



Enactive psychiatry and social integration: beyond dyadic interactions

Mads J. Dengsø¹ 

Accepted: 4 January 2024
© The Author(s) 2024

Abstract

Enactive approaches to psychiatry have recently argued for an understanding of psychiatric conditions based within relational interactions between individuals and their environments. A central motivation for these enactive approaches is the goal of social integration: the integration of a naturalistic approach to psychiatric conditions with their broader sociocultural dimensions. One possible issue, however, is whether appeals to the autonomy and authenticity of relationally constituted enactive individuals can provide a means of adjudicating between harmful and beneficial social constraints upon individual behaviour. This paper seeks to provide enactive approaches to psychiatry with a possible means of evaluating normative influences of social contexts beyond direct interactions with relationally constituted individuals. Some of the most significant influences of the sociocultural dimension of psychiatric conditions consist not in direct interaction with individuals, but in setting the terms for interactions and interactants alike. Insofar as some social influences precede and predefine dyadic relations between individuals and their social context, these cannot be accounted for as features of interactions, but must be assessed as independent structures of the sociocultural dimension. I will provide one potential means for enactive models to assess social norms using Canguilhem's distinction between health and pathology. I will argue that Canguilhem's conceptualization of health in terms of adaptive normative structure provides a potential tool for social integration which strongly complements enactive approaches to psychiatry.

Keywords Enactive psychiatry · Social integration · Psychiatry · Enactivism · Canguilhem

✉ Mads J. Dengsø
madsdengsoe@gmail.com

¹ Faculty of Arts Social Sciences and the Humanities, School of Liberal Arts, University of Wollongong, Wollongong, New South Wales, Australia

1 Introduction

The relationship between pathology and social environments has become a key issue within research into psychiatric conditions, including the most recent publication of the Diagnostic and Statistical Manual of mental disorders (American Psychiatric Association, 2022, xxi; First et al., 2022). This raises the central question of how to integrate psychiatry with our social environments. To this end, enactive approaches to psychiatry have sought to provide a relational understanding of psychiatric disorders as properties, not of individuals but of broadly interactive (dis)relations between individual and environment (Fuchs, 2017; Varga, 2017; 2019; Krueger, 2020; de Haan, 2020a; Toro et al., 2020; Nielsen & Ward, 2020; Maiese, 2021; Gallagher et al., 2022). The overarching message from these enactive approaches is that we cannot take the role of social contexts for granted but must view psychiatric conditions from an irreducibly interactional basis.

One potential issue for enactive bids for integrating the sociocultural dimension is that the appeal to individual adaptive self-maintenance does not provide a means of adjudicating between conflicting norms at the social level (Russell, 2023). In this regard recent commentaries on enactive approaches have considered whether highlighting aspects such as individual autonomy, flourishing, and authenticity provide sufficient bases for the evaluation of different social norms (Maiese & Hanna, 2019; Gallagher, 2022b; Krueger, 2022; Slaby, 2022). The disconnection between dyadic interactions and social norms thus pushes the question of social integration beyond the purview of questions of individual embodiment towards more systematically socially embedded approaches to cognition (Di Paolo et al., 2018; Di Paolo & De Jaeger, 2022; Brancazio, 2023) and to psychiatry (de Haan 2020a; Maiese, 2022b; Nielsen, 2023).

In support of this recent turn in the enactive literature, I will highlight two aspects of the contributing role of social environments to psychiatric conditions that fall outside relational interactions between individuals and their environment. First, social environments themselves may constrain the focus of analysis to individual (including dyadic) relations by defining certain individuals as atypical. Consequently, the designation of an individual as atypical, even when disorders are seen as irreducibly relational, may in some instances act to obfuscate or exculpate potential systemic dysfunction. Second, most social environments tend to prescribe parameters of appropriate interaction, including interactional breakdowns, independently of direct interaction with inhabiting individuals – especially developmentally formative environments like health and educational institutions. As such both the identification of individual interactants and the terms of interaction are commonly dictated by social structures prior to any interactions with individuals. Insofar as these aspects may in some cases be part of a socially integrated naturalistic psychiatry, their influence cannot be captured by interactions between individual and environment but must be understood and evaluated as part of the autonomous normative structure of social systems.

In light of this, integration of the social dimension of psychiatry in accordance with enactive approaches to psychiatry calls for a means of evaluating social normative systems independently of their relations with specific individuals. Accordingly,

I will argue that an enactive psychiatry, in addition to considerations of the world-embedded individual – disruptions of nonlinear causality (Fuchs, 2017), impairments of authentic autonomous agency (Maiese, 2022b), biases in existential sense-making (de Haan, 2021) – stands to benefit from the addition of means of evaluating, on its own terms, the influence of social systems in psychiatry.

The latter part of this paper aims to provide enactive approaches to psychiatry with one possible means of integrating influences of normative social systems through a systems-theoretic reading of Canguilhem's analysis of health and disease in terms of forms of normative structure. According to Canguilhem's analysis, health and disease may be differentiated by means of adaptively open or restrictive normative structure. This provides a formal means of assessing normative social systems in their own right, beyond individual interactions: namely by the extent to which the social system can encompass and incorporate different variations of input in the form of populational diversity into its own normative structure. This, I will argue, provides a strongly complementary means for enactive approaches to identify and adjudicate systemic aspects of social integration.

The structure of the paper is as follows. Section 1 outlines the enactive model of psychiatry and its relationship with socially embedded and relationally constituted individuals as bases for a socially integrative psychiatry. Section 2 offers some points of consideration for the interactive conceptualization of psychiatric conditions under enactive approaches, highlighting the active role of social environments in defining individuals as well as in dictating the terms of interactions and what counts as interactive breakdown. Section 3 offers a means for enactive approaches to address influences from social environments on their own terms, based on Canguilhem's account of pathology by means of normative systems.

2 Enactive approaches to psychiatry: individual and dyadic interaction

The recent turn towards a social paradigm for psychiatry signifies an unprecedented change in the understanding and assessment of mental conditions. Instead of the previous exclusive focus on individual neurocognitive functionality, normative societal contingencies are increasingly acknowledged as playing a decisive role in both the etiology and attribution of psychiatric conditions (Priebe, 2016; Ventriglio et al., 2016; APA, 2022; p. 17).¹ This raises the pressing question of how research might provide a naturalistic understanding of the effective causal role of social contexts in psychiatric conditions.

One way of approaching this question is through the subsumption of social aspects as linearly cascading effects of neurofunctional deficits (see for example Barkley, 2015). According to this explanation social and personal impacts follow *from* impairments within individual neurofunctional substrate. Effectively, however, such an approach fails to present an integration of social factors, instead presenting social

¹ This is especially the case for neurodevelopmental conditions such as ADHD and autism (Gnanavel, 2019; Hollander et al., 1998; Kim et al., 2019; APA, 2022, pp. 66, 73).

factors as downstream products of individualized deficits (Rosqvist et al., 2020; Densø, 2022). Accordingly, the linear model does little to address the causal contribution of the social contexts. The task of providing a systematic and naturalistic understanding of the causal role of social contexts for psychiatry thus remains inadequately addressed by these linear accounts.

Several different ways of approaching the task of providing a naturalistic integration of social factors in psychiatric conditions have recently been launched from the group of theoretical frameworks called *enactive*. Enactive approaches most commonly concern means of addressing the nature of experience, perception, and cognition (Thompson, 2007; Hutto & Myin, 2012; Di Paolo & Thompson, 2014; Varela et al., 2017; Di Paolo, 2018). In broad terms, enactive approaches advocate for conceptualizing mental phenomena as properties of interactive relations between brain, body, and environment, as opposed to brains alone (Gallagher et al., 2013; Di Paolo, 2009). Recently, various enactive accounts have applied this relational view of mental phenomena to understanding psychiatric conditions and pathology (De Jaegher, 2013; Fuchs, 2017; Varga, 2019; de Haan, 2020a; Glas, 2020; Toro et al., 2020; Jurgens, 2020; Krueger, 2020, 2021; Gallagher, 2022a; Densø, 2022). This section will outline several enactive approaches to mental conditions and their appeal to nonlinear forms of causality as a means of accounting mental conditions as irreducibly relational phenomena. I will focus on the approaches outlined in the work of Fuchs and de Haan's enactive approaches to psychiatry (Fuchs, 2017; de Haan, 2020a), the enhanced meshed architecture (Gallagher et al., 2022), and the norm-based approaches of Nielsen and Maiese (Nielsen & Ward, 2020; Maiese, 2021).

2.1 Enactive models of psychiatry

For Fuchs, as well as for many other phenomenological and enactive approaches to psychiatry, problems of standard approaches are intimately related to the detachment of the individual subject from its social and experiential environments, or its *lifeworld* (Fuchs, 2017).² According to Fuchs, the relational character of mental life is simply beyond the standard linear and brain-based explanations employed by neurofunctional accounts. As he puts it, “with the linear causality of nineteenth-century physics – brain state A causes disorder B – it is impossible to grasp the complex causal connections involved in mental disorders, even less so without the patient’s subjective experience” (Fuchs, 2017, p. 261). Instead of simply tracing a linear path from neural substrates, psychiatry must take into account the socially embedded relations of patients lived experience. As Fuchs argues, we cannot hope to progress our understanding of mental phenomena (pathological or otherwise) while neglecting their inherently *relational* character (Fuchs, 2017, p. 284).

Fuchs unpacks this relational constitution of minds in terms of two forms of nonlinear, or circular, causality: vertical and horizontal. Vertical circular causality describes reciprocal top-down and bottom-up causal interactions between different

² A similar appeal to the crucial importance of the experience and lifeworld may be found in the account of Carel (2016) – which, although not an enactive approach as such, does draw on some of the same background as many enactive accounts.

structural levels of the individual organism: organs, cells, molecules. Horizontal circular causality, in turn, describes how the individual organism and its surrounding world mutually implicate one another at each structural level (see also Baggs & Chemero, 2019; Kirchhoff & Kiverstein, 2020).³

On this account, psychiatric conditions may be understood in terms of disruptions of complex nonlinear relations involving, but not exclusive to, brains. Instead of identifying psychiatric phenomena with neural processes, “we should consider psychiatry as a *relational medicine in an encompassing sense*: as a science and practice of biological, psychological, and social relations and their disorders” (Fuchs, 2017, p. 276, italics in original). Fuchs’ account of psychiatric conditions is thus centred around disruptions or imbalances within interactions on the vertical circular causality or in the interaction of a given level of organization with the environment.

De Haan’s *Enactive Psychiatry* (de Haan, 2020a; see also de Haan, 2020b) builds from Fuchs’ account, likewise emphasizing the importance of experience and its fundamental relationality.⁴ De Haan uses the term *organizational causality* between individual and environments as an instance of transformational fusion emergence (henceforth TFE), as developed by Humphreys (1997; 2016; de Haan, 2020a, pp. 117-9). TFE may be exemplified by how grains of sand, when fused into glass, become transformed in a way such that the individual grains of sand can no longer be said to exist as individual entities (Humphreys, 2016, p. 72, 81). In TFE, instead of maintaining a ‘vertical’ axis of interaction between components and wholes, components and whole fuse together. Using the intuitive analogy of cake-baking – where each of the component ingredients fuse into a single batter – de Haan proposes that basic sense-making capacities such as experience emerge from the *fusion* of organism and environment. In it is in these relations fusing the biological organism and their environment into a broader whole that psyches and psychiatric phenomena play out.⁵

On de Haan’s account, psychiatric conditions arise from disturbances of a special type of sense-making which she terms *existential*. Existential capacities for self-reflection, de Haan argues, constitutes a qualitative shift in forms of sense-making, creating a new level of social and existential meaning for the agent.⁶ This existential dimension of sense-making is central to psychiatric conditions (de Haan, 2020a, pp. 130, 212). De Haan’s enactive psychiatry thus portrays mental disorders in terms of

³ Each level on the vertical circular causal hierarchical organization should be seen as being in constant interaction with both the levels above and below it, and with its respective horizontal circular causal context. In this way the organizational structure of Fuchs’ model comprises a vertical axis representing the hierarchically structured individual with horizontal branches at each level of organization.

⁴ Although there are clear points of congruity between the accounts of de Haan and Fuchs, they also have important differences (de Haan, 2020a, p. 114). For instance, De Haan, rejects the notion of a vertical circular causality, arguing that “[t]he so-called higher levels consist of the so-called lower levels: they do not form a separate entity over and above their constituents” (de Haan, 2020a, p. 116, italics in original).

⁵ It should be noted that conceptualizing the interaction between individual and environment in terms of TFE has raised the concern of potentially dissolving helpful differentiations between component interactants (Gallagher, 2022).

⁶ This aspect of de Haan’s emphasis on the uniqueness of human agents’ reflective capacities could perhaps be compared with accounts from the philosophy of self-constitution (Korsgaard, 2009).

harmful forms of existential sense-making characterized by inflexibility, inappropriateness, and suffering.

Building from similar considerations of the relationship between psychiatric disorder and the socially embedded self, Maiese emphasizes how disorders may be understood as involving various disruptions of self-governance (Maiese, 2022a, b). Maiese's account focuses especially on the authenticity and (relational) autonomous agency of individuals constituted across various socially embedded identities. Congruent with de Haan's enactive psychiatry, Maiese thus develops a naturalistic view of psychiatric disorders accounting for their social dimensions by way of how psychiatric disturbances manifest as disruptions of the authenticity and autonomy of our relationally embedded nature. Human minds are fundamentally relational and partly shaped by sociocultural institutional norms (Maiese & Hanna, 2019, p.8). Whereas de Haan's enactive psychiatry focuses on the existential dimension of reflective individuals, Maiese's often brings to the fore the relationship between individuals and their particular sociocultural niches (Maiese, 2022c, d; see also Slaby et al., 2017). Maiese's work demonstrates in various ways how sociocultural norms become engraved within individual's normative way of making sense of their worlds. In this sense, some psychiatric conditions may be understood in terms of discrepancies between expectations of neurotypical normative institutions and the normative sense-making of atypical individuals (Krueger & Maiese, 2018; see also Jurgens, 2020). One way of understanding this is through differences in styles or forms of life (Krueger, 2021), with overly restrictive institutional norms potentially hindering atypical individuals from exercising their own authentic norms.

Whereas the work of Maiese may be seen as expanding upon enactive psychiatry – with a special attention to how social embeddedness shapes agents' sense of autonomy and authentic selfhood (see also Maiese & Hanna, 2019; Nielsen, 2023, p. 88) – Nielsen's 3E psychopathology (Nielsen, 2020; 2023; Nielsen & Ward, 2020) is partly grounded in the functional norms of sensemaking and the structural aspect of inflexibility in disordered behaviour (see Nielsen, 2021 and de Haan, 2021 for discussion). Although bringing close attention to our sociocultural embeddedness, Nielsen is careful to maintain a solid foundation for his account within the normativity of the individual biological organism. Nielsen thus cautions that the networks of cultural identities in the manner emphasized by more radical interpretations of enactivism are better understood as metaphors (Nielsen, 2023, p. 84). It has been argued that Nielsen's account, by conceptualizing individuals in terms of functional norms, could be construed as reductive of human-specific existential dimensions (de Haan, 2021). While Nielsen emphasizes compatibility between the two accounts – arguing that existential relations such as those highlighted by de Haan may be seen as an important although non-ubiquitous aspect of psychiatry (Nielsen, 2021) – Maiese has proposed that the mind-shaping thesis might enact a potential synthesis between these two views (Maiese, 2021).

Finally, another distinct enactive framework for understanding psychiatric conditions has recently been developed based on what is known as meshed architecture (Christensen et al., 2016). In line with the above, proponents of this enactive strain called *enhanced* meshed architecture (Gallagher et al., 2022) offer a similarly relational understanding of psychiatric conditions based on a two-axis model of (hori-

zontal) environmental integration and (vertical) individual organizational integration, with affectivity acting as a binding function between the two axes. It has been applied especially to neurodevelopmental conditions (Gallagher, 2022a; Gallagher et al., 2022).

2.2 Enactive convergences: the relationally constituted individual

Let us take stock of how these enactive proposals account for the social dimension of psychiatry. Each of the above outlined accounts have stressed the inherently relational structure of psychiatric conditions. Centrally, enactive approaches may be distinguished by their conceptualization of psychiatric conditions in terms of various forms of *relational integration* involving both an individual and their respective physical and sociocultural environment. In this sense, psychiatric conditions are the result of breakdowns or disattunements of relational interactions centring around the experiential and sense-making capacities of an individual. One can represent this in terms of one of the following kinds of nonlinear causal interactions laid out by Fuchs and de Haan.

- i. *Vertical*: an interaction between (two or more) different organizational levels of the individual.
- ii. *Horizontal*: an interaction between an individual and the environment.
- iii. *Combination/organizational*: an interaction between (two or more) different levels of the individual and the environment.

In the account given by Fuchs, disorders from disruptions of the vertical and horizontal circular causalities integrating individuals and environments, resulting in self-relational disturbances or in negative feedback loops at the level of social interactions (Fuchs, 2017, p. 256). In de Haan's enactive psychiatry disorders result from disattunements in the relational *existential* sense-making capacities of the individual (de Haan, 2020a, p. 197). 3E psychopathology seeks to ground our understanding of psychiatric conditions within the functional norms of biological organisms (Nielsen, 2020; 2023). Enactive medical models explore how both psychiatric conditions and sociocultural niches may impact on agentive autonomy and authenticity (Maiese, 2021; Krueger, 2021). And finally, enhanced meshed architecture provides its heuristic in terms of various intertwined factors, including social interactions (Gallagher, 2022a, p. 12).

Enactive explanations of psychiatric conditions converge in their attribution of mental disorders to various forms of relational problems between an individual and their social environment, or as arising from the socially embedded nature of individuals.⁷ Psychiatric phenomena are understood in terms of interactive relations in which the individual minimally constitutes a ubiquitous and basic component of a

⁷ Notable exceptions to this rule include the accounts provided by Fuchs and enhanced meshed architecture, where interactive breakdown may result from interactions involving different levels of organization of the biological individual. That being said, this paper specifically concerns the socially integrative aspect of enactive psychiatry.

dyadic relation. The relationally constituted individual – its autonomy, authentic form of life,⁸ existential and/or organismic sense-making – thus constitutes the core of enactive approaches to psychiatry (Krueger, 2021; de Haan, 2020a; Nielsen, 2021; Krueger & Maiese, 2018; Maiese & Hanna, 2019).⁹

2.3 The limits of embedded individuals

One potential challenge to enactive approaches is whether focusing on the interactions of a relationally constituted individual can provide a means of systematically distinguishing and adjudicating between dysfunctionality from the perspective of sociocultural environments and from that of the individual. A key point of attention for enactive approaches here is whether appeal to individual autonomy and authenticity provides a systematic means of evaluating the social norms in which the individual organism or person finds themselves (Maiese & Hanna, 2019; Krueger, 2022; Gallagher, 2022b; Slaby, 2022; Jurgens, 2023).

It has been argued that enactive approaches to psychiatry leave too much open for interpretation in cases where different individual or social norms may disagree about what counts as dysfunction (Russell, 2023). Russell argues that appeals to the adaptivity and autonomy of individual embodiment does not provide a systematic means of adjudication between conflicting norms.

Enactivism, as it stands, does not itself give us the resources to adjudicate between competing perspectives of what is or is not functional/dysfunctional. More importantly, enactivism itself doesn't give us the tools to critically engage with and discuss which perspectives ought to be involved. (Russell, 2023, p. 16)

While enactive approaches understand psychiatric conditions as involving breakdowns between a relational individual and their social context, it is not clear how such approaches propose to weigh one up against the other. At what point should sociocultural institutions, including psychiatrists, be regarded as authorities over patients? When should misrelations be interpreted as a failure on the part of my niche to fit my own authentic self? Indeed, what *is* my authentic self and form of life, as contrasted with the recommendations of my developmental niche? Several questions relating to social integration remain open despite having a relational account of individuals. It is not clear how enactive approaches can provide a systematic justifica-

⁸ Notions of authenticity often play an important role in enactive approaches to psychiatry in denoting the autonomous and existentially embedded individual. However, as I will argue in the following section, the current enactive tendency to focus on individual's authentic forms of life still leaves too much in the open to provide a means of assessing and evaluating the influences of social institutions.

⁹ The status of individuals as ubiquitous and basic to interactive relations is endorsed by enactive accounts both explicitly and implicitly. As to the former, this reflects a specific focus of enactive approaches and of much of the phenomenological literature that these accounts often appeal to. As Fuchs puts it, coming from a perspective informed especially by phenomenological literature, “[p]ersons are the primordial *phenomenon*: that is, what *shows itself*, and what is present in its very appearing” (Fuchs, 2017, p. 291; see also Zahavi, 2014).

tion for distinguishing between harmful and developmentally conducive pressures from sociocultural norms.¹⁰ Russell suggests that a pluralistic approach informed by feminist philosophy of science, ethics, and social epistemology may provide enactive approaches with a more systematic assessment of sociocultural norms and practices. She concludes that “if we want to push such accounts, like enactivism, to go further, I suggest supplementing it with a more critical, political and socially engaged framework” (ibid., p. 22).¹¹

Despite their openness to pluralistic views of psychiatric conditions (de Haan, 2020a, p 110; Nielsen, 2023, p. 109), enactive approaches to psychiatry also retain specific limits regarding the extent of social influences. The interactive relations leveraged by enactive approaches minimally imply some level of independence between interactants like individual and their social environment: as de Haan puts it, even within an enactive ontology, “relations presuppose their relata” (de Haan, 2020a, p. 66; see also Varga & Gallagher, 2012; Gallagher, 2020, pp. 192-3). Grounding psychiatry within the interactions of a relational individual thereby importantly sets enactive approaches apart from what Nielsen describes as *deflationary* accounts of psychiatry (Nielsen, 2023, p. 34), comprising social constructivist, post structuralist, and some feminist accounts of psychiatry. Similarly, while researchers like Maiese often champion the importance of systemic issues with social institutions (Maiese & Hanna, 2019; Maiese, 2022c) and *mental institutions* (Krueger & Maiese, 2018) her enactive medical model specifically centres sociocultural integration in terms of its effect upon individuals’ authenticity and autonomy while specifically rejecting social constructionist models (Maiese, 2021, 2022a). Accordingly, psychiatric conditions are grounded within the dyadic interaction between agent and environment. Considering feminist criticism of the degree to which social contingency dictates existential forms of sense-making, de Haan offers that

[t]he freedom that comes our excentric position [is certainly not a free-floating one – yet our capacity for taking a stance does mark a qualitative shift that opens up a new scope of agency and possibilities for change. [...] We cannot help but be determined one way or another [...], but it is our relating to these determinations and the sociocultural practices in which we enact them that opens the way for emancipation and change. (de Haan, 2020a, p. 125-6, fn1)

De Haan’s recognition of how the existential dimension is at least partly determined by social contingencies raises the question of whether the qualitative shift facilitated by our excentric stance might not equally open up ways for social domination and control as for individual emancipation and change.¹² While enactive approaches to

¹⁰ As will be explored in the next section, this is especially so given that these norms often play a pivotal role in defining both what is a healthy individual and a healthy relationship between individuals and social institutions.

¹¹ This paper seeks to help enactive approaches address these points by offering a complementary means of assessing the normative influences of social systems in their own terms.

¹² For example, some accounts have specifically argued that our ex-centric and biologically underdetermined organization renders humans especially volatile to unique and subtle forms of coercion and socio-political control (Mau, 2023).

psychiatric conditions thus seek to promote the well-being of relationally embedded individual agents, it is still crucial to ask how the individual is initially disclosed within a psychiatric context – and to what degree notions of individual’s authenticity and well-being might be differentiated from influences of its sociocultural niche.

In one sense, the rejection of wholesale social constructivist models of psychiatry does credit to enactive approaches in their efforts towards the integration of the social dimension with a *naturalistic* understanding of psychiatric conditions. But despite the merit in rejecting a wholesale social constructivism, it is not clear that a naturalistic understanding of psychiatry presupposes a wholesale repudiation of all social constructivist *aspects* from social integration. The following section offers two examples of sociocultural influence within psychiatry which may fall outside the interactions of even a relationally constituted view of individuals. As will be seen, this is in part because of the crucial role that sociocultural factors play in the determination of both individual and interaction. Focusing on breakdowns in healthy individually self-reproductive norms may insufficient partly because both healthy individual and breakdown are defined in advance by sociocultural systems – blurring the lines between psychiatric and systemic causes of relational disruptions. Especially in the case of formative health and educational environments, social environments tend to get the first and final words in construing both their interlocutor and the aims of their interaction. Providing a systematic way of assessing and integrating sociocultural factors may therefore (or so I will argue) require a means of assessing and evaluating the role of sociocultural norms in psychiatry on their own terms.

3 Individual atypicality and interactive breakdown as social phenomena

Enactive approaches to psychiatry broadly reject the attribution of mental disorder as a straight-forward property of an individual taken in isolation. Instead, they argue, we should often view such disorders in terms of a discrepancy or disattunement between a normative social environment and an atypical individual. But how do we differentiate between variation and atypicality – or between conducive and problematic behaviour?

This section offers two points which highlight how interactions of relationally constituted individuals may in some cases be insufficient to capture the full range of social influences relevant to psychiatric phenomena. The first concerns the attribution of *individual atypicality*, and how it may serve as a way for social systems to designate certain individuals as partly complicit in relational disturbances. Attributions of individual atypicality, even when non-pathologizing, may in this way obfuscate and exculpate systemic causes of disruption. The second point concerns the nature of *interactive breakdowns*: how the difference between successful and problematic interactions is often defined at several removes from the involved individuals; and the positive or negative value of institutionally determined interactions can often not be assessed solely on the basis of institutions’ prioritization of individual authenticity.

3.1 Individual atypicality, its social manifestation and systemic function

Much of psychiatric research recognizes that psychiatric atypicality is not, strictly speaking, a property of individuals taken in isolation; but rather of individuals in relation to socially determined parameters of normality (APA, 2022, p. 17). This may be decisive in cases where a condition's symptoms consist of otherwise normal behaviour exhibited at abnormal frequency or intensity – reflected especially in conditions marked by high degrees of heterogeneity and situational context-sensitivity in symptomatic presentations (Roberts et al., 2015; Wählstedt et al., 2009; Madsen et al., 2015; Mottron & Bzdok, 2020) or by disproportionate influence from differences in diagnostic criteria (Voort et al., 2014).

The attribution of atypicality to an individual relies on contrasts with sociocultural determinations of normal degrees of behavioural variation. Accordingly, behaviour otherwise designated as within the norm may be interpreted as evidence of pathology or atypicality in others. For example, fidgeting behaviour, common within healthy populations, may be construed as a symptomatic presentation of intrinsic atypicality in others. Indeed, statistical comparison with peer average behaviour and development is often deeply involved in diagnostic practice, as may be gleaned in the disproportionate diagnosis and treatment of ADHD in children born later in the school year (Elder, 2010; Karlstad et al., 2017).¹³

Enactive approaches to psychiatry emphasize the sociocultural contingency of pathology and disorder. Accordingly, these often regard individual atypicality in non-pathologizing ways, as expressive of individuals' unique style or form of life (Krueger & Maiese, 2018; de Haan, 2020a, b; Krueger, 2021; Gallagher et al., 2022; Nielsen, 2023). In one sense, this provides a more nuanced view of the individual disclosed to psychiatry. However, even a non-pathologizing attribution of atypicality may in some instances contribute to the concealment of systemic responsibility by designating individuals as *partly* responsible for relational incompatibilities between themselves and their environments. I will unpack this below.

Social contexts and systems exert a significant part of their causal influence on some psychiatric conditions precisely by construing situational disturbances in terms of *interactions between a normal environment and an anomalous or atypical individual*.¹⁴ The attribution of individual atypicality is here part of the contribution of social contexts: diagnostic criteria act as a critical threshold which, once reached, brings about a gestalt-shift in the psychiatric significance attributed to an individual's behaviour, as described above. Here the contribution of the social context is not circumscribed to their interactions with the atypical individual, but to a significant degree precisely in its identification of an individual *as atypical*.

This shift brings out one of the ways in which social contributions to psychiatric conditions may in some instances go beyond interactions with individuals. Consid-

¹³ Indeed, conditions may be simultaneously associated with difficulties *and* increases of certain functions, such as reports of occasional 'hyperfocus' in ADHD (Hupfeld, 2019; see also Groen et al., 2020 for discussion).

¹⁴ Social contexts thus define the normal in a double sense: they both dictate what falls within the bounds of normality for embedded individuals, and, as institutions, they themselves embody the norm. This point will be unpacked in detail in the subsequent section.

ering, for example, a classroom setting conceptualized as an interconnected system comprised of students, teachers, various explicit and implicit regulations of behaviour, and a set of educational and socially formative goals. When the system encounters a disruption of its functioning – for example, a decline in student concentration and retention – it may try to identify and modify the elements responsible for this breakdown. We may partition the lineup of potential culprits into three broad categories: (a) student behaviour; (b) institutional constraints such as teaching facilities, content, and regulations; (c) relational incompatibilities between student behaviour and institutional constraints. Designating pathological phenomena in terms of *relational interactions* will tend to favour option *c* instead of options *a* and (more importantly) *b*. I should here stress that *b* may be more common than is often assumed (Sage, 2022).¹⁵ With rapidly changing trends in terms of societal pressures and priorities, especially as related to children and adolescents, it is quite possible that institutional constraints and practices may be increasingly incongruous with best learning practices for emerging generations.

The attribution of disruptions to relational interactions may obfuscate systemic culpability insofar as it tends to absolve those individual components not in direct interaction with students, such as institutional constraints determined at administrative or policy levels (more on this in the next subsection). Attribution of responsibility in social system breakdown tends to fall disproportionately on elements with weaker social consolidation and purchase: as a result, students, direct caregivers, and teachers tend to be the most common targets of modification while regulations set down from more distantly ingrained administrative bodies are less frequently brought into question. By having culpability for disruption conferred equally or reduced to incompatibility between the individual and the social system a relational view may inadvertently lead to an underrepresentation of potential systemic causes of disruption.

What is more, emphasizing individual uniqueness can in such cases obfuscate systemic issues by attributing them to more innocuous relational discrepancies. Recognizing the inadequacies of individual pathologization, several enactive accounts have already put forward constructive proposals for how to make formative social institutions more appropriate to diverse forms of life (Krueger & Maiese, 2018; Maiese & Hanna, 2019; Toro et al., 2020; Krueger, 2021; Chapman, 2021; van Es & Bervoets, 2022; de Carvalho & Krueger, 2023). Still, it is important to recognize that even sympathetic and non-pathologizing conceptualizations of individual atypicality could end up excusing systemic dysfunction.

The potential problem lies not in sensitivity to populational diversity, but in potential insensitivity to systemic dysfunctionality. Designating individuals as inherently pathological is thus just one way for social systems to potentially excuse their own dysfunction: designating individuals as atypical can potentially be another. Whereas one exculpates social institutions by directly problematizing individual behaviour, the other may underemphasize institutional culpability by assigning a shared responsibility. In cases of systemic dysfunction, attributions of individual atypicality may thus become indirect sources of harm (for individual and system alike). In this light, the attribution of individual atypicality, even in terms such as uniquely authentic

¹⁵ This is partly due to how social institutions tend to embody normalcy, as noted in the previous footnote.

forms of life, can thus become potential stabilizers for systemic dysfunction. Designations of individual atypicality are in such cases a way for the system to relate to itself – or, more precisely, a means for systems to *circumvent* critical self-reflection and potential systemic (say, administrative-level) modification. The key takeaway here is that appreciating individual atypicality may be insufficient for identifying and evaluating the influences of social environments. I will expand upon this point in the following subsection.¹⁶

3.2 Interaction, disinteraction, and formative social systems

Before proposing a possible means for enactive approaches to psychiatry to evaluate and integrate these kinds of social environmental self-relations, I will outline one more aspect of social influences that falls outside the purview of interactions with relationally embedded individuals. Social environments often set the terms of healthy interactions independently of individual dyadic interactions. In this regard focusing on interactive breakdowns risks ignoring decisive contributions of social environments in dictating what constitutes appropriate interactions and their breakdowns.

Any social setting, whether educational, vocational, public, etc., contains implicit or explicit parameters of acceptable interactions almost always set up independently of any involvement of the embedded individuals. For example, service sector employees are often bound by various mechanisms that favour management and consumers, such as uniform dress, periodic (management and patron) evaluation, or tipping-dependent wages. These and other mechanisms pressure employees into assuming attitudes of availability and subservience, often with high demands on emotional labour (Totterdell & Holman, 2003; Hochschild, 1983). Social environments are thus active forces in defining and constraining appropriate and available courses of action (Wartenberg, 1988; Slaby et al., 2017). Additionally, these parameters for appropriate forms of interaction are often dictated well beyond the influence of embedded and interacting individuals (Schmidt & Engelen, 2020; Peeters & Schuilenburg, 2017) – and often to the disadvantage of the latter (Schüll, 2012; Slaby, 2016; Timms & Spurrett, 2023).

The distance between embedded individuals and parameters of acceptable interaction is especially consequential in the case of formative social environments associated with health and education. Here, maintaining the independent ‘top-down’ determination of acceptable forms of interaction is often understood as essential to the formative purpose and functioning of the social environment or institution. The active forces shaping the demands and goals of such social environments are rarely controlled by directly embedded individuals such as pupils, pedagogues, and patients, but is generally set out at administrative and managerial levels. The dictation of interactions is in this way removed from the interacting inhabitants, meaning that significant parts of the contribution of social environments central to psychiatry

¹⁶ On a further note, social dimensional aspects of psychiatry may not only exert influence on the generation of existential forms of identification and personhood as thematized by enactive approaches but also specifically on the manufacture of certain biological phenotypes or profiles. Psychiatric specifications regarding biological substrates – regardless of their designation as individually pathological – are in principle no less susceptible to social variation than notions of personhood.

does not involve any real interaction with individuals but consists rather of the prior determination of both individuals and appropriate or available interactions.

Furthermore, insofar as educational and health institutions often aim specifically at developing (and transforming) the behaviour of inhabitants, recognition of individuals' authentic forms of life will often be insufficient to provide a systematic means of evaluating the influences of such social environments. The formative role of social institutions is often framed by constructivist accounts in predominantly negative terms.¹⁷ It is, however, important to emphasize that the formative role of institutions is not inherently harmful to inhabiting individuals even when it might be said to resist and restrict the norms of its inhabiting individuals. First, the resistance of social environments to some of its inhabiting individuals' norms is central to the socialization and integration of individuals into new sociocultural niches. Second, such socialization into developmental niches aimed towards the permanent transformation of individuals is itself indispensable to individual flourishing. For these reasons, the fact that social institutions entrain, constrain, and problematize individually autonomous or authentic behaviour does not itself provide a means of their evaluation – and perhaps especially so for institutions associated with health and education. Because constraining individual's norms is often specifically part of the functional purpose of social institutions, the constraining and transformative effects of interactions with individuals are here not sufficient to gauge the merit or demerits of social influences.

In this section I have sought to show how aspects of the social dimension of psychiatric conditions may go beyond relational interactions with individuals. The issue is not just that environments are permeated by normative structures set out well before the interacting individuals come on the scene, but that individuals emerge onto the scene partly as products of the normative structures, purposes, and designations laid out by the social environment. Additionally, the fact that social institutions – and especially formative health and educational institutions – often resist and constrain their inhabitants does not itself provide a basis for their evaluation.

4 A canguilhemian account of systemic health

As previously mentioned, enactive approaches to psychiatry are often explicitly open to implementations of theoretical pluralism (Fuchs, 2017; Nielsen, 2023; Russell, 2023). In the previous section I have outlined some further motivations for why implementing aspects beyond the purview of the interactions of a relationally constituted individual may be necessary for an adequately socially integrative psychiatry. In this section, I will offer one potential means of complementing enactive approaches to psychiatry with a means of integrating and evaluating social norms on their own terms. To this end, I will begin developing the foundations for an ecological-level account based on the analysis of pathology offered by Georges Canguilhem.

¹⁷ Perhaps the most well-known example of such predominantly negative assessments of the formative role of institutions being the work of Foucault (2006; 2012). Against this one-sided interpretation, later works of Foucault arguably provided a more nuanced picture of *active* self-production (Leask, 2012).

4.1 Canguilhem's norm-based approach to pathology

In *The Normal and the Pathological*, the physiologist and philosopher Georges Canguilhem pursued a means of systematically distinguishing between disease and health (Canguilhem, 2012). Criticizing notions of health as approximations towards an ideal statistical average or 'normal' state, partly due to sociocultural variations in normality, Canguilhem argued that diversity and variation is inherent to the dynamic richness of healthy existence. Accordingly, statistical deviation cannot suffice for pathology just as normality cannot determine what is healthy: "diversity is not disease; the *anomalous* is not the pathological (ibid., p. 137, italics in original). Instead, Canguilhem proposed to conceptualize health and disease by way of life's normative structure.

A norm is here understood not as a prescriptive rule, but as a feature of the organizational structure of living systems in accordance with their vital needs. In this minimal sense, normativity is a fundamental feature of living systems: "[t]he simplest biological nutritive system of assimilation and excretion expresses a polarity" (ibid., pp. 128-9). The polarity in question here refers to the organizational orientation of the system: the system expresses a polar orientation towards some normative state and away from other states. Canguilhem's use of norms might thus be distinguished from the commonplace use of norms as explicit and static rules: first, the meaning of a norm is here minimal in the sense that it pertains to a systems' implicit structure, and not to any explicit rules as such; second, norms are in this biological sense not to be understood as static ideals but as "a dynamic and polemical concept" in that it seeks to transform and adapt inputs in correspondence with itself (ibid., p. 239). Finally – and importantly for Canguilhem's account of health and disease – the norms of living systems can themselves be more or less open to change.

For Canguilhem, the way to identify the difference between health and disease lies in their expression of distinct forms of normative organization. As defined by Canguilhem, "[h]ealth is a margin of tolerance for the inconstancies of the environment." (ibid., p. 197). Being healthy is not about being in a state of perfect fitness or even of well-being per se. Rather, it is precisely being able to weather the predictable unpredictabilities – the unavoidable ups and downs – of life's inherent dynamicity. In other words, instead of an approximation towards a static ideal of immaculate mediocrity, health denotes the adaptive openness of living systems to the contingencies of everyday existence. Because life must navigate a changing and often surprising environment, "[w]hat characterizes health is the possibility of transcending the norm, which defines the momentarily normal, the possibility of tolerating infractions of the habitual norm and instituting new norms in new situations." (ibid.). Being healthy is thus neither normality nor the absence of challenges but the ability to meet and adapt to challenges by instantiating new norms. In short, for Canguilhem, health is defined as a norm characterized by openness or adaptivity.¹⁸

¹⁸ It is important here to distinguish between the notion of health as adaptivity used here from health in terms of fitness or evolutionary success. Provided the right circumstances, a simple organism following a tightly restricted set of behaviours might be quite successful without having much capacity for individual adaptivity in its normative structure. Vice versa, a healthy and adaptively open organism may succumb due to misfortune. What makes a system healthy is not reducible to the fortune of its circumstances, but its abil-

Just as health for Canguilhem is not the approximation to a normal state, neither is pathology the divergence from such an ideal. Instead, pathology and disease may be contrasted with health by the inflexibility of normative structure. As a norm, pathology demands that novelty be minimized, rather than adaptively encountered – for example, by staying in bed or otherwise simplifying and constraining the diversity of interactions one is exposed to. Just as health is characterized by the ability to accommodate novelty, pathology is characterized by *intolerance of novelty*. As Canguilhem puts it, “[d]isease is still a norm of life but it is an inferior norm in the sense that it tolerates no deviation from the conditions in which it is valid, incapable as it is of changing itself into another norm.” (ibid., p. 183). Disease thus constrains the degree of variation from its own norm wherein a living being can retain viability.

To briefly summarize, Canguilhem defines health and pathology as opposing propensities in the normative structure of living systems: respectively a healthy, *adaptive or progressive norm* and a diseased, *restrictive or reactionary norm*.¹⁹ Alternatively, Canguilhem’s account may be conceptualized in contemporary terms as presenting health and disease as distinguished in terms of respectively open or static affordance landscapes, or in terms of changes in systemic state-space: health is a normative structure characterized by adaptivity of the available state-space whereas pathology is a normative structure characterized by the need to restrict and minimize the state-space.

With this norm-based notion of health and pathology, it should finally (and crucially for my own purposes) be noted that Canguilhem’s account not only applies to individual organisms, but essentially to any normative system. In other words, this provides a potential means of evaluating the normative structure of any kind of system by way of its adaptive openness. A Canguilhemian understanding of health and pathology may thus provide an ecological-level assessment of social systems by way of their normative structure.²⁰ Canguilhem himself remarks, albeit briefly, upon the autonomous normative structure of social systems

“[T]he normalization of the technical means of education, health [...] expresses collective demands which, taken as a whole, even in the absence of an act of awareness [*prise de conscience*] on the part of individuals, in a given historical society, defines its way of referring its structure, or perhaps its structures, to what it considers its own good. (Canguilhem, 2012, p. 238)

ity to adapt to new circumstances. (That said, please note that I do not here mean to advocate for applying Canguilhem’s definition of health to the health of *organisms* but specifically to that of social institutions, as will be unpacked in the following subsection.)

¹⁹ Canguilhem also makes use of the distinction between a healthy *propulsive* – versus a pathological strictly conservative – value constant (Canguilhem, 2012, p. 228).

²⁰ As outlined above, a norm functions by designating certain elements of the system for change, effectively marking them as problematic. The functional role of norms is in this way precisely to stimulate modifications, or, as Canguilhem puts it, “to devalue existence by allowing its correction.” (ibid., p. 77). This provides a means of evaluating the contributing role of any given norm – including those of a social environment itself – in terms of the adaptive openness of its normative structure. (See also Lewis-Martin (2022) for an application of Canguilhem’s account to group agents).

Although Canguilhem is here considering the normative structure of whole societies, the same principle of the essentially self-referential normative structure of collective demands nonetheless applies to those aspects highlighted in the previous section. As the next subsection will argue, this provides a way for enactive approaches to account for those aspects of psychiatry manifested by social systems in a way that does not excuse or mitigate systemic responsibility.²¹

4.2 Enactive individuals in Canguilhemian social systems

Having outlined the Canguilhemian approach to health, I will now show how this may be used in the evaluation of social systems for social integration in enactive psychiatry. I will first unpack its complementarity with enactive approaches. Not unlike Canguilhem's own account, the adaptively open operation of living normative systems is a central aspect of the general characterization of life under enactivism (Di Paolo, 2021). This aspect of adaptive openness also extends to the application of enactive approaches to psychiatry and health through the portrayal of relational individual agents. Enactive accounts have thus made occasional reference to Canguilhem's account albeit as a means of illustrating the minimal normative organization of living systems outlined above – building from this notion of normative systems by additional notions such as autonomy and autopoiesis or 'self-production' (see Di Paolo, 2005; 2010). In this regard, enactive approaches are specifically equipped to deal with the adaptive well-being of normative systems centred around situated organisms and persons in ways that Canguilhem's approach arguably is not. As unpacked in previous sections of this paper, this makes enactive approaches specifically appropriate to relationally constituted individuals.

In this regard, pertinent aspects of Canguilhem's account of pathology as related to *social systems*, ironically, consist precisely in this relative simplicity and consequent potential limitations in relation to the health of individual organismic systems. One such limitation being, for example, a disregard for the impacts of aging upon adaptivity. On Canguilhem's account, the health of any system (organismic or social) is given by its degree of adaptive openness to changes in its existing norm. In an epilogue (added twenty years after its initial publication) Canguilhem critiques his earlier youthfully optimistic perspective: "The only pathology ascertained at the time was a pathology of young subjects" (Canguilhem, 2012, p.289). Due to its emphasis on adaptivity, the Canguilhemian definition of health is at risk of conflating the inevitable gradual loss of adaptivity from aging with disease. But while this presents a limitation for the appropriateness of a Canguilhemian assessment of health within

²¹ An important difference between individual agents and social systems is, as mentioned earlier, the central importance of experience to enactive approaches to psychiatry. However, just as certain aspects of disorder may not be consciously manifest to the individual organism, the fact that social systems do not have experience does not mean they cannot express a pathological normative structure. Social contextual delineations of individuals in terms of healthy or symptomatic degrees of variation are means for a given system of problematizing elements of the system – in this case, an individual or individual behaviour – and accordingly of designating such elements for modification. Canguilhem's account, by contrast, offers a means of understanding and integrating the causal contributions of social environments not encompassed by individuals or dyadic interactions.

systems organized around naturally aging organisms and persons, this same limitation becomes a potential improvement in the assessment of non-aging systems such as social institutions. Because social systems are not subject to necessary diminishments in adaptivity over time the discrepancy between health in naturally aging systems and non-aging systems becomes a point of descriptive advantage for a Canguilhemian evaluation of such systems.

Another crucial difference between Canguilhemian and enactive approaches to health is the latter's emphasis on systemic autonomy, as noted in Sect. 1. Whereas enactive means of evaluating systemic health crucially and centrally prioritize the autonomy of the system in question, a Canguilhemian approach to health specifically prioritizes adaptivity. Here again, the limitation of Canguilhem's approach to individuals becomes an advantage in its application to social systems. While notions of autonomy are generally seen as privileged over adaptivity for individual persons or organisms,²² the same does not apply to social systems. Unlike individual persons, social systems are not ends in themselves, but are legitimate insofar as they serve their purpose or constituency. Accordingly, the autonomous existence of an unhealthy social system – for example, one whose functioning cannot facilitate the purpose or encompass the diversity of its constituency – is no end in itself.

A Canguilhemian approach to health in this way complements the enactive focus on relationally constituted individuals. The disadvantages of Canguilhem's approach evaluating the contributions of the relationally constituted individual simultaneously presents its key usefulness for enactive approaches in evaluating the influences of social institutions outlined in Sect. 2. Canguilhem's formal description of health and disease in terms of the normative structure of a dynamical system provides the foundation for evaluating the contributions of social systems on their own terms – namely by independently assessing the health of social systems by way of their normative structure. I will unpack how this Canguilhemian perspective might be applied to social systems in the remainder of this section.

4.3 Evaluating social systems

In the following I will explore how a systems-theoretical reading of Canguilhem's notions of health and pathology may extend enactive social integration by providing a means of assessing the normative structure of social systems. One way to understand the normative openness of a social system is by the degree of structural complexity and component diversity which the system is capable of integrating into its functioning. This may be contrasted with degrees of component diversity and complexity which the system has to either ignore, repress, or expel.²³

²² This is, at least, seems to be the predominant consensus within enactivism (see also Dengsø, 2023; Dengsø & Kirchhoff, 2023 for discussion).

²³ Note that I am here applying the Canguilhemian perspective to a generalized notion of the *health* of social systems, and not specifically to a particular kind of social institution or its particular programmatic goals. That being said, insofar as health- and educational institutions are fundamental pillars of any functioning society, I regard the following analysis to apply especially to such formative social systems. Thanks to an anonymous reviewer for bringing up this point.

For example, an educational social system's components are constituted by the inhabitants of the system (students and staff) which are organized in accordance with the system's regulations to be conducive to the system's norms (the pursuit of goals such as formative learning and socialization). Using Canguilhem's understanding of normative structure, the inhabitants may be disclosed to the social system by way of their role for the system's own norms. From the perspective of the social system, properties of inhabitants (including the attribution of healthy diversity and problematic atypicality) are defined by their functional role within the normative structure of the overall system. The health of the social system is determined by its openness to the diversity of its populational input.

Following the Canguilhemian approach to health, social systems may be evaluated by the maintenance their adaptive capability: namely, by their ability to provide a functionally cohesive environment encompassing the greatest degree of sensitivity to new variations of input. As a means of assessing the health of the system, we should therefore consider the degree to which systemic functionality demands that components (such as the inhabiting students) conform to preestablished norms. Systemic capacity for the integration of new forms of input into its cohesive functioning corresponds to its degree of adaptivity and health in its normative operation and organization. Conversely, the 'sickness' of a given social system corresponds to the degree of functional insensitivity or hostility of its normative function to the novelty and diversity of its inhabitants.

It should be clear that the Canguilhemian approach put forward here is not intended to replace enactive approaches to psychiatry. Rather, the point is to provide a complementary framework to complement enactive approaches in their efforts towards a socially integrative psychiatry. The account provided here is intended as one suggestion for a potential complement to existing enactive proposals. On the one hand, enactive approaches to psychiatry provide a bedrock understanding of the relationally constituted nature of individuals, and a new avenue for social integration of a naturalistic understanding of psychiatric conditions. A Canguilhemian approach to health and disease complements the enactive accounts by providing a means of assessing and evaluating social systems in their own right. Finally, I will unpack some general and specific implications of a Canguilhemian approach to social integration in psychiatry.

First, recall that Canguilhem's notion of health provides no more guarantee against everyday challenges in social systems than it does for individual people. Just as for individuals, Canguilhem's definition of health as applied to a social system is not determined by an absence of challenges, but by the capacity of the system in question to *meet with* and *adapt to* them. Canguilhem's account allows us to evaluate how the social system responds appropriately to the discrepancies which might arise in the course of ordinary existence. In particular, it provides a way to minimize the degree to which the social system responds to problems in ways that would be unsustainable in the long term – such as ignoring changing patterns of input. This is because the health of the social system depends on receptivity to novelty both as a direct measure of its present adaptivity, as well as for the continued maintenance of its functional adaptivity. In this sense, the stability of a healthy social system is defined not by approximation towards more flawless and inflexible parameters, but by the *resilience*

engendered through the dynamic adaptivity of its parameters. Healthy social environments must maintain an appropriate level of flexibility in the protocols that dictate the interactions of its inhabitants. As applied to formative institutions, this means that institutional goals should not be to strive for a perfect programme of education, for instance, but for programmes that may meet with the legitimate present and changing concerns and interests of developing generations.

Note also that the advantage of opting for dynamic resilience over rigid stability not only facilitates the interests of its inhabitants but also that of the social system itself. From a dynamic systems theoretical perspective, the benefits of higher input diversity may be described in terms of feedback fidelity and operational resilience facilitated by *diversification* and *functional redundancy* (Meadows, 2008). Openness to multiple different functional norms, either through the diversification of ways of implementing a given function or by diversification of functional goals increases systemic resilience against functional breakdown. Diversification of its components equips the system with a larger and more specialized toolbox in dealing with the challenges that it might run into. Accordingly, the health of the system is intimately intertwined with its facilitation of populational and behavioural diversity. The advantages of component diversity from the perspective of the social system itself complements existing appeals to more inclusive paradigms of individual flourishing (see Rosqvist et al., 2020). Diversity is in this sense not a source of errors for correction but a vital source of functional adaptivity, and indispensable to the maintenance of functional stability in dealing with ever new input and challenges. New and ‘troublesome’ inputs become vital sources of growth for the system in constantly redefining its functioning; with the only constant being maintaining openness to the diversity and its systematic implementation. Indeed, greater input novelty and diversity contribute disproportionately to systemic health by their disproportionate potential for further increasing the systemic capacity for functional adaptivity. In line with research from neurodiversity and neurodivergent flourishing, the Canguilhemian view of health thus emphasizes the systemic benefits of populational diversity (Chapman & Botha, 2023).²⁴

Finally, this Canguilhemian dynamical systems theoretical perspective may also help to provide some general recommendations for healthy modes of organization of control in social systems. For example, narrower and more stratified top-down forms of control put a structural limitation on systemic adaptivity and health. This is because having a narrower and more insulated subset of controlling elements will tend to diminish contact between new sources adaptivity and the system’s controlling norms. Strict localization of the operational control of a given system within a smaller subset of the system in this way introduces a higher degree of functional volatility by separating sites of control from crucial sources of novel input. In the example of a school-setting, more streamlined administrative control puts restrictions on the system’s ability to adapt to new input such as students with changing

²⁴ It should in this regard be noted that not all kinds of troublesome input are equal as potential sources of systemic adaptivity. For example, an input whose troublesome character consists in exclusionary intolerance for other systemic inputs would be antithetical to the health of a Canguilhemian social system. Systemic integration of bigotry and exclusion would definitionally detract from systemic adaptivity and health. Thanks to an anonymous reviewer for bringing up the need to clarify this point.

motivations and interests, and especially students that might fall outside of the normative expectations of the system. In other words, consolidated and stratified forms of control may render social systems volatile by diminishing adaptive receptivity in a way that corresponds to Canguilhem's notion of (systemic) sickness. By contrast, horizontal and distributed forms of control, where inhabitants such as students and their directly involved faculty are more directly involved in the determination of the operation and parameters of interaction, will allow for more resilient, adaptive, and healthy social environments.

In summation, Canguilhem's understanding of disease in terms of overly restrictive norms allows us to understand how, in some situations and for some conditions, problematic aspects thematized in psychiatry may in fact be properly attributed neither to the relationally constituted individual nor its environmental interactions. It allows for a systematic means of evaluating and integrating the contributing influences of social environments on their own terms. As such this provides a means of determining whether aspects of a socially integrated psychiatry reflect a need for restructuring social environments, for the sake of their own well-being, as well as that of their respective inhabitants.

5 Conclusion

This paper has sought to provide enactive approaches to psychiatry with a means of evaluating the social influences the relationally constituted individual and its interactions. Section 1 outlined key points of divergence and convergence between various enactive proposals for a simultaneously naturalistic and socially integrative psychiatry. It was shown that, while enactive approaches to psychiatry differ in many important respects, they converge on conceptualizing psychiatric conditions in terms of relations enacted by or with a socially embedded individual. Section 2 argued that some social influences may consist not in social environmental interactions with individuals, but in the prior social environmental determination of interactants and interactions. It was argued that enactive approaches accordingly stand to benefit from a means of evaluating the contributions of social systems on their own terms. In following the enactive openness to pluralistic approaches, I have argued that Canguilhem's definition of health as an adaptively open normative structure, offers a strongly complementary addition to social integration under an enactive approach to psychiatry. This offers one potential means of supplementing the enactive understanding of embedded individual flourishing with a means of evaluating the social systems that often influence and define that same flourishing at the systemic level.

Acknowledgements Thanks to Glenda Satne, Michael D. Kirchhoff, Ian Robertson, and three anonymous reviewers for helpful comments on earlier drafts of this paper.

Author contributions Not applicable.

Funding The author did not receive support from any organization for the submitted work. Open Access funding enabled and organized by CAUL and its Member Institutions

Data availability Not applicable.

Declarations

Ethics approval and consent to participate Not applicable.

Statement regarding research involving human participants and/or animals Not applicable.

Competing interests The author has no relevant financial or non-financial interests to disclose.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- American Psychiatric Association (2022). *Diagnostic and statistical manual of mental disorders (5th ed., text rev.)*. <https://doi.org/10.1176/appi.books.9780890425787>
- Baggs, E., & Chemero, A. (2019). The third sense of environment. *Perception as information detection* (pp. 5–20). Routledge.
- Barkley, R. A. (2015). Executive functioning and self-regulation viewed as an extended phenotype: Implications of the theory for ADHD and its treatment. In R. A. Barkley (Ed.), *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (4th ed., pp. 405–434). The Guilford Press.
- Brancazio, N. (2023). Interactive agential dynamics. *Synthese*, 201(6), 221.
- Canguilhem, G. (2012). *On the normal and the pathological*. Springer Science & Business Media.
- Carel, H. (2016). *Phenomenology of illness*. Oxford University Press.
- Chapman, R. (2021). Neurodiversity and the social ecology of mental functions. *Perspectives on Psychological Science*, 16(6), 1360–1372.
- Chapman, R., & Botha, M. (2023). Neurodivergence-informed therapy. *Developmental Medicine & Child Neurology*, 65(3), 310–317.
- Christensen, W., Sutton, J., & Mcllwain, D. J. (2016). Cognition in skilled action: Meshed control and the varieties of skill experience. *Mind & Language*, 31(1), 37–66.
- de Carvalho, F. N., & Krueger, J. (2023). Biases in niche construction. *Philosophical Psychology*, 1–31.
- de Haan, S. (2020a). *Enactive psychiatry*. Cambridge University Press.
- de Haan, S. (2020b). An enactive approach to psychiatry. *Philosophy Psychiatry & Psychology*, 27(1), 3–25.
- de Haan, S. (2021). Two enactive approaches to psychiatry: Two contrasting views on what it means to be human. *Philosophy Psychiatry & Psychology*, 28(3), 191–196.
- De Jaeger, H. (2013). Embodiment and sense-making in autism. *Frontiers in Integrative Neuroscience*, 7, 15.
- Dengsø, M. J. (2022). Wrong brains at the wrong time? Understanding ADHD through the Diachronic Constitution of minds. *Advances in Neurodevelopmental Disorders*, 6(2), 184–195.
- Dengsø, M. J. (2023). The temporal and affective structure of living systems: A thermodynamic perspective. *Adaptive Behavior*, 10597123231176346.
- Dengsø, M. J., & Kirchhoff, M. D. (2023). Beyond individual-centred 4e cognition: Systems biology and sympoiesis. *Constructivist Foundations*, 18(3), 351–364.
- Di Paolo, E. A. (2005). Autopoiesis, adaptivity, teleology, agency. *Phenomenology and the Cognitive Sciences*, 4(4), 429–452.

- Di Paolo, E. (2009). Extended life. *Topoi*, 28(1), 9–21.
- Di Paolo, E. A. (2010). Chapter 3 overcoming autopoiesis: An enactive detour on the way from life to society. *Advanced series in management* (pp. 43–68). Emerald Group Publishing Limited.
- Di Paolo, E. A. (2018). The enactive conception of life. In A. Newen, De L. Bruin, & S. Gallagher (Eds.), *The Oxford handbook of 4E cognition* (pp. 71–94). Oxford University Press.
- Di Paolo, E. (2021). Enactive becoming. *Phenomenology and the Cognitive Sciences*, 20(5), 783–809.
- Di Paolo, E. A., & De Jaegher, H. (2022). Enactive ethics: Difference becoming participation. *Topoi*, 41(2), 241–256.
- Di Paolo, E., & Thompson, E. (2014). The enactive approach. *The Routledge handbook of embodied cognition* (pp. 86–96). Routledge.
- Di Paolo, E. A., Cuffari, E. C., & De Jaegher, H. (2018). *Linguistic bodies: The continuity between life and language*. MIT press.
- Elder, T. E. (2010). The importance of relative standards in ADHD diagnoses: Evidence based on exact birth dates. *Journal of Health Economics*, 29(5), 641–656.
- First, M. B., Yousif, L. H., Clarke, D. E., Wang, P. S., Gogtay, N., & Appelbaum, P. S. (2022). DSM-5-TR: Overview of what's new and what's changed. *World Psychiatry*, 21(2), 218.
- Foucault, M. (2006). *History of madness*. Routledge.
- Foucault, M. (2012). *Discipline and punish: The birth of the prison*. Vintage.
- Fuchs, T. (2017). *Ecology of the brain: The phenomenology and biology of the embodied mind*. Oxford University Press.
- Gallagher, S. (2020). *Action and Interaction*. Oxford University Press.
- Gallagher, S. (2022a). *Integration and causality in Enactive approaches to Psychiatry* (p. 1415). *Frontiers in Psychiatry*.
- Gallagher, S. (2022b). Neoliberalism, Autonomy, and Institutional Design [Review of *The mind-body politic*, by M. Maiese & R. Hanna]. *Syndicate Network*, <https://syndicate.network/symposia/philosophy/the-mind-body-politic/>
- Gallagher, S., Hutto, D., Slaby, J., & Cole, J. (2013). The brain as part of an enactive system. *Behavioral and Brain Sciences*, 36(4), 421–422.
- Gallagher, S., Sparaci, L., & Varga, S. (2022). Disruptions of the Meshed Architecture in Autism Spectrum Disorder. *Psychoanalytic Inquiry*, 42(1), 76–95.
- Glas, G. (2020). An enactive approach to anxiety and anxiety disorders. *Philosophy Psychiatry & Psychology*, 27(1), 35–50.
- Gnanavel, S., Sharma, P., Kaushal, P., & Hussain, S. (2019). Attention deficit hyperactivity disorder and comorbidity: A review of literature. *World Journal of Clinical Cases*, 7(17), 2420.
- Groen, Y., Priegnitz, U., Fuermaier, A. B., Tucha, L., Tucha, O., Aschenbrenner, S., & Pimenta, M. G. (2020). Testing the relation between ADHD and hyperfocus experiences. *Research in Developmental Disabilities*, 107, 103789.
- Hochschild Arlie, R. (1983). *The managed heart: Commercialization of human feeling*. University of California Press.
- Hollander, E., Cartwright, C., Wong, C., DeCaria, C., DelGiudice-Asch, G., Buchsbaum, M., & Aronowitz, B. (1998). A Dimensional Approach to the Autism Spectrum. *CNS Spectrums*, 3(3), 22–39. <https://doi.org/10.1017/S1092852900005678>
- Humphreys, P. (1997). How properties emerge. *Philosophy of Science*, 64(1), 1–17.
- Humphreys, P. (2016). *Emergence: A philosophical account*. Oxford University Press.
- Hupfeld, K. E., Abagis, T. R., & Shah, P. (2019). Living in the zone: Hyperfocus in adult ADHD. *ADHD Attention Deficit and Hyperactivity Disorders*, 11(2), 191–208.
- Hutto, D. D., & Myin, E. (2012). *Radicalizing enactivism: Basic minds without content*. MIT press.
- Jurgens, A. (2020). Neurodiversity in a neurotypical world: An enactive framework for investigating autism and social institutions. *Neurodiversity studies* (pp. 73–88). Routledge.
- Jurgens, A. (2023). Body social models of disability: Examining enactive and ecological approaches. *Frontiers in Psychology*, 14.
- Karlstad, Ø., Furu, K., Stoltenberg, C., Håberg, S. E., & Bakken, I. J. (2017). ADHD treatment and diagnosis in relation to children's birth month: Nationwide cohort study from Norway. *Scandinavian Journal of Public Health*, 45(4), 343–349.
- Kim, H., Keifer, C., Rodriguez-Seijas, C., Eaton, N., Lerner, M., & Gadwo, K. (2019). Quantifying the optimal structure of the autism phenotype: A comprehensive comparison of dimensional, categorical, and hybrid models. *Journal of the American Academy of Child & Adolescent Psychiatry*, 58(9), 876–886.

- Kirchhoff, M. D., & Kiverstein, J. (2020). Attuning to the world: The diachronic constitution of the extended conscious mind. *Frontiers in psychology*, 1966.
- Korsgaard, C. M. (2009). *Self-constitution: Agency, identity, and integrity*. OUP Oxford.
- Krueger, J. (2020). Schizophrenia and the scaffolded self. *Topoi*, 39(3), 597–609.
- Krueger, J. (2021). Enactivism, other minds, and mental disorders. *Synthese*, 198, 365–389.
- Krueger, J. (2022). The Mind-Body Politic and Affective Institutions Online. Review of *The mind-body politic*, by M. Maiese & R. Hanna]. *Syndicate Network*, <https://syndicate.network/symposia/philosophy/the-mind-body-politic/>
- Krueger, J., & Maiese, M. (2018). Mental institutions, habits of mind, and an extended approach to autism. *Thaumazein| Rivista Di Filosofia*, 6, 10–41.
- Leask, I. (2012). Beyond subjection: Notes on the later Foucault and education. *Educational Philosophy and Theory*, 44, 57–73.
- Lewis-Martin, J. (2022). What kinds of groups are group agents? *Synthese*, 200(4), 283.
- Madsen, K. B., Ersboll, A. K., Olsen, J., Parner, E., & Obel, C. (2015). Geographic analysis of the variation in the incidence of ADHD in a country with free access to healthcare: A Danish cohort study. *International Journal of Health Geographics*, 14(1), 1–13.
- Maiese, M. (2021). An enactivist reconceptualization of the medical model. *Philosophical Psychology*, 34(7), 962–988. <https://doi.org/10.1080/09515089.2021.1940119>
- Maiese, M. (2022a). Autonomy, enactivism, and psychopathy. *Philosophical Explorations*, 25(1), 19–41.
- Maiese, M. (2022b). *Autonomy, Enactivism, and Mental Disorder: A philosophical account*. Taylor & Francis.
- Maiese, M. (2022c). Neoliberalism and mental health education. *Journal of Philosophy of Education*, 56(1), 67–77.
- Maiese, M. (2022d). White Supremacy as an affective milieu. *Topoi*, 41(5), 905–915.
- Maiese, M., & Hanna, R. (2019). *The mind-body politic*. Palgrave-Macmillan.
- Mau, S. (2023). *Mute compulsion: A marxist theory of the economic power of Capital*. Verso Books.
- Meadows, D. H. (2008). *Thinking in systems: A primer*. Chelsea green publishing.
- Mottron, L., & Bzdok, D. (2020). Autism spectrum heterogeneity: Fact or artifact? *Molecular Psychiatry*, 25(12), 3178–3185.
- Nielsen, K. (2020). *What is Mental Disorder? Developing an Embodied, Embedded, and Enactive Psychopathology*. (Online), Available: <http://researcharchive.vuw.ac.nz/handle/10063/8957> [Accessed: 21/02/2023].
- Nielsen, K. (2021). Comparing two enactive perspectives on mental disorder. *Philosophy Psychiatry & Psychology*, 28(3), 175–185.
- Nielsen, K. (2023). Embodied, embedded, and enactive psychopathology: Reimagining mental disorder. Palgrave Macmillan.
- Nielsen, K., & Ward, T. (2020). Mental disorder as both natural and normative: Developing the normative dimension of the 3e conceptual framework for psychopathology. *Journal of Theoretical and Philosophical Psychology*, 40(2), 107. <https://doi.org/10.1037/teo0000118>
- Peeters, R., & Schuilenburg, M. (2017). The birth of mindpolitics: Understanding nudging in public health policy. *Social Theory & Health*, 15(2), 138–159.
- Priebe, S. (2016). A social paradigm in psychiatry—themes and perspectives. *Epidemiology and Psychiatric Sciences*, 25(6), 521–527.
- Roberts, W., Milich, R., & Barkley, R. A. (2015). Primary symptoms, diagnostic criteria, subtyping, and prevalence of ADHD. In R. A. Barkley (Ed.), *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (4th ed., pp. 51–80). The Guilford Press.
- Rosqvist, H. B., Chown, N., & Stenning, A. (Eds.). (2020). *Neurodiversity studies: A new critical paradigm*. Routledge.
- Russell, J. L. (2023). Problems for enactive psychiatry as a practical framework. *Philosophical Psychology*. <https://doi.org/10.1080/09515089.2023.2174423>
- Sage, R. (2022). Is School an outdated system? Alternatives to Traditional classrooms. *How World events are changing Education* (pp. 36–45). Brill.
- Schmidt, A. T., & Engelen, B. (2020). The ethics of nudging: An overview. *Philosophy Compass*, 15(4), e12658.
- Schüll, N. D. (2012). *Addiction by design: Machine gambling in Las Vegas*. Princeton University.
- Slaby, J. (2016). Mind invasion: Situated affectivity and the corporate life hack. *Frontiers in Psychology*, 7, 266.

- Slaby, J. (2022). Philosophy of mind for dystopic times. Review of *The mind-body politic*, by M. Maiese & R. Hanna]. *Syndicate Network*, <https://syndicate.network/symposia/philosophy/the-mind-body-politic/>
- Slaby, J., Mühlhoff, R., & Wüschner, P. (2017). Affective arrangements. *Emotion Review*, *11*(1), 3–12.
- Thompson, E. (2007). *Mind in life: Biology, phenomenology, and the sciences of mind*. Harvard University Press.
- Timms, R., & Spurrett, D. (2023). Hostile Scaffolding. *Philosophical Papers*, 1–30.
- Toro, J., Kiverstein, J., & Rietveld, E. (2020). The ecological-enactive model of disability: Why disability does not entail pathological embodiment. *Frontiers in Psychology*, 1162.
- Totterdell, P., & Holman, D. (2003). Emotion regulation in customer service roles: Testing a model of emotional labor. *Journal of Occupational Health Psychology*, *8*(1), 55.
- Van Es, T., & Bervoets, J. (2022). Autism as gradual sensorimotor difference: From enactivism to ethical inclusion. *Topoi*, *41*(2), 395–407.
- Varela, F. J., Thompson, E., & Rosch, E. (2017). *The embodied mind, revised edition: Cognitive science and human experience*. MIT press.
- Varga, S. (2017). Mental disorder between naturalism and normativism. *Philosophy Compass*, *12*(6), e12422.
- Varga, S. (2019). *Scaffolded minds: Integration and disintegration*. MIT Press.
- Varga, S., & Gallagher, S. (2012). Critical social philosophy, Honneth and the role of primary intersubjectivity. *European Journal of Social Theory*, *15*(2), 243–260.
- Ventriglio, A., Gupta, S., & Bhugra, D. (2016). Why do we need a social psychiatry? *The British Journal of Psychiatry*, *209*(1), 1–2.
- Voort, J. L. V., He, J. P., Jameson, N. D., & Merikangas, K. R. (2014). Impact of the DSM-5 attention-deficit/hyperactivity disorder age-of-onset criterion in the US adolescent population. *Journal of the American Academy of Child & Adolescent Psychiatry*, *53*(7), 736–744.
- Wählstedt, C., Thorell, L. B., & Bohlin, G. (2009). Heterogeneity in ADHD: Neuropsychological pathways, comorbidity and symptom domains. *Journal Abnormal Child Psychology*, *37*(4), 551–564.
- Wartenberg, T. E. (1988). The forms of power. *Analyse & Kritik*, *10*(1), 3–31.
- Zahavi, D. (2014). *Self and other: Exploring subjectivity, empathy, and shame*. Oxford University Press.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.