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Are Mental Disorders Brain Disorders?

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The mission of the U.S. National Institute of Mental Health is to transform understanding and treatment of mental disorders. According to its former director, Dr. Thomas Insel, fundamental to its mission is the proposition that “mental illnesses are brain disorders.” The aim of this article is to examine this proposition and to argue that it does not make sense. As a scientific proposition, it is based on contentious empirical claims, and as a metaphysical proposition, it is consistent with those who claim that a person is a brain. A conceptual analysis is employed as a tool to show that it is a category mistake to ascribe psychological properties of a person to a brain. The article concludes with a brief indication of the ethical implications of Insel’s proposition for mental health care.

Keywords: brain; circuit disorder; person; psychiatry; psychology

We need to understand the language we use.

—Healy (2015, p. 2)

According to Dr. Thomas Insel (2010), the former director of the U.S. National Institute of Mental Health (NIMH), future research into the nature of mental disorders will be based on the proposition that “mental illnesses are brain disorders,” understood as “malfunction” or “dysfunction” of “brain circuits,” “faulty circuits,” or “circuitry disorders.” These disorders, commonly known as “psychiatric disorders” (e.g., schizophrenia and depression), says Insel (2006), are distinct from neurological brain diseases such as Parkinson’s and Alzheimer’s (p. 20; see also Insel, 2007, p. 757). In the 2015 revised and updated NIMH Strategic Plan for Research, Insel (2015) announces that it is the mission of the institute to bring about this change in people’s understanding of mental illnesses (p. 4; cf. NIMH Strategic Plan for Research, 2015, pp. 6, 9, 21ff.). There are several reasons why the sea change in understanding needs to happen and three only deserve mention.

One reason is because advances in “basic behavioral science and fundamental neuroscience” made it possible to examine “the biological mechanisms underlying the regulation and dysregulation of mental processes” (NIMH Strategic Plan for Research, 2015, pp. 6, 21–22). Neuroimaging, says Insel, is detecting “abnormal activity in brain circuits in the absence of an identifiable structural lesion” (Insel & Quirion, 2005, p. 2221). A second reason is these advances suggest “psychiatrists of the future will need to be educated as brain scientists” (Insel & Quirion, 2005, p. 2223). Finally, the current diagnostic systems fail to identify the etiology (source, origin, or cause) of mental disorders. Therefore, if the transformative efforts of the NIMH are to succeed and psychiatry is to become a “precision medicine,” which according to Insel (2014) it is not, then the classification of mental

disorders has to be a “neuroscience-based psychiatric classification” (Insel et al., 2007, p. 750). Or, in different words, it is because reclassifying “disorders based on brain function could yield a system of diagnosis based on biomarkers—biological signs such as brain activity patterns or chemical or structural changes specific to the condition” (Insel, 2010, pp. 50–51).

Because Insel’s proposition that mental disorders are brain disorders appears to be ambiguous in the sense that it is unclear whether it is meant to be a scientific or metaphysical fact, I will first show that, as a scientific proposition, it is based on contentious empirical claims. I will then examine his proposition in its metaphysical (ontological) sense for it is consistent with those who claim that a person is a brain. After a brief analysis of the conceptual framework of those who make that claim, I will employ conceptual analysis as a tool to examine Insel’s beliefs about the brain and show that it is a category mistake to ascribe psychological properties (capacities, abilities, or powers) of a person to a brain. An analysis of the concept of learning will help to further clarify the point. I conclude by briefly indicating the ethical implications of Insel’s proposition for mental health care.

IS INSEL’S PROPOSITION SUPPORTED BY SCIENTIFIC EVIDENCE?

In 2007, Insel (2007) informed his readers that “before we can understand depression as a brain disorder, we need information on the specific neuronal circuits that contribute to the hopeless despair that forms the core of this illness” (p. 757). Three years later, he penned an article which he entitled “Faulty Circuits: Neuroscience Is Revealing the Malfunctioning Connections Underlying Psychological Disorders and Forcing Psychiatrists to Rethink the Causes of Mental Illness” (Insel, 2010). But in 2012, in an article entitled “Shedding Light on Brain Circuits,” he conceded that an understanding of the “faulty circuitry” underlying mental disorders has not yet been attained (Insel & Freund, 2012, p. 1028). So what empirical evidence has Insel used to substantiate his numerous claims over the last 10 years that mental disorders are “brain circuit disorders”?

Psychiatrist Niall McLaren (2013a) checked the references of several articles in which it is claimed “that all mental disorders are, in some essential sense, brain disorders.” He concluded:

To my surprise, the bold claims were never referenced. Instead, they are presented as flat statements, as though utterly beyond question . . . Eventually, I surveyed 11 of the most influential English language journals in psychiatry, from January 2001 to December 2011. This yielded some 1,465 issues totaling 154,000 pages . . . I found nothing to indicate that any person of any stature in modern psychiatry has offered anything that would justify the proposition that mental disorders are brain disorders. (pp. 1–2)

Psychiatrist Allen Frances and psychologist Thomas Widiger (2012) also provide no indication that they are aware of such evidence:

There is no scientifically proven, single right way to diagnose any mental disorder—and don’t let any expert tell you that there is. . . . There are no objective tests in psychiatry, no X-ray, laboratory, or exam finding that says definitely that someone does or does not have a mental disorder. (pp. 115–116)

On May 3, 2013, David Kupfer (2013), chair of the task force responsible for the creation of the DSM-5 (American Psychiatric Association [APA], 2013), said,

In the future, we hope to be able to identify disorders using biological and genetic markers that provide precise diagnoses that can be delivered with complete reliability and validity. Yet this promise, which we have anticipated since the 1970s, remains disappointingly distant. We've been telling patients for decades that we are waiting for biomarkers. We're still waiting.

Psychiatrist Joel Paris (2013) agreed:

No mental disorder is associated with a consistent biological marker, either from neurochemistry or from imaging data . . . Similarly, the fact that mental disorders are associated with changes in brain function that can be measured by imaging does not prove that alterations in the activity of neuro-circuitry are the cause of the illnesses. (p. 40)

Thus, in the words of William Uttal (2011), "The best we can do is to say that this or that brain area may be involved in some way" (p. 28).

What about the hypothesis that a "chemical imbalance" in the brain is the cause of depression? Paris (2013) says "the fact that pharmaceutical agents change brain chemistry does not prove that mental disorders are caused by 'chemical imbalances'" (p. 40). David Healy (2012) concurs,

No one claims nicotine or benzodiazepines correct a lowering of serotonin in depression, whereas the SSRIs supposedly do. The idea that there is an imbalance of serotonin in depression is completely mythical. It arose in the marketing department of SmithKline Beecham, the maker of Paxil. (pp. 82–83)

And there is wide agreement on this point (cf. Breggin, 2008; Deacon & Baird, 2009; Kemp, Lickel, & Deacon, 2014; Moncrieff, 2008).

Notwithstanding his lack of scientific evidence that mental disorders are "brain circuit disorders," Insel (2005) insists that "psychiatry will need to embrace neuroscience," especially neuroimaging (p. 30; see also Insel, 2007, 2009, 2010, 2014; Insel, Cuthbert et al., 2010; Insel & Freund, 2012; Insel & Quirion, 2005; Kapur, Phillips, & Insel, 2012). Insel also sees a new role for psychiatrists and neurologists: "Indeed, psychiatrists and neurologists may be best considered *clinical neuroscientists* [emphasis added], applying the revolutionary insights from neuroscience to the care of those with brain disorders" (Insel & Quinon, 2005, p. 2223). But many disagree. For instance, Pat Bracken and 28 others informed their colleagues that

progress in our field will not come from neuroscience and pharmaceuticals [important as these might be] but from a fundamental reexamination of what mental health care is all about . . . Psychiatry is not neurology; it is not a medicine of the brain. (Bracken et al., 2012, pp. 431–432)

On this basis, we can conclude that there is no empirical evidence to support the major claim of the former director of the NIMH that the ordinary methods of laboratory neuroscience will tell us all we need to know about mental disorder. We should, therefore, be concerned when an authority of Insel's stature proclaims "Biological psychiatry and the related neurosciences have changed mankind's view of itself and of mental illness" (Kapur

et al., 2012, p. 1174). We need to know precisely what that means, which requires an understanding of the framework that underlies Insel's repeated claims about the brain and mental disorder.

BIOLOGICAL MATERIALISM AND PHYSICALISM

In its metaphysical sense, Insel's proposition is consistent with those who believe that it is a brain that "feels, thinks, and decides" (Churchland, 2002, p. 1). It is also consistent with those who believe that a "brain is the machine that allows all forms of learning," that a brain has the "capacity to learn" (Blakemore & Frith, 2005a, p. 1), solve perceptual problems, search for the causes of sensations, and decides the most likely cause that a brain is able to make predictions and contains maps in it and that a "brain discovers what is out there in the world by constructing models of that world" (Frith, 2007, pp. 117, 125–127, 131). It follows logically, "The person is his brain" (Hallett, 2012, p. 2; cf. Greene & Cohen, 2004, p. 1779; LeDoux, 2002, p. x).

Philosophically, these claims are known as biomedical materialism (Zachar, 2000, p. 21) or biological reductionism (Deacon, 2013, Deacon & Lickel, 2009; McLaren, 2011) and as physicalism in philosophy of mind (Botterill & Carruthers, 1999, p. 4). Its supporters typically share several beliefs: The brain is the organ of the mind; psychological states are brain states; if we wish to understand the nature of human psychology, we have to learn brain physiology; and pathological processes are actually brain processes (Zachar, 2000, pp. 27, 28; cf. Kandel, 1998; 2005, pp. 33–58; 2013). Taken together, these beliefs justify the neuroscientific goal of explaining the behavior of a person and/or the mind in terms of the brain.

However, when a psychological process is conceptualized as or identified with a brain process then "psychological symptoms become secondary" (Zachar, 2000, pp. 28–29). It explains the call of Insel and his colleagues on researchers "to depart from traditional ways of thinking about disorders" and instead to focus on "mechanisms of dysfunction" (Cuthbert, 2014, p. 32). In practical terms, it means researchers should target "mechanisms" because that approach is most consistent with mechanistic thinking and the notion that the brain (person) is a machine. However, on the one hand, the question of explaining how the mechanisms of the brain will tell us all we need to know about the mind is left unanswered. On the other hand, some clinicians realized that in that view, we are no longer dealing with a person in health care. The person has been

actively and purposefully eliminated [emphasis added] as a potential source of contamination in the process of producing "pure" scientific knowledge . . . Consequently, we dare to state that the biomedical body of knowledge of the human body and about human sickness and health is void of knowledge about personhood in general and about individual persons in particular. It is on this depersonalized body of knowledge that EBM [evidence-based medicine] is based. (Kirkengen, Mjølstad, Getz, Ulvestad, & Hetlevik, 2012, p. 33)

It underlines a crucially important issue: Our ethic of care will depend on and be influenced by our understanding of what a person is.

Why should we think that a shift to "neuroscience is an especially important part of the biomedical materialist's professional identity" (Zachar, 2000, p. 30)? Although it is clearly

evident in Insel's creation of a new designation for psychiatrists and neurologists, as documented earlier, the deeper concern is that a shift to neuroscience also means the "devaluation of psychology" (Zachar, 2000, p. 37; cf. Jacobs & Cohen, 2010, p. 313; Miller, 2010). There are at least three explanations to consider.

First, the devaluation of psychology could be the result of confusing the neuroscientific study of brain events, processes, and states with the exercise of human capacities, abilities, and powers and their exemplification in behavior, which is the preserve of experimental psychology. Thus, if Insel is correct, then we would have no need for experimental psychologists, and Insel assumes a conclusion for which he has provided no evidence.

Second, it could be the result of a shift from an etiology focused on external causes of trauma to one focused on the brain. It is telling that Insel (2010) clearly acknowledges that at "first glance, PTSD seems unlikely to be caused by abnormal brain circuitry," that "even its name describe the 'cause' as an external event—a specific trauma," but then goes on to state that neuroimaging indicates that it is the result of abnormal activity in the brain (p. 49ff.). To paraphrase, had the "circuits" in the brain of a victim of, say, physical abuse, rape, or molestation functioned properly, then the person would not have experienced posttrauma memories, flashbacks, sleepless nights, fear reactions, and so forth. There would be no posttraumatic experiences if "brain circuits" do not malfunction.

What makes Insel's claim hard to accept is because he thinks that if "the amygdala is the engine of fear" then "something in the brain should be responsible for turning it off when conditions change and fear is no longer necessary or appropriate" (Insel, 2010, p. 49). Because knowing when to intervene is clearly critical for what that "something in the brain" is supposed to do, one might ask what this "something" is that Insel refers to. Is it conscious, does it have a mind, and does it possess knowledge of the "engine"? And where does it receive its information from, specifically, when to switch off the "engine"? It cannot come from another "something," and if it does, then we have a problem of infinite regress and that cannot be left unexplained. It appears that the case for posttraumatic stress disorder being a "circuit disorder" is unintelligible and incoherent. The amygdala is not an engine of anything nor are there any on or off buttons that some hypothetical "something" can fail to flip when it should, and hence, nothing in a brain that can accept responsibility for its failures and malfunction of the brain.

There is a third possible reason for the devaluation of psychology. The term *mental*, often used interchangeably with "psychological" (cf. Insel, 2010), appears to be problematic for certain psychiatrists, neuroscientists, and philosophers. One is left with the impression that some would prefer that no one uses the term at all, which the following two passages clearly illustrate:

The use of the term *mental disorder* [emphasis added] in the title of the DSM-IV (*The Diagnostic and Statistical Manual of Mental Disorders*) is an anachronistic preservation of the Cartesian view. This term appears increasingly silly . . . (Frances, First, & Pincus, 1995, p. 16)

"Mental" implies a Cartesian view of the mind–body problem—that mind and brain are separable and entirely distinct realms, an approach that is inconsistent with modern philosophical and neuroscience views. (Stein et al. 2010, p. 1760)

Allen Frances' (2014) recently made the observation that the "NIMH turned itself into a 'brain institute' rather than an 'institute of mental health'" (p. 48). Francis seems to suggest that it reflects a lack of good judgment or common sense. However, it is easy to

conclude that these statements carry no real weight, that it is only an opinion masquerading as fact. But the inescapable question is what precisely it is that psychiatrists believe they are treating. My contention is that “psychiatrists treat a *person* [emphasis added] and not a brain circuit” (Parnas, 2014, p. 46).

It is in light of these concerns that I will now focus on a few of Insel’s beliefs about the nature of a human brain and offer a response to each. It is acknowledged that many issues need far better specification but because of space constraints, it cannot be worked out in greater detail.

ARE INSEL’S BELIEFS TRUE?

Insel (2005) believes that “all mental processes are neural” (p. 29; cf. Kandel, 1998, 2005). That belief can only be based on an inference that a mind of a person is in the brain and/or identical with a brain, which is evident in the following sentence: “[M]edical schools continue to divide the mind from the brain, forcing students to choose between psychiatry and neurology” (Insel, 2005, p. 30). The first problem is this: If neural processes in the brain include things such as blood flow and electrochemical processes, then we need to know what exactly is “mental” about such physical processes. It is worth quoting neuroethicist and molecular biologist Regina Kollek (2004):

Imaging techniques now enable us to monitor physiological activities and changes in the brain more directly. What we observe, however, are not cognitive processes of the mind but electrical signals or patterns of blood oxygen and flow, which are, or may be, correlated with mind activities . . . Since processes associated with the self and other phenomena of the mind cannot be measured directly, the terms and concepts used to describe them are empirically undetermined. (p. 81; cf. Uttal, 2011, pp. 8–42)

Of first importance is to get clarity on what a mind and a process is and then show why, for instance, believing and understanding are not processes, therefore, not brain processes at all.

A person has a mind and is an agent but a mind is not. It is coherent to think that a person can make up his or her mind but incoherent to think a mind has a mind to make up. To have a mind is to possess a range of capacities, abilities, or powers, such as an intellect (i.e., the power to reason, to draw inferences, and to act for reasons); to think of or about something; to learn, acquire knowledge, form beliefs, evaluate evidence, understand (comprehend), explain, and make judgments about things being right or wrong and good or bad; it is to have the ability to deliberate, choose, and decide what to do or believe and to modify one’s feelings, desires, and attitudes. And to have a mind is to have a rational will. These are not processes or states of a person but powers that are exercised by a person who has them.

A process is also not an agent. Agents are able to act on something else and by so doing bring about change in the thing acted on. Thus, if one process causes another process, then we cannot intelligibly ask what the one process did to the other process, for a process is neither a substance nor able to act. Processes are, in other words, initiated by agents whose existence account for their generation or for their explanation. Processes require a place and space in which to happen; they are going on in time for a time, can be interrupted,

and come to an end. Processes also do not move and are not self-movers. Brooms move, wheels turn, and rivers run; these are things inanimate things do. By contrast, when a person moves, turns, or runs, the person acts—at will. Finally, a process cannot be a subject of change. If we grant that events are parts of a process, then a process involves changes and what changes is a substance that undergoes a process of change. An apple changing from sour to sweet is an example.

In contrast to processes, persons acquire and form beliefs based on information provided by others through reasoning, by exercising their cognitive (i.e., perceptual) powers, and the use of their sense organs (eyes, ears, etc.). Beliefs, understood as what is believed, are either true or false. To have a true belief about how things are is to be right and to have a false belief is to be wrong. Believing that things are such and such or such and so can also be reasonable, rational, foolish, or intelligent. By contrast, there is nothing about a brain process that can be true or false, right or wrong, or foolish. It entails that brain processes could never have the consequences of believing. Nothing about a brain process going on in one's brain can imply that one is either right or wrong about anything. Also, no description of any brain process could logically entail that a person is right or wrong about whether things are as they believe to be.

People are held responsible for their beliefs, and some are ashamed of believing something that, on reflection, they should not have accepted, endorsed, or subscribed to. By implication, people are answerable for their beliefs. By contrast, a brain process is not responsible or answerable for anything at all; it cannot be praised or blamed for its beliefs for it does not have any. Likewise, human agents are held responsible for their actions; they can be caught in the act of doing something but not interrupted in the act. By contrast, a process can be interrupted in a brain and not ever be held responsible for how it is going on.

The most appropriate question to ask about someone's beliefs is to ask "what do you believe about . . . ?"; by contrast, the most appropriate question to ask about a process is "how . . . ?" the process went on throughout a period of time—whether constantly, steadily, irregularly, sporadically, incessantly, intermittently, and so forth. None of these properties can be predicated of a belief or believing something to be so. A person does not begin to believe when he or she heard what had been said by someone and then go on believing for a time and then "come to an end" believing. A person may come to believe something at a time, continue for a time to believe what the person came to believe, and later cease to believe it. One does not cease to believe what one believes when one falls asleep. One ceases to believe something, for example, by considering reasons for doubting, by looking at counterexamples, and by psychological pressures of others.

It has been noted that a process can be interrupted and later be resumed, and what is true is that during a process of decision making, a person (not a brain process!) gathers information, weighs up alternatives, work out what to do next, or how to solve a problem, and a person can choose or decide quickly, immediately, momentarily or take time to make up his mind. By contrast, what a student attends to with understanding during a lecture may go on for a time (i.e., as long as the lecture lasts). The student may begin to understand what the lecturer is saying just as we begin a process when preparing a meal. If the student fully understands the lecture when it is finished, the student has not finished understanding it. While both the lecturing and lecture may be interrupted, say, halfway through it and later resumed, and the student's listening interrupted by it, the student's understanding of what he or she was listening to cannot be interrupted; the student continues to understand it.

Insel (2005) also believes that “studies with fMRI have provided remarkable insights into how the brain parses language, recognizes faces, and encodes emotion” (p. 29). “The newest imaging technologies,” he writes, “allow the detection of problems with activity levels in, or communication between, brain areas, even when there is no loss of cells” (Insel, 2010, p. 44). His belief that brain areas are able to communicate is also evident in what he says about “area 25” in the brain: It is capable of “sensing and modulating the activity levels of other brain centers for fear, memory, and self-esteem,” and “the brain, after all, is an information-processing organ” (Insel, 2010, p. 47). It is, therefore, not surprising that the “BRAIN Initiative,” announced by President Obama in April 2013, support the expansion of “new tools for decoding the language of the brain” (NIMH Strategic Plan for Research, 2015, p. 9). However, the temptation to succumb to these ideas should be resisted for at least the following reasons.

First, the idea that parts of a brain or a brain is able to communicate is unintelligible; neither a brain nor its parts have mouths to speak or eyes they can use to recognize faces. Second, communication presupposes, at the very least, the exchange or transmission of information. To understand what is wrong with the idea that a brain communicates in a language that now needs to be decoded is to understand that the idea is illogical: Neuroscientists could not have concluded that the “language of the brain” has to be decoded unless one of them first discovered that there is a language encoded in it. But how would they know that? And if one of them has not yet learned its code, then not one of them will be able to decipher the code. And here is their problem: A “code” is not a language but a method of encrypting a linguistic expression. Thus, if the brain is encoding information or emotions, as Insel would have us believe, and someone has to learn the code to decode it, how will a person access a brain to do so? A person can access a library and a room to clean it but no person can access his or another’s brain in that way. Moreover, if the person is a brain, how can I ask another person what his or her brain is thinking if the brain encodes information and no person on earth knows what the code in his or her brain is? Yet, before the 1990s were declared the “Decade of the Brain,” we were all able to understand each other well and able to tell others what we were thinking, feeling, or believing about something when asked—without the need to know or decipher a code in our brains. The notion that a brain “encodes” and others now need to “decode” its “language” would be an exercise in futility.

The confusion is widespread among neuroscientists. For them, “encode” means that the brain acquires and consolidates, thus process information; “store” means creating and maintaining a neuronal record of whatever information that is encoded, and to “retrieve” information means being able to use stored information and to create a representation of whatever is learned or acquired (cf. Gazzaniga, Ivry, & Mangun, 1998, p. 247). But that is incoherent. For one thing, neuroscientists imply that when I recall my picture of my mother (it hangs framed on the wall in my study), there must be a neuronal “record” of it stored in my brain. But if so, then the picture will be unavailable to me. The reason should be evident by now: I cannot see into my own brain. For another thing, the idea of information or knowledge being stored somewhere in a brain makes sense only if the store is available for a person to access it. Thus, if the brain is encoding information and the person has not learned or knows the code in which it has been encrypted by his or her brain, how can the person ever know what is stored in his or her brain, let alone recall it? Furthermore, neurophysiologists may discover and know that certain neural configurations are correlated with or are necessary conditions for being able to exercise one’s powers, but they will

never find information, knowledge, and a language (known or unknown) in the brain. What a person knows are truths, facts, or propositions, and when a person knows, he or she is then able to say, tell, and show others what it is he or she knows. And what a person knows can be recorded on a computer disc or paper, but there is no such thing as knowledge, information, or a language being recorded on or in a brain. What a person knows is retained in memory, which is just another way of saying the person has not forgotten.

Insel (2010) further believes that “depression offers perhaps the best example of the rapid progress being made in understanding the biology of mental illness . . . Depression is known to disturb the immune system . . . yet despite its widespread effects on the body, depression is fundamentally a brain disorder” (p. 46). However, there are several reasons to think that depression is no more a brain disorder than shame is.

In the first place, although shame is significantly linked with several mental disorders such as the narcissistic personality, avoidant personality, self-defeating personality, obsessive-compulsiveness, as well as symptoms associated with depression, anxiety, eating disorder, substance abuse, and problems related to the body’s endocrine and immune system (cf. de Hooge, Breugelmans, & Zeelenberg, 2008; Dickerson, Kemeny, Aziz, Kim, & Fahey, 2004), shame has nothing to do with being ashamed of one’s brain.

Shame, as the other emotions of moral self-appraisal (i.e., guilt and remorse), serves as a signal to a person that something is wrong, that it needs to be attended to and made right. What ashamed people are ashamed of are themselves (i.e., their character), and what causes shame is the disapproval of other persons, even if the brain enables a person to perceive the behavior of others and realize their disapproval. It implies that emotions of moral self-appraisal are rational; people who experience them experience them for a reason. And because it is a person who experiences emotions, it is unintelligible to think that a brain can have reasons to feel ashamed of itself. Self-conscious emotions presuppose a person’s capacity for self-awareness, including the ability to evaluate themselves (not their brains!), their actions as right or wrong, and their affects on other people, whether good or bad. In plain terms, a person is self-conscious and not brain conscious. So what can we say about depression?

Depression is generally described as a mood or a symptom (McHugh, 2005, p. 2527). Depression is also generally referred to as a *mental state* as, for example, feeling sad, anxious (worried), irritable, content, cheerful, joyous, intense concentration, eagerly anticipating, acute excitement, and being in pain is (pain is not, it is a sensation). We say persons are in a mental state or a state of mind, and persons can work themselves up into a state of mind and find themselves in a state of mind. These are states of a person and, as such, are states of consciousness. They are no more states of a brain than states of the liver or kidneys.

To elaborate, I will contrast a mental state with a belief because biological materialists accept that “psychological states are brain states” (Zachar, 2000, p. 27; cf. Searle, 2002). First, mental states, as I have intimated, are connected to feelings that a person may find difficult to endure but it cannot be said of a belief. Second, mental states are exhausting and tiresome, and a person can be tired of being depressed or become exhausted by intense concentration or attention. As a result, a person may feel worn out. But none of that can be said of a belief as a state that a brain is in; a person cannot be tired of believing that things are so, neither is a person exhausted by believing that things are so nor worn out by what is believed. Third, it makes sense to say that “Joe is in a depressing mental state today” but not that “Joe is in a believing state today.” Fourth, what makes a person to believe something is the evidence that things are so, and what makes a person depressed

is not the evidence but how the evidence are taken, or that things, as a matter of fact, are so. Fifth, a person's state of depression may be interrupted when, for example, a family member pays a visit, and may resume, but distraction cannot interrupt a person's believing something. Last, as with a brain process, a mental state could not have the consequences of believing. Nothing about a brain state can imply that one is either right or wrong about anything. Also, no description of any brain state could logically entail that a person is right or wrong about whether things are as they believe to be. In a word, a person is either right or wrong in what he or she believes, but there are no such consequences for being in a depressed mental state or an irritable one. Only if mental states are states in the sense which neural patterns or configurations can be said to be states of a brain can they be supposed to be identical with brain states. But then, a person being in a depressed mental state must be identical with the neural patterns or configuration and that is absurd. It is as absurd as thinking that blushing is identical with a neural pattern or embarrassment.

I conclude that Insel's proposition that mental disorders are "brain circuit disorders" is the result of a fundamental metaphysical category mistake: a person is not a brain and no empirical discovery can transform nonsense into sense. I will now turn to the concept of learning to further clarify my contention that a person is not a brain.

THE BRAIN IS NOT A LEARNER

In order for persons to learn, they must have the ability to learn, and it is no coincidence that it is bound to knowledge, understanding, and language. The criteria that indicates a person has learned, known, and understood something consist in the person's ability to do certain things, such as answering questions, say, tell, show where to search for, and to point to things. A brain can do none of that. Learning, as most abilities, also admits of degrees and kinds of excellence. A person can learn a little, a lot, or thoroughly and can learn to do something well. The ability to learn is also distinct from its exercise. A person can learn and may have learned to ride a bicycle, but a person cannot learn to or ride a bicycle without handles. Also, a person cannot learn to ride or ride a bicycle unless the person has an opportunity to learn to or ride. It is, therefore, an error to think that abilities are stored anywhere; a person cannot misplace his or her ability to ride a bicycle. An acquired ability can be lost (because of a brain injury), but when it is spontaneously regained, it is not because it has been found anywhere. And a person can only remember that something is so if someone has previously learned and not forgotten that it is so.

According to Uta Frith (2013), the brain is not only able to learn but also able to "continuously" taking "account of the environment" (p. 6). If that is so, how would a person know what the brain's recount of the environment is, given that no person has access to his or her brain, let alone being unable to communicate with it? The problem with her belief is straightforward: It is a category mistake to ascribe psychological properties of a person to a brain. Likewise, children and adults learn from others by watching and listening to them. In precisely what sense of the words "watch" and "listen" can watch and listen be predicated of a brain when a brain has no sense organs?

Some educators assert that a brain's "capacity to adapt to continually changing circumstances depends critically on how much it is used" (Blakemore & Frith, 2005b, p. 460). That is unintelligible, for students are unable to use their brains the way they use their

hands, feet, or an instrument, such as a ruler, to do something. A person is no more able to use his or her brain to think than he or she is able to use his or her stomach to digest food. By implication, a teacher can never ask students to use their brains. By contrast, what a teacher can do is to ask or order students to use, for example, their ears to detect a particular sound, to bring their eyes closer to the binoculars or to move them in the direction of an approaching object, and the teacher can ask or order them to use their hands to write their names on a piece of paper. But a brain is unable to do that. The point is simple: These organs are under the direct and voluntary control of the students but the brains of the students are not. Therefore, students who find themselves in a disorderly situation can say to either themselves or to each other “now is the time to exercise self-control,” but students can say that neither to their brains nor to the brains of others. A brain has no ears to hear and no capacity to listen (i.e., able to comply with a request or obey or disobey an order).

To write a book that purports to be about “learning in the brain at all ages” (Blakemore & Frith, 2005b, p. 459) is bound to mislead if readers are not careful. On the one hand, at minimum, to educate (teach) and to be educated (to learn) involve perceptual consciousness in the form of hearing, seeing, smelling, tasting, or tactilely feeling something and a brain has none of these powers. On the other hand, a child (or adult) learns almost anywhere and only when there is an opportunity to do so: in bed, in a study, in a classroom, in a library, in a swimming pool, in a shopping mall, in a car, in an airplane, in a bush, or in a tree. These are all places where persons using their senses can be located. But learning in a brain, which is in a skull, can never be one of them.

There are various ways students can be punished for repeated failures to do their schoolwork. How can a teacher punish a brain if the brain is the thing that learns? How could, or better, should a teacher teach a brain to learn to accept responsibility for its actions when it is incapable of taking action? To teach students to accept responsibility is to develop one of their core abilities, namely, to learn to give an account of their actions or behavior. Thus, by providing others with reasons for their behavior, students provide others with a particular way of understanding it. The student is, therefore, subject to criticism if the reasons the student offers for his or her actions fail to support them. But there is nothing in or about the brain that one can criticize. Furthermore, a brain cannot answer questions and point to things, and it is unable to behave either responsibly or irresponsibly; brains only function and malfunction as do hearts, kidneys, and livers.

It is, therefore, questionable whether the “brain is the machine that allows all forms of learning” (Blakemore & Frith, 2005a, p. 1). It wrongly suggests that when we reflect on our behavior that we are reflecting on brain function, or when someone reflects on the reasons for or against doing something, he or she is not reflecting on what reason dictates but on what will cause him or her to do it. However, in recounting the reason a person did what he or she did, the person is not describing or explaining what caused him or her to do what he or she did but what his or her reason (rationale) for acting was. The important point is, a person’s reasons can be good or bad, selfless or selfish, moral or immoral; reasons may also be convincing, defensible, weighty, compelling, persuasive, weak, and unacceptable but brain causes can be none of these.

We can, therefore, understand that a child can play chess because the child learned to play chess and not because the child was caused to play chess. If we are puzzled by the child’s gambit, we want an explanation of the child’s move not of the child’s movement. Neural events in the brain may explain how it is that the child is able to move his or her

hand, but neural events in the child's brain cannot explain the child's move on the chess-board. Only the principles of chess strategy the child has learned and was aware of at the time of the move can do that. And the brain is neither conscious or unconscious nor aware or unaware of anything.

The last point is contrary to Alex Cleeremans' (2011) claim that the "brain learns to be conscious" (p. 1). He calls it his "radical plasticity theory," which, he says, "is the brain's (emphatically non-conceptual) theory about itself" (p. 4). There are several problems with Cleeremans' theory.

For one thing, there is no such thing as a nonconceptual theory about anything. For a person to have a theory about perception presupposes possession of a concept of perception. In different words, all theories are concept-laden. For another, consciousness is a precondition for being able to theorize about or learn anything at all. The reason is straightforward: A person without consciousness is either anesthetized, has fainted, or has fallen asleep. The anesthetized person and a person who fainted can regain or recover consciousness, and the person who has fallen asleep can later awake. Hence, it would be unintelligible to identify a person with a brain. A brain is unable to collapse because it cannot faint; it is unable to stand up, look around, request support, and ask for water to drink.

Consciousness is also emphatically not a theory, let alone a "brain's nonconceptual theory about itself," although there is such a thing as a person being able to theorize about the nature of consciousness. Consciousness, as noted, is a state of being awake, and a person is also only conscious of objects and phenomena in the person's perceptual field if it has caught and held the attention of the person. A person can also be made aware of his or her jealousy and become conscious of it when it holds his or her attention, but it does not at all imply that the person was unconscious when he or she was not conscious of his or her jealousy. And once a person is aware of his or her jealousy, and does not forget that he or she is, the person needs no longer to be conscious of it.

But there is another problem with Cleeremans' theory. To learn something is to acquire knowledge, including knowledge of oneself (self-knowledge is an ability which a person, as opposed to a brain, can cultivate or neglect). Thus, if I realized something is thus-and-so with me, then I am simply conscious of it. It is because I am self-aware and not brain-aware. The root of the confusing idea that a brain learns to become conscious of something is the assumption that consciousness is a form of knowledge a person is conscious of. Indeed, to recognize some object is to be able to identify the object based on one's previous learning and knowledge acquired and retained (not stored!) in memory. Thus, when I see my wife in a crowd, I am recognizing her and not remembering her. In this sense, what I now know, became conscious of, and am aware of, is her presence in the crowd. But it is not something I, let alone my brain, have learned; it entails that I have retained and exercised my recognitional ability.

An important source of knowledge, in addition to reasoning and teachers, is our five senses, which has several logical consequences. For instance, I can notice something, such as a shadow in a bush or a bang, and may be conscious of it if it lasts some time; otherwise, I cannot say that I was perceptually conscious of it. Put differently, what a person sees, hears, touches, tastes, and smells must preexist a person's being conscious of it, otherwise the person could not have been conscious of what the person has seen, smelled, or touched. By implication, a person cannot be conscious of what is not the case. But, and this is crucial, it is questionable whether we can voluntarily choose or decide what to become conscious of

through our senses, although we may voluntarily choose or decide to ignore, deny, or not to acknowledge what we became conscious of.

What a person knows, a person can also learn or be trained to know in detail, thoroughly, well, and intimately. However, it does not imply that a person or a brain can learn or be trained to become conscious of things. What a person can learn is to become more receptive of stimuli. Neither does that imply that a person can learn to be skillful at being conscious of stimuli; a person can only learn to be more sensitive to it.

In summary, persons (not their brains!) can be good at learning how and where to search for things, at detecting, discovering, and finding things out. It is, therefore, appropriate to ask “How do you know?” and “What made you conscious of . . . ?” because there are sources of knowledge linked to such questions, for example, sense organs and perceptual abilities, reasoning, and a teacher.

ETHICAL IMPLICATIONS

The mission of the NIMH is far from being purely scientifically motivated (McLaren, 2011, 2013b). We also have reason to believe that the neurocentrism and physicalism of Insel and those who follow him have entrapped them in a misguided conceptual framework for the articulation of neuroscientific discoveries, hence, as the source of a host of unnecessary conceptual confusions that are impediments to any credible science. The aim of a conceptual analysis is to show that the articulation of a scientific explanation is in some way incoherent, that it is logically and conceptually unintelligible, that an explanation of some psychological attribute is inappropriate, or that a question being asked of the object being investigated is unintelligible.

By way of illustration, consider Eric Kandel’s (2013) desire to understand love: “But if we could understand the various aspects of love more fully by seeing how they are manifested in the brain and how they develop over time, then our scientific insights would enrich our understanding of both the brain and love” (p. 557). Now, if concepts are expressions of the ways in which we think about things, then Kandel’s concept of love is an example of neuroscientific nonsense (i.e., as something illogical and transgressing the bounds of sense). To investigate love in the brain and then describe what one observes would not be a description of love at all. In other words, it would be senseless to attempt to investigate how love is manifested in the brain and then claim that one understands it. I submit that it is this kind of confusion that makes most research in mental health care either misguided, worthless, and/or yields misinformation about mental disorders, a brain, and/or a person.

First, even preschool children know that a brain is involved in a person’s mental life, but they deny that a brain can pretend to be a kangaroo, can love one’s brother, or brush one’s teeth (Bloom & Weisberg, 2007). Second, love is manifested in one and one way only and that is through touch and emotional expressions in gestures, words, sentences, and actions of people and their deeds. Thus, and third, it is by observing these that knowledge of love is acquired. But if love is expressed in a brain, then no person will ever know or understand what love is, for the simple truth is that no person is able to observe the brain of another person. Finally, a brain is not the sort of thing we can hug or comfort when we wish to demonstrate our affection.

At the very least, to have a proper concept of love is to understand that love has a focal point, such as a person or animal, and emphatically not a brain. It presupposes a capacity for love and to love; it involves feelings; and it is to understand that the word “love” expresses a concept around which is clustered various logically related extensions of it, such as care, understanding, encouragement, compassion, sympathy, kindness, respect, and support. And it is to understand that a person who is rarely showing love and kindness and rarely speaks the truth is not a loving, kind, and honest person. It only shows that a person can be. These are all conceptual truths.

The misunderstandings we are confronted with in psychiatry under the impact of neuroscience runs deep. One mistake would be to think that conceptual confusions can be dispelled by neuroscientific experimental methods. Actually, conceptual investigation is logically prior to neuroscientific theories, and it is especially our everyday psychological concepts philosophers of mind must clarify. By implication, unless psychiatrists and neuroscientists have first clarified the psychological concepts they employ in conceptualizing the data they wish to explain or explore, unless they separate out conceptual puzzles from the empirical questions, their experiments can be guaranteed to multiply confusion.

Most conspicuous about Insel’s mission to convince the world that mental disorders are “brain circuit disorders” is that he hardly ever tells us what he believes the ethical implications would be if his proposition is true. When he does, it is never argued for or supported by any evidence. In the first place, if the intellectual basis of psychiatry is to shift from one based on personal and mental distress to neuroscience and the brain (Insel, 2010, p. 51), then giving a “circuit disorder” a label becomes irrelevant. The sole object of diagnosis and treatment is the brain—conceived as a person. That may be good news to the pharmaceutical industry. For the person, however, diagnosis reframes personal troubles and problems in living into “circuit disorders.” For the psychiatrist, it would be of less importance to know what led to it and medication would be the preferred choice of treatment. By contrast, a brain, as opposed to a person, is not the sort of thing that can flourish and prosper; it neither suffers pain (it is not pain sensitive) nor from disease, and it is unable to be content and enjoy, for example, fun, pleasure, and good health. Therefore, treatment that is solely directed at the brain is misguided and potentially fatal to the person.

Although Insel (2010) has no doubt that reclassifying, and by implication, reconceptualization of “mental disorders as brain circuit disorders will be changing public perception of these illnesses,” it is disconcerting that he thinks that science is value neutral and nonjudgmental. In his words, “In different generations, people with mental illness have been stigmatized as possessed, dangerous, weak-willed or victimized by bad parents. Science supports none of this” (p. 51). Of course, it is an inference based on the kind of science Insel proposes for psychiatrists. What is clear is Insel would have us believe that the people he referred to as “mentally ill,” “dangerous,” “weak-willed,” and “bad parents” are all passive victims of “faulty brain circuits.” Should we conclude that no person could ever be blameworthy for any wrongdoing?

The essence of the problem is stated by psychologist and professor of law, Stephen Erickson (2010): “Instead of people, cognitive neuroscience posits brains as the exclusive agents of behavior . . . because of their mechanical and determined nature” (p. 28; see also Erickson, 2008). So it means, in mental health care, the question of “how should I conduct my life in the presence of other people?” would lose its relevance. But how could it be when people voluntary do and choose things all the time? Are there any other basis for responsibility, for crediting and blaming ourselves and others for our reasons, feelings,

attitudes, desires, beliefs, judgments, choices, and actions? Unfortunately, Insel provides no answers to these questions, which only makes matters worse.

By way of summary, if what have been argued in this article, namely, that mental disorders are not brain disorders, then misdiagnosis and mistreatment of a person are to be expected and to increase. In ontological terms, it would result from confusing a person with a brain and to erroneously ascribing psychological attributes of a person to a brain. In epistemological terms, it would result when it is insinuated or suggested that there are objective tests, an X-ray, laboratory, or exam finding that confirms that a mental disorder is nothing but a “brain circuit disorder” when there is none. And in ethical terms, it would result if the NIMH and mental health care practitioners are to conceal the ontological and epistemological facts. Hence, if anyone insists on saying that conceptually dissimilar things such as a person and brain can be assimilated, then it would be incumbent on us to look for misdescription of facts and metaphysical propositions disguised as facts.

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