in satisfying the infant's needs. Attachment to a caregiver therefore serves as a secure basis from which the child learns to explore and confront challenges from the environment (Bowlby, 1973). This facilitates the optimal stimulation required for neural growth and learning (Grawe, 2007; Henson & Rossouw, 2013). For that reason, the development of secure or insecure attachment patterns depends on the consistency of the caregiver's proximity, availability, and sensitivity, to the needs of the infant (Bowlby, 1973; Henson & Rossouw, 2013). Attachment can thus be viewed as the use of proximity to regulate fear (Cozolino & Sprokay, 2006). Although attachment patterns largely develop through early life experiences, that need still plays an important role in fulfilling personal goals throughout a person's life (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1973). This is evident, for instance, in the need for belonging, trusting relationships, and mutual support systems (Cozolino, 2017).

Although the basic need for control is innate, it is always expressed in concrete contexts, and corresponds with concrete goals (Grawe, 2007). Being regarded as the ultimate human need, it starts developing during infancy as a survival response, to satisfy physiological and psychological needs, but remains active throughout life, in the different life domains (Epstein, 1998, 2003; Grawe, 2007). Control is experienced not only if the current environment is perceived as aligned with, or congruent to, the person's life goals, but also if it is enhanced by a number of different options for securing future alignment. It thus provides a sense of behavioural flexibility (Grawe, 2007). Although a level of incongruence between the fulfilment of the need and the attainment of life goals is necessary to stimulate neural proliferation, growth and development, control should still be experienced – this is known as controlled incongruence (Grawe, 2007) – to prevent the activation of the fear-based system in pursuing these goals.

The basic need for orientation supports the need for control, and requires a clear, accurate assessment of the environment, and the future (Dahlitz & Rossouw, 2014). If the environment is clearly understood and predictable, alternative options become more apparent, thereby enhancing the experience of a sense of control. Notably, the more unclear the environment, the more a person will rely on implicit memory systems for orientation – memories which are often inappropriate for the current context (Cozolino, 2017).

The basic need for pleasure maximisation or distress avoidance is related to, and serves to activate, the need for control and attachment, to increase the potential for survival (Grawe, 2007). The conceptualisation of the need differs from what is known as 'the mother of all needs' in psychoanalysis, in the sense that it is deemed to be equally important, with its activation having to be balanced with all other needs (Epstein, 2003; Grawe, 2007). Experiences are neurologically evaluated as either good or bad, based on prior experiences or a person's current state of mind, rather than the inherent characteristic(s) of the stimulus. Through maturation, the role of motivational schemas of approach and avoidance becomes more important in influencing the evaluation process. A person might subsequently be prepared to sacrifice short-term hedonistic pleasure, to obtain something better in future (Dahlitz & Rossouw, 2014).

According to Grawe (2007, p. 244), a person is in a maximal state of pleasure when 'current perceptions and goals are completely congruent with one another, and the transpiring mental activity is not disturbed by any competing intentions'. This state of pleasure is similar to the concept of 'flow' (Csikszentmihalyi, 1991), with its focus on intrinsic motivation, and the alignment of goals with how the environment is experienced.

Self-esteem, which is defined as a person's evaluation of his/her self-worthiness (Grawe, 2007; Henson & Rossouw, 2013), is regarded as a higher-order need that is influenced by the fulfilment of other needs. The development of self-esteem is therefore dependent on a person's capacity for self-reflection and conscious self-awareness. Whereas self-esteem enhancement is motivated by approach schemata, self-esteem protection is motivated by avoidance schemata, differentiating, for instance, between asking for support, and withdrawing from others, to avoid a sense of shame (Grawe, 2007).

Considering the above, the role of basic human needs is not considered in SP, and this leads to higher levels of anxiety as to what is needed for controlled-incongruence and optimal learning to occur. The need for attachment, control and orientation, is, for instance, compromised by providing group members with only minimum information during the opening session, and resolutely avoiding establishing relationships between consultants and participants, in the belief that it may 'weaken the transferential qualities of the relations and thereby deprive members of potential learning' (Hayden & Molenkamp, 2003, p. 19). This still is, according to Hayden and Molenkamp (2003), the prevalent approach; any attempts at changing the opening event into a so-called joining event, are regarded as controversial.

Changing long-term memory

Changing behaviours through learning and unlearning implies neural plasticity (Gulyaeva, 2017), which is defined as the lifelong capacity of the brain to develop new neurons in those areas involved in ongoing learning, the expansion of

existing neurons to eventually perform more complex tasks, and the changing of connections between neurons as a result of new experiences (Cozolino, 2017). Neural plasticity happens in response to the environment, over time, and is influenced positively by enriched environments. It is also negatively influenced through the experience of stress and compromised social environments, which can even lead to neural death (Cozolino, 2017; ed. Rossouw, 2014).

That said, neural plasticity must be facilitated, to change memory systems. By integrating neuroscience principles and methods from different schools of thought in Psychology, NP largely targets the role of implicit memory systems, especially emotional memories that have a negative impact on the experience of homeostasis (Cozolino, 2017), which is when people function 'under the influence' of problems or unwanted memories (Zimmerman, 2018, p. 66).

The methods used to change emotional memories are broadly classified into two categories, namely extinction learning, and the more recent approach of memory reconsolidation (Ecker et al., 2012; Zimmerman, 2018). Extinction learning is based on counteractive methods, such as thought substitution (Rossouw, 2013), whereby another neural pathway is created – separate from the unwanted memory – to eventually override the latter. This type of learning is based on the Hebbian principle according to which neurons that fire together, wire together. Importantly, as the original memory is based on durable emotional learning that is stronger than the new learning, the old memory can be reactivated by new emotional experiences that trigger those memories (Ecker et al., 2012; Zimmerman, 2018). The reactivation of the unwanted memories therefore needs to be managed, for instance, by building up positive resources to counteract negative experiences. Mere insight into, or an understanding of, the unwanted memory is thus not sufficient to facilitate change, but rather the strengthening of new neural pathways after activation of those underlying the unwanted memory (Grawe, 2007).

Memory reconsolidation, in turn, refers to the process of unlocking and relocking synapses that allow for the reorganisation of existing memory (Ecker et al., 2012). This implies that, through unlocking, the memory is made malleable again, allowing for the sustainable erasure of the old, unwanted emotional memory. For the process to occur, the old memory has to be activated in a safe therapeutic environment, disrupted, and then juxtaposed with, or replaced by, a new, more appropriate memory (Cozolino, 2017; Ecker et al., 2012). Integration between the different neural networks can be enhanced by their simultaneous and repeated activation, and the construction of new narratives from past experiences (Cozolino, 2017; Zimmerman, 2018). The above two methods are not used mutually exclusively but in combination, with the first attempting 'to capture and manage [a] negative effect', and the second 'supporting and developing [a] positive effect' (Zimmerman, 2018, p. 59).

Similar to NP, SP interventions also have, as their objective, change or transformation, which is achieved by employing a (largely experiential) learning process. With SP, the assumption for change, is that creating an awareness of unconscious dynamics, or 'see[ing] them more clearly', will present more choices on which to act (Hayden & Molenkamp, 2003, p. 3), and hence more opportunities for self-authorisation. Although this principle is acknowledged in NS, according to which the ability to 'name' non-conscious processes contributes to the experience of a sense of control (Cozolino, 2017; Zimmerman, 2018), excessive arousal – especially if the environment is experienced as unsafe – might be counterproductive for the assumption to hold. 'Clarity' might then be ascribed to the reinforcement of negative memories, based on the principle of neurons wiring together, if they fire together. The use of silences by consultants, or the so-called 'still face paradigm' (Arden, 2019), is often experienced as evaluative (Cozolino, 2017), triggering past experiences of failure and shame, and further reinforcing those memories (Cozolino & Sprokay, 2006; Siegel, 2012). Conceivably, this might even cause resentment towards the consultant and/or colleagues at work, and could be evident in the need to form group relations networks with conversations that often sound like 'people talking to themselves' (Sher, 2013, p. xxvii). This might create divisions or ruptures between the members of these networks and those who do not belong to them, between those who 'know' the non-consciences dynamics, and those who are not 'in the know'.

Given the above, if controlled incongruence is experienced, alternating between study groups, and review and application groups during SP interventions, it could be viewed as an oscillation between emotion and cognition. However, with the sole purpose of understanding or gaining insight into the dynamics which are obtained during the review and application, groups will fall short of creating transformative change, as conceptualised in SP. As stated by Cozolino (2017, p. 48), 'understanding is the booby prize'.

Discussion

The purpose of this article is to apply neuroscientific principles, as embedded in NP, to evaluate and adapt SP interventions in organisations. The discussion will offer propositions on the use of SP as a change intervention.

Evaluation

It is evident that the theoretical underpinnings of SP interventions largely correspond with neuroscientific principles, as applied in NP. For example, the systemic perspective, with its focus on the role of boundaries to differentiate between what belongs to the self and what belongs to the outside, is similar and is addressed in both SP and NS. Proper differentiation between the self and others is only possible with a coherent functioning and balanced activation of the DMN and the EN, respectively (Cozolino, 2017). Also, although the constructs of conscious and

unconscious awareness are not the same as working, implicit and explicit memory, parallels can be drawn in that both have emotions as the target of change (Cozolino, 2017). Furthermore, psychoanalytical constructs such as defence mechanisms and their influence on rational behaviour can be regarded more or less as equivalents of the differentiation between the operating networks of the brain, and the overactivation of the HPA-axis/stress response in stressful situations (ed. Rossouw, 2014).

Despite several resemblances between SP and NS, however, certain theoretical differences were also identified, which allow for an adaptation of SP as an intervention. Instead of only differentiating between conscious and unconscious processes in SP, aligning the intervention with the three neural networks and memory systems, as conceptualised in this study, will provide opportunities for identifying the appropriate (or inappropriate) activation of a specific neural network, and hence assist in identifying learning principles and activities that are congruent with the functioning of the brain and the change envisaged (see Arden, 2019).

Furthermore, it is clear that the role of basic human needs is not considered in SP interventions, probably with the purpose of intensifying the experience of transference, to enhance the robustness of the learning (see Hayden & Molenkamp, 2003). As the basic human needs for attachment, and control and orientation, in particular, are always activated in stressful situations (Grawe, 2007), a level of positive attachment, and the establishment of goals and activities to enhance self-esteem, are crucial (Grawe, 2007). Arguably, for the group members, the unfamiliarity of the structure on its own will probably induce enough stress to activate their basic needs. As indicated in the literature, by not making provision for the fulfilment of these needs, learning is largely narrowed to fear-based learning, with avoidance behaviour or aggression manifesting, at best, thereby preventing the proliferation of those brain structures needed for optimal functioning (Rossouw, 2013, 2017; Schenck, 2011).

Considering the above, NP is deemed to offer not only a solid and more refined foundation for SP, but might also assist in more effectively enhancing the use of those constructs which are currently applied in SP. For example, by focusing on the influence of the outside context – viewed as the dynamics of the group as a whole – on the functioning of the brain, members might be capacitated to differentiate, objectify, and accept emotional experiences as normal, thus preventing them from internalising problematic experiences as part of their identity (Zimmerman, 2018). This might enhance their experience of a sense of control, along with their self-esteem.

In addition, the structure of the SP conference – and especially Bridger's (2001) double-task model – lends itself favourably to the application of Bion's (1961) theory, to juxtapose the basic assumption group and the workgroup, thereby facilitating the integration of neural networks (Cozolino,

2017). Such integration may be further enhanced by juxtaposing activated unwanted memories with unthought-of positive experiences. Conceivably, this process of differentiation between, and integration of the different neural networks in the study group will better facilitate change, as conceptualised in NP theory.

Thus, adapting SP interventions by using an NP lens implies a different role for consultants during the intervention. Instead of making interpretations, consultants could rather attend to emotionally salient events, in a way that invites new meaning. Meaning-making is not merely a cognitive process (Arden, 2019; Zimmerman, 2018). Therefore clients should be allowed to make new reflections on activated, unwanted memories, not just cognitive connections with those memories (Zimmerman, 2018). This will allow for both horizontal and vertical integration.

Adaption of systems-psychodynamics

To improve SP as a change intervention, using an NP perspective, the intervention needs to be adapted to facilitate the broadening of the flexible region between internal stability, and the capacity to adapt to the changing external environment (Arden, 2019). Thus, it needs to facilitate the development of resilience, to deal with the emergent change without experiencing chaos or reverting to rigidity. This implies that the conference or workshop should make provision for developing and integrating the different neural networks; opportunities need to be provided for working on the task in real time (EN), for reflecting on past experiences and future possibilities (DMN), and for the intervention to be a meaningful experience on an emotional level (SN).

Introducing the participants during the conference or workshop opening to the task of the conference, by providing them with 'some background information' and outlining the events as stated in the Group Relations Primer, can be augmented by the so-called 'warming up' (Hayden & Molenkamp, 2003, p. 19) of relations between the consultants and the members. The basic need for control and orientation can, for instance, be satisfied by clarifying goals, and providing neuroeducation (Grawe, 2007; Miller, 2016). Education might contribute to the activation of the EN in a novel (and, to some extent, stressful) situation, and might possibly downregulate the activation of the stress response, by priming the brain for what is to come. Furthermore, a safe and supportive relationship with the client system can be established by using the humanistic principles suggested by Carl Rogers (Cozolino, 2017; Tokuhama-Espinoza, 2011). By satisfying the basic needs in this manner, an enriched environment is created that will enhance plasticity, stimulate the growth of new neurons, and prompt the integration of neural networks (Cozolino, 2013, 2017).

The oscillation between the experiential study group, and the review and application group events, is a powerful method for developing insight into the impact which the dynamics have on rational behaviour, in facilitating EN and SN

integration. Intergroup events can similarly enhance integration, but the experience of controlled incongruence is necessary for preventing the reinforcement of inappropriate emotional memories.

To enhance the effectiveness of study groups, it is proposed that experiential sessions be structured and facilitated according to the double-task model (Bridger, 2001). Not only will the inclusion of a rational task provide a safer learning environment, it will also serve to better integrate cognition and emotion, as discussed above. It is therefore imperative not to focus solely on the underlying dynamics influencing the 'rational' task, but also on the connection between tasks.

Furthermore, for transformative change to occur, coherence in the SN system is required. Similar to the activation of unwanted, negative memories, provision should be made to support and develop positive effects (Zimmerman, 2018). It is proposed that study groups be used, not only to activate unwanted memories, but also to juxtapose, or create a mismatch between, activated memories. This can, for example, be done by identifying unthought-of, positive experiences, or by creating preferred images (Ecker et al., 2012). The oscillation between activated, unhelpful memories and positive experiences establishes the expectation of hope, and fosters the development of resilience (Arden, 2019; Cozolino, 2017).

Given the excessive activation of emotional memories because of the size of the group and the minimum face-to-face interaction permitted by the spiral structure, the use of large study groups is not advised. In such a situation, preventing the violation of basic human needs will be even more difficult than in small study groups, and will have a negative effect on the functionality of the EN to down-regulate the fear-based system. Displaying emotions might then merely serve as a form of catharsis, which does not result in integration (Cozolino, 2017).

Practical or managerial implications

The importance of rigour and relevance is embedded in the role of the OD consultant as a science-practitioner, who embodies the dynamic interaction between scientific knowledge and the application thereof (Jex & Britt, 2014). The implication is that professional consultants should be knowledgeable not only about their preferred approach to interventions, but also about new developments (e.g. applied neuroscience), if they are to successfully integrate neuroscientific principles into their practice. Furthermore, to be relevant as a practitioner, it is proposed that consultants – as science-practitioners – develop a reflective mindset, to continuously critique and adapt their preferred interventions.

In light of the above, this analysis cautions the practitioner with a bias towards (or against) SP as the *only* approach, to the exclusion of others. '[U]nderstanding the interwoven nature of neural networks has challenged us to engage in a higher level of integrative thinking' (Cozolino, 2017, p. 422), thus acknowledging that all

perspectives can be synthesised into more effective interventions. Otherwise, we are 'at risk of interpreting treatment failures as problems in our clients instead of in our techniques or ourselves' (Cozolino, 2017; p. 422).

Limitations and recommendations

As is evident from the literature, there are different designs in both NP and SP, such as those applied by the Tavistock Institute, the Bayswater Institute and the A. K. Rice Leadership Institute. Consulting to organisations is also different from conducting open conferences or workshops. Furthermore, success depends on how knowledge is applied, and, hence, on the competencies of the consultant. This is even more relevant when the relationship between the consultant and the participants plays a crucial role. Admittedly, all the variables influencing this evaluation of SP interventions, were not considered.

As different disciplines at times define the same concepts differently (e.g. 'pleasure'), but also use different jargon to refer to the same concept (e.g. 'memory' and 'learning'), conceptual analysis is needed on the use of specific concepts. Furthermore, empirical studies are recommended to establish the impact of an adapted form of SP, to facilitate transformational change.

Conclusion

This article constitutes an attempt to evaluate and offer propositions for the adaption of SP as a change intervention, using neuroscientific principles as embedded in NP. Based on the analysis, it is hypothesised that using the lens of NP, SP – with its sole focus of offering insight into unconscious behaviour – largely facilitates fear-based learning which is motivated by avoidance or aggression, and is not sufficient for facilitating transformational learning. The use of excessive anxiety during experiential events compromises the fulfilment of basic human needs, to the extent that uncontrolled incongruence could be experienced, especially in large study groups. In this sense, the use of the double-task model (Bridger, 2001) is proposed as a better alternative for effecting transformational change. Not only is the structure of this model more closely aligned with Bion's (1961) theorising of group dynamics, it could also be more effective at integrating memory systems.

Finally, the activation of emotional memories should be complemented by the (experiential) juxtaposition of wanted emotional memories, as a requirement for transformation. This implies the integration of different schools in Psychology and Neuroscience.

Acknowledgements

Competing interests

Author's contributions

D.J.G. declares that he is the sole author of this article.

Ethical considerations

Approval to conduct the study was obtained from the IOP Research Ethics Committee, Department of Industrial and Organisational Psychology, College of Economic and Management Sciences, University of South Africa, reference number: 2017_CEMS/IOP_001.

Funding information

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Data availability

The author confirms that the data supporting the findings of this study are accessible in the citations used in the article, and in the references listed hereunder.

Disclaimer

The views and opinions expressed in this article are those of the author, and do not necessarily reflect the official policy or position of any affiliated agency of the author, and the publisher.

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