Realism and operationism in psychiatric diagnosis

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In the context of psychiatric diagnosis, operationists claim that mental disorders are nothing more than the satisfying of objective diagnostic criteria, whereas realists claim that mental disorders are latent entities that are detected by applying those criteria. The implications of this distinction are substantial in actual clinical situations, such as in the co-occurrence of disorders that may interfere with one another’s detection, or when patients falsify their symptoms. Realist and operationist conceptions of diagnosis may lead to different clinical decisions in these situations, affecting treatment efficacy and ultimate patient outcomes.

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1. Introduction

Philosophy of science has a critical role to play in the study of psychopathology and practice of clinical psychology. In this paper we show that disagreements over the proper diagnosis of a mental disorder may be traced to differing conceptions of psychological measurement and of the metaphysical status of psychological disorders. Given the role that psychological diagnoses play in real world clinical decisions, it is important to be aware of philosophical background assumptions in issuing and evaluating diagnoses; different assumptions may lead to conflicting recommendations for treatment, among other consequences. An awareness of the background assumptions underlying a diagnosis of a psychological disorder is essential for interpreting that diagnosis and justifying decisions regarding the distribution of special services to those diagnosed with a disorder.

The structure of the paper is as follows: first we articulate two philosophical positions regarding psychological measurement (realism and operationism). We then consider three scenarios in clinical psychology where differences in philosophical orientation may result in different diagnostic decisions. In each scenario, we note
the consequences of those diagnostic decisions and consider possible remedies to make either realism or operationism more workable in practice. We conclude that the philosophy of science has a substantive role to play in clinical psychology and that, in accordance with Longino (1990, 2002), it is imperative that the clinician’s background assumptions regarding measurement and the ontology of psychological disorders be articulated.

An initial caveat: we will not be concerned with the precise ontological status of mental disorders. The philosophy of psychiatry literature is replete with such accounts (for surveys of these accounts, see Bolton, 2008; Cooper, 2007). For example, some scholars hold that mental disorders are genuine natural kinds, metaphysically on a par with kinds in physics. Aristotelians hold that mental disorders are impediments to flourishing (Foot, 2001; Megone, 1998, 2000). Eliminativists hold that mental disorders simply do not exist (e.g., Szasz, 1960). Adjudicating the disputes between these individual perspectives is beyond the scope of this paper, since our argument is intended to be more general. Therefore, we subsume all views that attribute causal efficacy to mental disorders under “realism.” Due to its historical influence and contemporary importance, we use operationism as our prototypical antirealist view, although the consequences of operationism hold for any antirealist view—that is, any view that treats psychological disorders as mere classifications of behavior.

2. Philosophical Conceptions of Psychopathology and its Measurement

2.1. Realism

It will be helpful to distinguish between two forms of realism: ontological realism and epistemic realism. Ontological realism concerning an entity asserts that the entity exists independently of the methods employed in measuring it. That an entity or some quality thereof can be measured is taken by realists to indicate that it is causally efficacious, since the entity causes the measurement outcome. An ontological realist concerning mental disorders believes that mental disorders exist and that they have measurable effects, including behavioral symptoms.

Epistemic realists claim that we can have knowledge regarding certain theoretical posits such as mental disorders. Though epistemic realism is closely allied with ontological realism, the two are logically independent. For instance, one may hold that a certain entity exists while nevertheless denying that empirical evidence can warrant belief in that entity; this would constitute ontological realism without epistemic realism. Alternatively, one could be an epistemic realist without being an ontological realist, if one held that we could gather evidence in favor of a hypothesis which posits an unobservable entity, while nevertheless being agnostic regarding the existence of that entity. (Such a situation describes the case in physics where a scientist goes in search of some yet-to-be-discovered fundamental particles.) Although a wide variety of positions are represented by those who call themselves realists, these two core theses capture the major elements of realist positions...
in psychiatry, namely that mental disorders enjoy an existence independent of our measurement practices, they are causally efficacious, and we can, through a set of validation procedures, justify belief in their existence and theoretical descriptions.

In the context of psychopathology, disorders are cited by realists as the causes of pathological behavior. It is because a person has disorder X that she exhibits behaviors Y and Z (Meehl, 1992, 1995). Hence, disorders are explanatorily relevant to pathological behavior on the realist view. The realist view of mental disorders, as we conceive of it, accords with the medical model of diseases on which diseases (i.e., physical conditions of the patient) cause their symptoms.

2.2. Antirealism: Operationism

Operationism in psychology arose as a philosophy of measurement in the early 20th century owing to Bridgman’s (1927) work on the semantics of theoretical terms and Stevens’s (1935) work on psychological measurement. According to classical operationists, theoretical concepts do not have any meaning beyond the operations that are used to measure them; for example, the meaning of “length” is exhausted by the operation of placing a ruler next to an object. Theoretical concepts are semantically “closed” in this respect. Operationism is manifested in contemporary psychopathology in cases where investigators treat observable behavior as constitutive of mental disorders. The disorder doesn’t cause the behavior; the disorder is the behavior. In comparison, on the realist view, the “syndrome is taken to be evidentiary”; on the operationist view, it is “definitory” (Meehl, 1995, p. 267).

This position differs slightly from classical operationism in that it need not claim that theoretical concepts and measurement operations are synonymous. Contemporary operationism in psychopathology denies causal efficacy to psychological disorders apart from the causal efficacy of the behaviors that comprise them. Psychological disorders are merely convenient taxa for classifying individuals and behavior, and do not exist independently of diagnostic practice. Therefore, the operationist denies ontological realism. Moreover, the operationist will deny that we can attain knowledge about disorders qua theoretical entities, thereby denying epistemic realism as well. Psychological disorders, on the operationist account, simply are not the right kind of beast to have theoretical descriptions regarding their unobservable properties; there is no theory to be justified or for us to be more or less justified in believing.

There is a strong similarity to classical operationism in this regard; contemporary operationists treat psychological disorders as constructs whose meaning is fully specified in terms of the satisfaction of some set of sufficient conditions specified in a manual such as the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association, 2000). The content of a diagnosis is exhausted by a specification of the relevant behavior. For instance, the DSM offers specific criteria for the diagnosis of anorexia nervosa: refusal to maintain a minimally appropriate body weight, intense fear concerning one’s weight, irrational beliefs about one’s weight, and, in female patients, a loss of
menstruation due to low weight. It should be noted that the DSM does not suggest using such criteria in a rigid, operationist fashion; indeed, there is an explicit caution that the criteria “are not meant to be used in a cookbook fashion” and that “the exercise of clinical judgment” may involve ignoring criteria at times (p. xxxii). Moreover, it is possible for an operationist to choose her own criteria for diagnosis, ignoring the DSM approach. The key feature of operationism would be viewing the criteria as exhausting the meaning of the disorder.

The clarity of the DSM’s criteria would allow an operationist diagnostician to practice clinically. An operationist would, however, deny that anorexia nervosa causes the DSM symptoms listed for diagnosing the disorder, instead averring that the disorder just is the manifestation of those symptoms. Hence, disorders cannot play an explanatory role with respect to pathological behavior in the operationist scheme. Again, this position is inconsistent with the medical model of disorders on which there can be latent disorders—that is, disorders for which the patient is asymptomatic.

2.3. The Psychometrics of Realism and Operationism

Psychopathology researchers frequently represent the relationship between traits and measurements of those traits by constructing formal measurement models. Figure 1 shows the measurement models that underlie the realist and operationist accounts of psychological traits, including mental disorders (adopted from Edwards & Bagozzi, 2000). Figure 1(a) is a typical realist measurement model found in psychometrics. The ellipse represents a latent, (in most cases) unobserved variable, whereas the boxes represent observed indicators of the latent variable. If the latent variable were clinical depression, the observed indicators might be reports of quality of sleep, suicidal thoughts, and feelings of worthlessness. That the arrows run from the latent variable to the observed indicators makes the model appropriate for a realist conception of traits, since the trait causes the behaviors; in our example, the clinical depression causes sleep problems and a higher frequency of suicidal thoughts and feelings of worthlessness. A measurement model with arrows running from the latent variable to the observed indicators is also common in intelligence research, where varying

![Figure 1. Realist and operationist measurement models.](image-url)
levels of mental abilities are thought to cause people to respond differently to items on intelligence tests.

Figure 1(b) is a less commonly seen type of measurement model. The boxes and ellipse still represent observed and latent variables, respectively, but the arrows run in the opposite direction from those seen in Figure 1(a). This represents an operationist conception of a trait. If we continue with the example of depression, this measurement model would suggest that depression does not cause sleep problems, suicidal thoughts, and feelings of worthlessness, but that instead “depression” is made up of those symptoms. The trait of socioeconomic status (SES) is one case where this type of measurement model is assumed. Observed variables such as level of income, educational attainment, and occupational prestige are not caused by one’s SES; social scientists compute SES from those observed variables, and the concept of SES only refers to a composite of those variables.3

In the clinical literature on psychopathology, some scholars appear to make realist claims. For instance, many studies of assessment tools for mental disorders (e.g., Keefe et al., 1992; Ward, 2006) utilize the realist measurement model style seen in Figure 1(a). In addition, it is common to see connotations of causal efficacy in clinical reference sources; one dictionary of psychology (Cardwell, 1999) even mentions that schizophrenia “produces” bizarre thinking, even though bizarre thinking is one of the diagnostic symptoms (and therefore part of the operational definition) of schizophrenia. Occasionally, claims of realism are explicit, as in Meehl’s (e.g., 1995) work. There are other scholars who eschew realism, at least with regard to some disorders. For instance the psychiatrists Jablensky and Kendell (2002) complain that “once a diagnostic concept like schizophrenia has come into general use, it tends to become ‘reified’—people too easily assume that it is an entity of some kind which can be invoked to explain the patient’s symptoms” (p. 6; see also Pennington, 2002, on this point).

Perhaps the best examples of thoroughgoing operationists with regard to diagnostic practice are behavioral psychologists who work in clinical settings. Generally, these professionals are referred to as “behavior therapists” or “behavior analysts” (Cooper, Heron, & Heward, 2007), and they subscribe to a tradition dating back almost a century. The father of behaviorism in psychology, John Watson (1916), described psychiatric conditions as nothing more than “language habits and bodily habits” (p. 591). For Watson, a psychiatric diagnosis was simply a label indicating that an individual’s habits “disturb the subject’s ordinary reactions to the objects around him” (p. 593), and so different diagnoses were a kind of shorthand for different kinds of inappropriate behavioral habits.

Contemporary behavioral psychologists take a more sophisticated position than Watson’s, but retain its operationist element. For instance, a leading textbook on behavior therapy for psychiatric problems (Spiegler & Guevremont, 2003) argues that the traditional approach to diagnosis, in which a diagnosis names a latent condition causing symptoms, is “antithetical to the fundamental premises of behavior therapy” (p. 80), recommending in its place detailed descriptions of the problematic behaviors. Similarly, the seminal article on the behavioral approach to assessing
clinical problems (Hartmann, Roper, & Bradford, 1979) distinguished the “sign approach” to assessment, in which the client’s behaviors were interpreted as signs of underlying problems, from the (behavioral) “sample approach” to assessment, in which the client’s behaviors are interpreted as a sample of all of the behaviors that the client emits. As Spiegler and Guevremont point out, behavior therapists must often use diagnostic labels, including DSM labels, but these therapists apply the labels by observing a client’s behavior and matching it to a diagnostic label, rather than inferring that one of the DSM disorders is causing the behaviors.

With the exception of behavior therapists, many practicing clinicians may not have consistent and well-articulated views on the realism–operationism issue. Moreover, clinicians’ views may depend on the particular mental disorder(s) in question. Nonetheless, these views (even when implicit) can have substantial consequences in clinical practice. Indeed, in the next section of the paper, we describe three situations that occur in the assessment of individuals with psychiatric symptoms. Each time, we contrast how a realist and operationist model of the measurement of psychopathology would differ in these clinical situations, leading to different diagnostic and treatment decisions.

3. Clinical Scenarios

3.1. Scenario 1: Intellectual Disability and Autism

Out of every 100 children born in the US, between 1 and 3 will be diagnosed with intellectual disability (ID; formerly called “mental retardation”) at some point in their lives (Handen, 2007). ID is not diagnosed using any physiological measures, although there is wide consensus on how it should be identified: through psychological and behavioral assessments. The precise criteria for a diagnosis of ID vary somewhat, but they always require that the person have below-average intelligence. One of the most used sets of criteria comes from the current edition of the DSM (American Psychiatric Association, 2000), which requires “significantly subaverage general intellectual functioning,” specifically “an IQ of approximately 70 or below” (p. 41). A psychologist, then, administers an IQ test, and a score of “approximately 70 or below” is used as one of the necessary elements for a diagnosis of ID. Criteria for ID also typically include two other components—the individual has shown deficits in daily life skills, and the problems began during childhood—but for simplicity, we will focus on the intelligence criterion.

The intelligence criterion appears simple, but it can actually be quite difficult to apply in practice. Consider one difficult case: a psychologist (our token operationist) conducts a comprehensive evaluation of a four-year-old boy, and the findings from that evaluation include that his measured IQ is 60, he has substantial deficits in daily life skills, and he also shows symptoms of autism. The criteria for ID would appear to be met, and the psychologist writes a report indicating the diagnosis. The report is sent to a social worker (our token realist) who is responsible for linking the boy and his family to various services for individuals with disabilities, but on reading the
report the social worker becomes skeptical of the ID diagnosis. She tells the family that the symptoms of autism might have depressed the boy’s IQ score below its true value, since basic verbal communication and social interaction skills are important when taking an IQ test, and the boy seemed to lack some of these skills. (Autism is characterized by deficits in these skills; see Frith, 2003.) The social worker calls the psychologist, who replies that many individuals with autism also have ID, and that ID is just a label indicating that someone has an IQ score of 70 or below and deficits in daily living skills that start in childhood. The social worker disagrees, pointing out that for any diagnosis that depends in part on an IQ score, the IQ score must be valid, and in this case, there is reason to believe that it is not. Moreover, since the child does not satisfy the full diagnostic criteria for autism (despite showing certain relevant symptoms), and the social worker doubts the validity of the ID diagnosis, she tells the psychologist that the boy and his family are not eligible for any special services.

Can this dispute between the social worker and the psychologist be resolved? They appear to have different conceptions of what ID is, and of the relationship between an IQ score and a diagnosis of ID. For the psychologist, an IQ score of 70 or below is one of the necessary criteria for issuing a diagnosis of ID; all it means for a patient P to have ID is that P’s IQ score is below 70, P has deficits in daily living skills, and P’s problems began in childhood. For the social worker, instead, ID is something that P has or does not have; if P has ID, the ID will typically cause P to obtain an IQ score below 70, but in such a case, ID would be present in P even were P not to take an IQ test. Tests can be used to assess whether ID is present, but ID exists independent of the tests, and the tests can err in assessing the underlying trait(s) that actually define ID. The psychologist, then, has an operationist conception of ID, whereas the social worker has a realist conception of ID.

Recall that according to an operationist conception of a psychiatric diagnosis, the diagnosis is merely a label summarizing certain observations. A diagnosis can be challenged on various grounds, such as unreliability of the observations (say that a child has an IQ of 80 on one test, but an IQ of 60 on another), but no unobservable causal structure is posited. In a realist conception of a psychiatric diagnosis, the diagnosis refers to an unobserved cause, and the tests are tools used to detect the entity’s presence or absence. In the same way that a blood test for a disease can yield a “false positive,” psychological tests and other behavioral measures used to make psychiatric diagnoses can suggest that a psychiatric condition is present when in fact it is not.

Herein lies an irony of the realist position: on the face of it, the realist, from the perspective of the operationist, seems foolishly credulous, for the realist not only grants that psychological disorders exist, but also that knowledge about the unobservable causes of pathological behavior is an attainable epistemic goal. By granting causal efficacy to psychological disorders, including autism and ID, the realist is confronted with the underdetermination of diagnosis by data; the data are in fact compatible with several potentially conflicting diagnoses. In our vignette, an IQ of 60 is compatible with ID, or autism and ID, or just autism. This is a problem
readily avoided by operationism. The operationist may confidently issue a diagnosis should the patient satisfy the criteria for some disorder. From the realist perspective, though, it is the operationist who appears unduly credulous of his diagnoses, since he will algorithmically apply diagnostic criteria, even in cases where the criteria would seem to be inappropriate.

Another way to frame dispute between realist and operationist diagnostic practices is in terms of what is required to demonstrate that a diagnostic assessment procedure is valid. For an operationist, an assessment procedure is valid if it accurately predicts other observations (other behavioral variables). In classical psychometric theory, this is a primary component of measurement validity (Messick, 1989). For a realist, however, an assessment procedure is valid if and only if variation in an underlying latent trait causes variation in measurement outcomes (Borsboom, 2005; Hood, 2009).⁶ In our vignette, the psychologist will be satisfied if research has shown that the official diagnostic criteria for ID predict other characteristics of people who receive the diagnosis. For the social worker, this is not sufficient, since under her realist view, the criteria can err, and so someone without ID may nonetheless satisfy the diagnostic criteria for it.

There is little explicit discussion of these two conceptions of psychiatric diagnoses in the clinical literature (see Borsboom, 2008, for a notable exception), but each of the conceptions has practical consequences. Most importantly, as the ID scenario illustrates, a formal psychiatric diagnosis (and not merely symptoms consistent with a diagnosis) is required for access to services. Indeed, more generally, access to treatment is typically reserved for those with a formal diagnosis—many health insurance companies will not subsidize psychotherapy or any other psychiatric care unless a formal psychiatric diagnosis has been made (see Brown, 1987, for a classic study of this phenomenon). If an individual meets the official diagnostic criteria for a psychiatric disorder, she is more likely to obtain access to services and treatments from an operationist diagnostician (from whom a diagnosis is assured) than from a realist diagnostician (for whom there are many more epistemic defeaters to consider, i.e., sources of measurement error).

In addition to access to services and treatments, conceptions of psychiatric diagnosis can affect patients’ lives in subtler ways. Say that the four-year-old from the ID vignette is diagnosed with ID and, despite the social worker’s objections, he begins to use services reserved for children with ID. He attends a school where the class sizes are smaller and each child receives more individualized attention than is typical. Since U.S. federal special education laws require that students with disabilities be re-evaluated at least once every three years (Yell, 2006), the psychologist conducts another evaluation when the boy is seven years old, but this time the child’s measured IQ is 80.⁷ The realist social worker feels vindicated, and asserts that the child never really had ID, and that the recent retesting reflects this reality. The operationist psychologist, instead, simply states that the child had ID but no longer does, since the diagnostic criteria are no longer met.

Operationists, then, may be more open to change in an individual’s diagnostic status, whereas realists may be skeptical of such changes. Of course, this is only
because realists must take theories about the nature and causes of the disorder seriously, and theories concerning many mental disorders suggest that they are stable traits. Certainly, given the current clinical conception of mental retardation as a stable personal characteristic influenced greatly by genetics (e.g., Handen, 2007; Pennington, 2002), changes in diagnostic status seem unlikely. In fact, if the realist social worker had believed that the child always had ID, she may be suspicious of his apparent recent “cure” and urge caution in changing his classification. (Realism would not argue against changes in an individual’s diagnostic status when the disorder is theorized to be time-limited, as in the case of the common cold.) Further implications of the realist–operationist dichotomy are explored in other scenarios below.

3.2. Scenario 2: ADHD and Malingering

Consider attention deficit hyperactivity disorder (ADHD), a condition whose diagnosis becomes more common each year (e.g., Mandell, Thompson, Weintraub, Desteefano, & Blank, 2005; Robison, Sclar, & Skaer, 2005). Individuals with ADHD show signs of inattention (making careless errors, avoiding tasks that involve mental effort), impulsiveness (interrupting others, acting before considering consequences), and hyperactivity (fidgeting, difficulty staying seated for lengthy periods of time). A common way to diagnose ADHD involves the use of “rating scales”—questionnaires in which the respondent reports (or “rates”) the frequency with which she exhibits various symptoms of ADHD. If a certain number of symptoms are endorsed as occurring with sufficient frequency, ADHD is diagnosed, since number and frequency of symptoms are among the criteria found in the DSM (American Psychiatric Association, 2000) for ADHD. For younger children, parents and/or teachers will typically complete the rating scale based on their observations of the child, but the path from rating scale scores to diagnostic labels remains the same.

ADHD was conceptualized as a childhood disorder almost exclusively until the 1990s, when books such as Driven to Distraction (Hallowell & Ratey, 1995) argued that a large number of adults had ADHD but had never received a diagnosis. Adult ADHD assessment has been an industry of tremendous growth ever since then (Murphy & Gordon, 2006), to the point that some psychiatry clinics have specialized in adult ADHD exclusively. With the increase in adults being diagnosed with ADHD for the first time in their lives, a new concern is finally being given the attention that it deserves—namely, that individuals being assessed for ADHD may feign its symptoms to obtain a diagnosis and all of the services (e.g., stimulant medication, accommodations in educational and work settings, legal disability status) associated with that diagnosis (Harrison, 2006).

Feigning (or, in medical terminology, “malingering”) ADHD raises conceptual issues about the disorder, in that malingering has the potential to yield a discrepancy between one’s scores on rating scales (which lead to a diagnosis) and one’s actual ADHD status. However, to grant even the possibility of such a discrepancy seems to presuppose a realist position concerning ADHD. If we view ADHD
operationally—that is, if we view it as being equivalent to a score above some cutoff value on an ADHD rating scale—we appear to be left without a way to disqualify the malingerer from the ADHD diagnosis. Moreover, this operational view of ADHD guides much experimental research, where malingering is not taken especially seriously (due to the lack of a strong incentive to malinger). Admittedly, this dispute could be construed as more epistemological than ontological, since most clinicians may regard the ADHD as existing in a robust realist sense, but merely as a disorder whose presence is difficult to detect.

Still, the problem of malingering ADHD is especially worrisome, given the results of several recent empirical studies. For instance, Jachimowicz and Geiselman (2004) found that college students who were asked to pretend to have ADHD easily obtained clinically significant scores on each of four common ADHD rating scales. Even worse, Harrison, Edwards, and Parker (2007) found that on most measures of symptoms, students instructed to feign ADHD were indistinguishable from a sample of students with long-standing clinical diagnoses of ADHD. Perhaps most disturbing, though, is a recent study by Sullivan, May, and Galbally (2007); these investigators administered neuropsychological tests of “response effort” in addition to rating scales, so as to determine whether students were putting forth their full effort on tasks. Sullivan et al.’s findings suggested that 47% of the students evaluated for ADHD at their university-affiliated clinic were exaggerating their symptoms.

If we wish to say that these students do not “really” have ADHD, we have two options. First, we can abandon operationism and happily admit that these students meet the diagnostic criteria for ADHD but do not actually have the disorder. The discrepancy between observations of diagnostic criteria and reality of disorder presence will not trouble us if we are realists. Alternatively, we could embrace operationism but alter our diagnostic criteria, adding a requirement that the individual being assessed perform well on the type of effort tests used by Sullivan and colleagues (2007). Of course, this latter strategy would, on operationist terms, create a new disorder, since the set of criteria would be changed, even if the same disorder name was used. Still, it may be the best clinical option for an operationist.

This strategy could be applied in the ID scenario as well. There, diagnosticians might agree that if a child has any signs of autism, a special IQ test that requires no expressive language and very little social interaction should be used to assess intelligence. In the case of a child who shows any signs of autism, an IQ score of 70 or below on that test would satisfy the IQ criterion for the diagnosis of ID. In a similar spirit, Horwitz and Wakefield (2007) recently suggested that the overdiagnosis of clinical depression could be avoided if psychiatrists required that patients exhibit symptoms of depression as well as an absence of recent major negative life events (e.g., losing one’s job), since it is appropriate for those events to lead to symptoms of depression, and mental disorders must involve behavior that is in some sense inappropriate. This need to frequently amend measurement criteria to keep operational definitions congruent with common sense is often considered to be a weakness of operationism (e.g., Trout, 2003), and it is not always possible anyway, as a third case shows.
3.3. Scenario 3: Learning Disabilities and Test Anxiety

Many students have trouble learning a specific academic skill, such as reading or mathematics. When this trouble becomes severe enough, the student is diagnosed with a learning disability (LD). Although there is considerable controversy over the precise criteria for LD diagnosis (Bradley, Danielson, & Hallahan, 2002), most criteria require below-average achievement on a standardized test measuring one or more academic skills. Of course, students can perform poorly on an achievement test for many reasons, including test anxiety—that is, anxiety about one’s performance when in a testing situation. A student who is worried about her final exam may experience test anxiety, as may a prospective employee taking an aptitude test for a job that he would very much like to have. Most empirical studies have shown that test anxiety has a negative effect on test performance (Hembree, 1988) such that a test-anxious examinee performs less well in a high-stakes testing situation than she would in a low-stakes situation where the exam had no consequences. The mechanism of action appears to be “intrusive thoughts”—persistent, negative thoughts that occur to the examinee while she is taking the test and which keep her from concentrating on the test items. This divided attention keeps the examinee from comprehending the items, formulating responses, and articulating them orally or in writing (e.g., Calvo & Carreiras, 1993; Calvo & Eysenck, 1996).

On a realist reading, then, test anxiety may lead to test scores that are at odds with an examinee’s actual skill levels, and could lead to an LD diagnosis even when the diagnosis is unwarranted. Consider the case in which a mathematics teacher wishes to assess the mathematics skills of her eighth-grade students at the end of the school year. The teacher designs a test with problems similar to those that have been covered in class and in homework assignments, and this final test will have a large bearing on the students’ grades. One of the students is very nervous while taking the test, and he is unable to concentrate on solving the mathematics problems. Consequently, he gets a low score, but does this low score signify the same thing as do the low scores of his peers who were relaxed during the test? If he were able to document his anxiety, would this lead to a reinterpretation of his score or—even more radically—a “correction” being made to his score?

An operationist might argue that searching for our eighth-grader’s “true” competence in mathematics is not only meaningless, but a waste of time, since in any important situation, the student will feel sufficient evaluative pressures as to perform poorly, and so the test that we already gave is a valid measure of the student’s skills. Certainly, if by “valid” we only mean “predictive of other performance,” this may be the case. However, this line of argument becomes problematic once we use the scores to diagnose the student as having a learning disability in mathematics. That diagnosis will usually lead to intensive remedial instruction in mathematics, and our test-anxious student may not benefit at all from such instruction, if he actually has mathematics skills that he is unable to demonstrate in a testing situation.

We may be tempted, then, to take into account the student’s test anxiety and use our earlier strategy of altering the diagnostic criteria. We could say that a learning
disability would be defined as below average performance in an academic skill in the absence of test anxiety. This might be a successful strategy were it not the case that many individuals with learning disabilities also experience test anxiety (Swanson & Howell, 1996). The only appropriate solution might be to provide therapy for individuals with test anxiety. Many efficacious treatments are available (Zeidner, 1998), and so we could assess any students who exhibit below-average academic skills, treat those with test anxiety, and then test their academic skills again to see if a learning disability is present. It is unclear whether this approach abandons operationism, since on one hand, it could be translated into clear, algorithmic decision rules, but on the other hand, the logic of those decision rules makes the most sense in a realist framework.

4. Conclusion

We have shown that disputes over the legitimacy of psychological diagnoses may be traced to differences in philosophical commitments regarding the metaphysical status of psychological disorders and differences in commitments regarding what constitutes psychological measurement. Realists hold that psychological disorders are the causal antecedents of pathological behavior, whereas operationists hold that psychological disorders are simply the observed behavior and any diagnosis of a psychological disorder is merely a convenient classification.

That standards of evidence are partially dictated by theoretical background assumptions is not a new idea (e.g., Longino, 1990, 2002). As Longino points out, so long as these assumptions are not made public, data can be taken to support two incompatible theories, or in the present study, diagnoses. By articulating the assumptions that specify the evidentiary relevance of data to theory, we are in a better position to adjudicate theoretical disputes and resolve any underdetermination of diagnoses by data, since once they are made public, the assumptions themselves can be recognized as the source of the dispute, and are subject to refinement, acceptance, or rejection. Even if diagnosticians continue to disagree in their assumptions, at least they will understand why there is a disagreement and that going with a particular diagnosis involves accepting a set of substantive epistemological and metaphysical commitments.

What we have done in the present study is to construct three plausible hypothetical scenarios intended to illustrate how a particular difference in background assumptions (namely, realism or operationism) can influence diagnoses of mental disorders. Given the role that psychological diagnoses play in making decisions regarding educational trajectory, availability of compensatory services, and even certain judicial affairs, it is of great practical importance that the bases on which psychological diagnoses are made be explicitly discussed. Of course, the role of philosophical commitments is not limited to differences in general philosophical positions such as realism and antirealism; for example, diagnostic differences may arise from differences in particular views about mental causation or mind–brain reductionism. Further work might analyze the likely effects of differences such as these and others.
Another avenue for additional research would involve empirically testing the effect of background assumptions on diagnosticians’ behavior. In the past several years, a small group of researchers have developed techniques for assessing clinicians’ theories about the nature of mental disorders (e.g., Kim & Ahn, 2002), and this work has found that clinicians often have a variety of theoretical views about disorders that cannot be derived from official guidelines such as those found in the DSM. Using the assessment techniques developed in this line of work, researchers could examine whether there is a correlation between realist (or operationist) ideas about psychopathology (or about a particular disorder) and the clinician’s diagnostic judgments concerning a hypothetical client. If there is a correlation between one’s philosophical commitments and the frequency with which certain diagnoses are issued, then our claims will have been empirically corroborated. The present paper demonstrates that it is at least plausible that some specific difference in philosophical orientation can affect clinical practice.

Indeed, although the clinical scenarios discussed here involved several hypothetical individuals, these scenarios do occur. Indeed, assessing intelligence in children with autism symptoms, diagnosing ADHD in adults who may be feigning symptoms, and disentangling test anxiety from learning disabilities are all challenges discussed in the clinical literature and covered in clinical assessment training. Therefore, articulating differences in tacit philosophical commitments can expose the sources of real disagreements over diagnoses, and may lead to more informed decisions regarding the care of individuals with psychiatric symptoms.

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Notes

[1] According to Bridgman (1927) “a concept is synonymous with the corresponding set of [measurement] operations” (p. 5). Stevens (e.g., 1935) applied Bridgman’s operationism to the measurement of mental phenomena, leading to a methodological dictum: “every scientific concept must be accompanied by a rule for its application which is expressible solely in terms of acts of denoting and associated discriminations” (Hardcastle, 1995, pp. 408–409). In the area of psychopathology, some scholars (e.g., Borsboom, 2008) prefer the label “constructivism” to “operationism” but the former label is often associated with “social constructionism,” and so we use “operationism” throughout the paper.

[2] Our reference to “contemporary operationism” is not meant to suggest that operationism is a live position in contemporary philosophy of science, only that it informs a particular contemporary approach to the study of psychopathology.

[3] One may dispute whether Figure 1(b) should be considered a measurement model at all, since it is unclear how mere classification is an instance of measurement. This is a live issue in the philosophy of psychometrics, but it is beyond the scope of this paper. For the sake of our argument we do not dispute the operationists’ claim that nominal measurement
is true measurement (for further discussion, see Borsboom, 2005; Johnson, 1936; Michell, 1999).

[4] The change in terminology from “mental retardation” to “intellectual disability” is nearly complete in the scholarly literature on the topic, but certain official diagnostic references that have not been updated in the past few years refer to mental retardation. For more on the change in terminology, see Schalock, Luckasson, and Shogren (2007).

[5] Although this vignette is hypothetical, it closely resembles an actual clinical case assigned to the first author when he was performing psychological evaluations at a preschool center for children with disabilities.

[6] One implication of this realist conception of validity is that reliability and validity are independent, since variation in a latent trait may produce variation in test scores even when a test is unreliable (Borsboom, 2005; Hood, 2009). In contrast to this view, the classical (operationist) view asserts that reliability is instead part of validity, in part because reliability constrains the ability of a test to predict other variables (Hogan, 2007).

[7] Although a jump in IQ from 60 to 80 may seem very large, young children do not show very stable IQ test performance, so a shift of 20 points would not be very unusual.

[8] There are a wide variety of effort tests (Boone, 2007), but most are very simple measures of memory, reading, and other cognitive processes that appear to be more difficult than they actually are. The tests are presented to the examinee as being sensitive to the presence of a disorder such as ADHD, but they are actually so easy that even individuals with the disorder do quite well on them. A low score, then, is a reliable sign of malingering.

References


