

Challenges to Psychology as a Science

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The following is a draft section from the introduction chapter of my dissertation proposal, which addresses the problems of 1) erosion of benefits of vipassan? from the conflation of widely different Buddhist traditions in popular, and 2) scientific literature and confusion of technical terms in vipassan? from their original traditional context. It is mean to be read after the posts:

- [1. Complexity in Science](#)
- [2. Compartmentalization in Science and Society](#)

The field of psychology has claimed allegiance to the philosophy of science since its inception. Freud was unsatisfied with the limitations of the natural sciences of his day and sought to specialize his new science with methods for evaluating truth more appropriate to the concepts of his theory (Freud, 1915). He was a theoretical genius who promoted his positivist theory of psychopathology as a “science of the unconscious” (ref) which was to be supported through empirical research. His most basic proposition that medical conditions could be impacted or caused by mental processes which exist beyond awareness was a profound contribution to the field. These unconscious processes, or instincts, had physiological correlates and were grouped into ego, or self-preservative instincts, and the sexual instincts. Contrary to the group of ego-, or self-preservative instincts, Freud believed that the group of sexual instincts could be studied directly in the mental content of the subject through a process called *psycho-analysis* (Freud, 1915). This basal distinction between objective physiological phenomena and subjective mental phenomena birthed the study of subjective experience as a natural phenomenon, and continues to add depth and controversy to the worlds of science and society which had before been more firmly rooted in accumulating knowledge of objective phenomena.

The philosophical bifurcation in the science of human behavior makes the question of paradigm in psychology a complicated one to answer, and all the more crucial to the progression of psychology as an accepted science. Though Freud was adamant that (1913) “we shall have to find a point of contact with biology” (pp. 181–182), over a century has passed and the return of psychoanalysis to biology has not yet arrived, nor has a single *psychopathology* been proven to exist. Much, if not all, of this lack of a return to physiology has to do with the limitations of the paradigms in which Freud’s science subsists. We will now examine the paradigms of psychology, the advantages and limitations of these paradigms, and how they contribute to or hinder the progress of psychology as an accepted science.

The philosophy of the Enlightenment was *positivistic*, which assumes an objective reality which can be accurately known through controlled experiment. A positivist experimenter looks for empirical evidence which confirms a hypothesis, and assumes that the experiment is an accurate

representation of reality (Kazdin A. E., 2016). *Postpositivism* augmented positivism by acknowledging and attempting to limit the bias and/or influence of the researcher or experiment, something which is particularly important in the social sciences. Karl Popper's criterion of *falsification* (that a theory is only scientific if it is possible to disprove it) originated as a critique of Freud's (and Adler's and Marx's) theory, which Popper proposed fails the test of falsification and so are no closer to science than myth (Popper, 2002). A postpositivist experimenter would conduct a positivist experiment but clearly state known biases and limitations and endorse a result as agreed by multiple raters or a double-blind to minimize experimenter bias. The goal of experimentation in postpositivism is to try to prove one's intuition wrong. Positivism and postpositivism are most concisely differentiated by verification and falsification, respectively (Ponterotto, 2005). "Whereas a million white swans can never establish, with complete confidence, the proposition that all swans are white, one black swan can completely falsify it" (Guba & Lincoln, 1994, p. 107). If the strength of the positivistic paradigm is the incremental accumulation of knowledge through incremental verification of analytical questions, a weakness can be in increasing understanding when specific questions are not yet available, particularly in understanding individual differences within a sample.

Many psychological clinicians formulate treatment around *constructivist* theories which are compatible with and no doubt profoundly influenced by Freud's science of subjective experience. Constructivist, and later *critical* theories assume that there is not one objective truth but many truths as defined by (i.e. constructed through) the subjective experience of each individual (Ponterotto, 2005). Constructivist approaches increase understanding of a problem by opening the door to new and unexpected information, i.e. "there is no wrong answer." For example, this attitude of curiosity is useful for exploring the feelings, phantasies, and associations of a patient, or to expose the lived experience of an underprivileged group (ref). If a strength of this approach is in increasing understanding of a subject where no specific question has yet been posed, a weakness may be in the erosion of reliable knowledge in extreme cases due to the rejection of the anchor of objectivity which prevents induction. Constructivism alone cannot produce testable theories (which by definition are positivistic), and problems arise when claims of objective validity are made within this paradigm. Popper, once enamored with Freudian theory, was careful to highlight the usefulness and plausibility of Freud's ideas in his critique: "This [failure of the falsifiability criterion] does not mean that Freud and Adler were not seeing certain things correctly: I personally do not doubt that much of what they say is of considerable importance, and may well play its part one day in a psychological science which is testable" (Popper, 2002, p. 49). Freud himself was clear about the importance of refuting or replacing his provisional concepts as appropriate to future evidence. Freud (1915) writes,

It is only after more thorough investigation of the field of observation that we are able to formulate its basic scientific concepts with increased precision, and progressively so to modify them that they become serviceable and consistent over a wide area. Then, indeed, the time may have come to confine them in definitions. The advance of knowledge, however, does not tolerate any rigidity even in definitions. Physics furnishes an excellent illustration of the way in which even

'basic concepts' that have been established in the form of definitions are constantly being altered in their content." (p. 116).

However, most psychological theory today remains rooted in the Freudian tradition of developing psychological concepts as internal, symbolic entities which do not pass Popper's criterion of falsifiability. Although quite clearly aiming toward a positivistic science, Freud unwittingly demarcated this specialized psychological (i.e. subjective) realm with the label *psyche-ology*, or the study of the *psyche*, a symbolic concept derived from the qualities of a figure from Greek mythology. The very proposition of a subjective realm for scientific concepts makes psychodynamic terms such as *ego*, *object*, *abandonment*, and *attachment* difficult or impossible to define on terms which can be studied through objective experiment outside that specialized realm, because there is no objective test that could disprove their existence. According to Popper, the only thing that Freud (and Adler's) theory confirmed was "that a case could be interpreted in the light of the theory" (Popper, 2002, p.). Every subsequent instance of confirmation simply added to the impression that the theory was correct.

There now exists a plethora of theoretical schools derived from Freud's ideas which, while intuitively logical and supported by some confirming evidence in therapy, use concepts and language specific to their own theoretical formulation and lack an objective basis to organize critique between them. Zepf (2010) laments in the *Journal of The American Academy of Psychoanalysis and Dynamic Psychiatry*, "The theoretical and technical-therapeutic conceptualizations of, for instance, self-psychologists, object-relationists, attachment theorists, intersubjectivists, Lacanians, social-constructivists, Kohutians, neo-, post- and contemporary Kleinians, ego-psychologists, orthodox and so-called post-Freudians contradict one another to a considerable extent" (p. 463). The problem surfaces again in the question of requirements for psychoanalytic training instructors, where "every training analyst teaches either his or her interpretation of a concept he or she values for whatever reasons, or, as is mostly the case, his or her personal, eclectic selection of concepts taken from different theories" (p. 465). This sort of critique apathy, possibly facilitated by constructivist views in psychological theory, has created a situation where each theory is seen as "equally valid despite the contradictions between them" (p. 466) and the meaning of theoretical concepts become more a matter of opinion of the analyst than postpositivist science based on evidence.

As demonstrated above, a consequence of the cultural divide between positivists and constructivists is the confusion of research terms in the scientific community and the propagation of this confusion back to society which ultimately decides social policy. Because the lay population holds a postpositivist view of science as a collection of knowledge gained through systematic application of methods to increase objectivity (Kazdin, 2016), the untestable nature of psychological theory places psychological concepts outside the realm of accepted science in the minds of laypeople. Terms like *concept*, *theory*, and even *science* that have different meanings in different paradigms are then conflated and misunderstood, say among clinicians as much as on televised morning talk shows.

The collapse of the term “theory” into the term “opinion” is visible in Zepf’s assessment of the failure of comparison between psychology theories stemming from Freud’s science. The result is that the meaning of the term theory as it pertains to human behavior has now become no different in society to an opinion that is untestable, and that validation of opinions is not necessary for them to become scientific theory. If the purpose of positivistic science is to strive for the differentiation of fact from opinion, and a testable opinion is *hypothesis*, then an untestable opinion might be more accurately called *conjecture*. This makes possible phrases like “it is just theory,” or “I don’t trust theories” for clinicians and politicians alike who view truly supported theories as mere popular opinions that prejudge and oppress their clinical intuitions or constituents. How then can a society founded on the positivistic ideal, as the United States was, accept psychology as science when psychology does not provide any positivist pipeline from hypothesis, to theory, to provisional fact?

If the meaning of the term theory “regresses to something similar to the meaning of opinion devoid of evidence, then it becomes easier for poorly controlled research to masquerade as validated science (Boudry, Blancke, & Pigliucci, 2015; Lilienfeld, 2010; Matute, Yarritu, & Vadillo, 2011).

While each paradigm likely has its own part to play in the grand scheme of science, problems arise when research conducted in one or a mix of these paradigms commonly claim the umbrella title of “science,” reinforce their allegiance through the publication of scientific journals which define the paradigm, yet make use of definitions of basic research terms which are incompatible with other paradigms under the same umbrella of “science.” Constructivist theories may (but do not necessarily) contribute to the positivistic pipeline by generating hypothesis for empirical verification. Systematic research of subjective experience may contribute to hypothesis generation or may simply add to a relativist canon of historical record bereft of inductive inference. Other constructivist psychological philosophies such as critical psychology may not claim to contribute to knowledge where the goal of research is to affect the individual or group more than it is to observe it (Ponterotto, 2005). Some think that psychology as the study of human behavior can never become an objective science, while others believe that if the study of other species can become an objective science then the study of human behavior should be able to as well (ref).

Because of this, paradigmatic discourse in psychology can quickly turn controversial when it comes to clinical practice, as clinical theories are formed within Freud’s subjective realm while the philosophy of science in mainstream psychology exists in the objective realm of positivism. As of this writing, the American Psychological Association (APA) defines *psychology* in the *Glossary of Psychological Terms* as “the scientific study of the behavior of individuals and their mental processes”, and then defines *science* as “the set of procedures used for gathering and interpreting objective information in a way that minimizes error and yields dependable generalizations” (APA, 2017). The terms *objective information* and *minimizes error* bound the APA’s philosophy of science squarely within the postpositivist paradigm, which accepts the importance of qualitative research but implicitly limits constructivist philosophies to service in the hypothesis-generating

phase of the postpositivist pipeline. The APA requires *evidence based practices* as the mainstay of clinical treatment, defining *evidence* as,

. . . derived from clinically relevant research on psychological practices . . . based on systematic reviews, reasonable effect sizes, statistical and clinical significance, and a body of supporting evidence. The validity of conclusions from research on interventions is based on a general progression from clinical observation through systematic reviews of randomized clinical trials, while also recognizing gaps and limitations in the existing literature and its applicability to the specific case at hand. (APA, 2017)

The APA limits subjective opinion to the role of “clinical expertise” in the context of scientific evidence and leaves the door open to working around the limits of positivistic science. The *APA Presidential Task Force on Evidence-Based Practice* issued a report stating that “Researchers and practitioners should join together to ensure that the research available on psychological practice is both clinically relevant and internally valid. It is important not to assume that interventions that have not yet been studied in controlled trials are ineffective” (APA, 2006, p. 275). This flexibility requires continual pressure from the research *and* clinical communities to refine what is considered “evidence based” to be both valid and relevant to clinical practice and the human condition. Based on the current stance of the APA on evidence as objective data, this “pressure” should include seriously questioning of the philosophical assumptions that underline clinical theory and the consequences of untestability stemming from them.

The *Diagnostic and Statistical Manual of Mental Disorders, 5th edition* (American Psychiatric Association, 2013) (DSM-V) provides descriptive nosology for mental disorders after the fashion of the medical field but provides no etiological theory to explain their relationships or guide research. The introductory chapter of the DSM-V describes the emphasis on statistical reliability of the criteria in place since the 3rd edition and how this emphasis continues today in the 5th edition. However, since the publishing of its predecessor in 1844 the diagnoses contained in the DSM have been derived from the analysis, however rigorous, of *consensus* among clinicians and comparison of those agreements to patient self-report. Unfortunately, this process (promoted as an exhaustively rigorous example of positivistic science) can only speak to the development of reliable opinions and cannot claim to represent objective empirical data found in nature. Further, the DSM is far from generating reliable differential diagnoses with the precision common to biological medicine, probably due to the significant symptomatic overlap between diagnostic criteria. From the introductory chapter in the DSM-V,

The results of numerous studies of comorbidity and disease transmission in families, including twin studies and molecular genetic studies, make strong arguments for what many astute clinicians have long observed: the boundaries between many disorder "categories" are more fluid over the life course than DSM-IV recognized, and many symptoms assigned to a single disorder may occur, at varying levels of severity, in many other disorders. . . In short, we have come to recognize that the boundaries between disorders are more porous than originally perceived. (pp. 5-6)

It is possible that diagnoses appear so “porous” because of a lack of etiology, however provisional, to the purely descriptive criteria provided in the manual. This lack of etiology theory led National Institute of Mental Health (NIMH), currently world’s largest funding agency for research into mental health, to issue a strong blow to the DSM by withdrawing funding for research based purely on DSM diagnoses. Days before the DSM-V was published, the NIMH (2013) described its reasons for the decision,

The weakness is its lack of validity. Unlike our definitions of ischemic heart disease, lymphoma, or AIDS, the DSM diagnoses are based on a consensus about clusters of clinical symptoms, not any objective laboratory measure. In the rest of medicine, this would be equivalent to creating diagnostic systems based on the nature of chest pain or the quality of fever.

Perhaps more alarming is the rather extensive technical introduction in the DSM-V written to promote the scientific validity of the manual with no mention of its obvious shortcomings. If the American Psychological Association is to endorse the DSM as “the standard classification of mental disorders” (APA, 2017), then there is much progress to be made toward psychology as a science.

In the same statement announcing the withdrawal of funding to DSM research, NIMH announced their exclusive support for their own Research Domain Criteria (RDoC) an alternative research framework intended to eventually produce diagnostic criteria based on biology. Though commentary on the still-new RDoC is scarce, critics (Kaplan, 2016; Weinberger, Glick, & Donald, 2015) suggest that “overinvestment” of resources into RDoC model precedes the development of well-defined categories backed by scientific evidence showing that they improve the wellbeing of patients. Weinberger et al. write that though RDoC may improve on the problem of validity in the DSM-V and provide a much-needed framework for research, it 1) contains physiological dimensions developed by researchers without clinical experience and with no empirical evidence to support them, 2) “does not recognize the implications for categorization incurred by the unexpected discoveries of psychopharmacologic treatment” (p. 1162), 3) uses a dimensional model which does not allow the distinguishing of wellness VS illness, and 4) cannot provide an explanation of how a patient gets sick and then gets better in order to guide and assess treatment. Others argue that NIMH should not exclusively limit funding to research designed around the RDoC.

If psychology as the study of human behavior is to become an accepted science in the postpositivist realm, then there is a need for theories which generate testable hypothesis which can support the concepts in the theory. Further, testable hypotheses must have practical applications in clinical practice. There is also a need for theoretical concepts which can communicate with other scientific disciplines. For example, a psychologist who uses object relations in therapy cannot (yet) communicate to a biologist to refine that theory, as object relations uses concepts which can only exist in Freud’s specialized realm of subjective science. Findings in neurobiology must be able to inform theory used in clinical practice, and visa-versa. There must also be a theory which

distinguishes wellness from illness beyond the presence of reductionistic psychiatric or biological markers. Perhaps the lack of conversation in the psychological community about testable and portable theory with practical application is justification alone for a study reassess the paradigmatic assumptions that bind the field. If the Buddha taught a practical and scientific way out of “suffering” and defined suffering in a way meaningful to science, then this could provide a starting point for this.

Finally, a major challenge to psychology as a science is to move beyond reductionism and linear thinking as described previously. Attachment theory is one example of a step in the direction of explaining problematic psychological problems based on reciprocal relationship variables between the child and caregiver (a step out of linear thinking), but explains the relationship within that dyad as the cause of response to stress (a return to linear thinking) (Dallos, Lakus, Cahart, & McKenzie, 2016; Ross, Hinshaw, & Murdock, 2016). Attachment theory does not yet account for the possibility of varying attachment presentations based on differing socioemotional context, and so does not provide a well-defined concept which explains this phenomenon. For example, an anxious person may consistently be the life of the party with their friends which would indicate a hyperaroused preoccupied-ambivalent attachment style. The same person may predictably play a silent and withdrawn role at their parents’ dinner table (more consistent with a dismissive-avoidant attachment style), but return to the overinvolved style when an avoidant uncle approaches the table triggering a compensatory avoidant response in the mother. While the descriptive concept of *self-states* may account for some complexity and dynamism in individual’s behavior, this concept is not yet defined well enough to generate testable hypotheses. Also, as was the case with meteorological variables in the weather prediction, descriptive concepts like self-states may account for past data but do not provide a pathway to prediction without an accurate, testable theory that defines the relationships between concepts as they exist in nature outside the realm of symbolic conjecture.

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