**How Non-Epistemic Values Can Be Epistemically Beneficial in Scientific Classification**

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## 1. Introduction

It is commonly assumed that science is successful in discovering natural kinds—groupings that reflect "the structure of the natural world rather than the interests and actions of human beings" (Bird and Tobin 2015, 1). In this framework, value-laden considerations are presented either as irrelevant or harmful in identifying natural kinds. Indeed, some philosophers of science have raised a concern over value-driven modifications of natural kinds. Paul Griffiths (2004) and Muhammad Ali Khalidi (2013) are concerned with how value-driven alterations of social kinds can diminish the epistemic use of such categories.

At first glance, this is a reasonable concern since many social, psychological, and psychiatric kinds serve two different aims—epistemic and normative. However, it is questionable whether the clash between epistemic and non-epistemic aims always compromises the epistemic aim of discovering natural kinds. If incorporating non-epistemic considerations can enhance the epistemic use of a scientific category, then the argument for eliminating the non-epistemic aims of a scientific category becomes less convincing.

This paper is organized as follows. In section 2, I address the concern over values affecting categories by analyzing the case study of *child abuse* originally presented by Ian Hacking (1991, 1999). Upon reflection, child abuse is not a good example to motivate the concern. In section 3, I provide another case study of *infantile autism* to illustrate how non-epistemic value considerations contributed to the epistemic success of the category. In section 4, I respond to some potential objections. It becomes clear that the concern is part and parcel of the

value-free ideal in science (VFI). I conclude that rejecting all non-epistemic purposes in identifying natural kinds in the social, psychological, and psychiatric sciences is not a tactic we should pursue.

## 2. Child Abuse

Griffiths and Khalidi worry that when the clash between the two aims—epistemic and normative—occurs, the epistemic aim of discovering natural kinds is likely to be compromised by the non-epistemic one. In other words, if the epistemic aim of discovering natural kinds is sidetracked by normative aims, then we are left with arbitrary groupings reflecting human interests and values. Both of them cite Ian Hacking's case study of child abuse to advance their concern. However, I argue that the category of child abuse is not a good example for them to raise the concern over value-modified categories. This is because the category of child abuse is not an epistemic category at all, but a fundamentally normative category.

According to Griffiths, a category is a "normative kind" when it "derives its unity from a role in normative practices…rather than from any role it may have in describing and explaining behavior" (Griffiths 2004, 903). The category of child abuse is a unified category in terms of our moral approval or disapproval of certain types of human behavior. In other words, seemingly unrelated behaviors can be grouped together into the category child abuse. Many items placed in the category were not counted as abusive several decades ago. Corporal punishment is a prime example. Until recently, physical punishment for children was common, and even encouraged as an effective means to teach children to conform to authority and social order. Identifying corporal punishment as a type of child abuse can be explained by the change in our normative attitudes toward children and the increase of our commitment to the value of autonomy and self-

fulfillment rather than social conformity and social stability. Thus, it validates Griffiths' argument that "[t]he change from viewing a pattern of childcare as normal to viewing it as abusive need not reflect an epistemic project, such as maximizing the predictive power of child abuse as a diagnostic category in psychiatry" (Griffiths 2004, 908). Given the distinction between epistemic and normative kinds, Griffiths raises an interesting question: what if a category is simultaneously a natural and a normative kind, and thus serves two aims—epistemic and normative—at the same time? He insinuates that such a category fails to maintain its unity that is necessary for scientific investigation.

Khalidi (2013) uses some legal cases that attempt to classify fetal abuse as a form of child abuse. By doing so he wants to reinforce Griffiths' account that the moral dimensions of a category can undermine the epistemic roles the category plays. For example, the Wisconsin State Legislature passed the so-called "Cocaine Mom" Law in 1997. Under this law, many pregnant women who drink alcohol or take drugs were indicted on charges of abusing their "unborn child" ("1997 Wisconsin Act 292"). The issue of whether a fetus should be understood as an "unborn child" possessing legal rights is highly controversial. As Khalidi speculates, the legislature's move was mainly motivated by the desire for moral censure, especially by pro-life advocates, and has little to do with predicting or explaining the phenomenon of child abuse. He regards the fetal abuse case as a clear example of demonstrating how "a value-driven revision of a category pulls in a different direction from the epistemic" and regards this type of revision as "the largest obstacle to the discovery of natural kinds in the social sciences" (Khalidi 2013, 163).

One might wonder whether child abuse has any identifiable pathology that can be used to serve epistemic purposes. After examining the history of the category, child abuse, Hacking concludes that "[t]here is no underlying pathology to be discovered, which is uniquely associated

with a propensity to abuse children, and such that a major segment of the population of child abusers have that pathology" (Hacking 1999, 130). Thus, child abuse is "a living example of how an 'absolute value,' a prima facie absolute wrong, gets constructed before our very eyes" (Hacking 2002, 69). Hacking's research suggests that the category of child abuse is a fundamentally normative category without any significant epistemic projects involved.

As mentioned previously, Khalidi uses the case of fetal abuse to illustrate the clash between epistemic and non-epistemic purposes. His point is to illustrate the epistemically harmful consequences of introducing non-epistemic purposes in scientific classification. The pursuit of non-epistemic purposes in delimiting scientific categories can divert scientists from uncovering the real causal patterns in the world. Despite Khalidi's use of this case, it is better described in terms of a conflict among different non-epistemic purposes (e.g., conflict between fetal rights and the rights of pregnant women). The case of fetal abuse does not prove the existence of confrontation between epistemic and non-epistemic purposes. If we want to appreciate the concern over values affecting categories to the fullest, it would certainly be better to consider a category that is not overly normative at first glance. In other words, a case where the two dimensions—epistemic and normative—clearly exist together would be a better example to consider.

## 3. Infantile Autism

In this section I examine the early history of the category of infantile autism. This category is a good example to consider since it clearly involves both epistemic and non-epistemic dimensions. It is a natural kind, figuring in explanation, induction, and prediction in psychiatry. It has identifiable sets of symptoms, such as the difficulties in social communication

and interaction. These symptoms tend to co-occur and are caused by a complex combination of genetic and environmental risk factors (Chaste and Leboyer 2012). At the same time, it is a normative category in the sense that it reflects our common views about what counts as normal and typical behaviors and our positive evaluation of the communicative ability and social interaction in human life. Moreover, the clinical definition has been greatly influenced by diverse voices, including parent-led advocacy groups. Therefore, the category of infantile autism, both as a natural kind and normative kind, suits our discussion better than the category of child abuse.

Until the mid-nineteenth century, autistic children were not recognized as a distinct group but were diagnosed with schizophrenia. It was the child psychiatrist Leo Kanner (1943) who first identified infantile autism as a distinct category. He provided detailed studies of eleven children and stated unique characteristics: extreme autistic aloneness, inability to relate in an ordinary way to people and situations, and an anxiously obsessive desire for the maintenance of sameness. Interestingly, what drew his attention was the fact that most of the parents were highly intelligent but rarely appeared warm hearted (ibid., 250). In a subsequent paper, he devoted his full attention to analyzing parental characteristics and arguing that "parental coldness, obsessiveness, and a mechanical type of attention to material needs only" is the main cause of infantile autism (Kanner 1949, 425). The image of cold and unloving parents of autistic children has continued since then and has deeply influenced subsequent research. The mother-blaming account, succinctly captured in the term "refrigerator mother," was proposed and popularized by child development specialist Bruno Bettelheim (1967). Not surprisingly, when professionals diagnosed a child with autism, the whole family, especially the mother, suffered from the classification.

Since Kanner's initial research, infantile autism was believed to be of psychological origin, caused by emotional distress due to bad mothering. Dissatisfied with the psychogenic

view, Bernard Rimland, a research psychologist, set out to examine it in detail. As a father of an autistic child, he was dedicated to revealing the etiology of autism and its treatments. He firmly believed that:

> The welfare of individual autistic children and their families hinges closely upon the problem of specific etiology… [and] if autism is determined solely by organic factors, there is no need for the parents of these children to suffer the shame, guilt, inconvenience, financial expense and marital discord which so often accompany the assumption of psychogenic etiology. (Rimland 1964, 40)

As stated in the quote, his faith in familial well-being motivated him to find autism's etiology, and subsequently led him to extensively scrutinize existing data. For Rimland, the most serious problem of Kanner's theory was that it precludes researchers from searching for the biological basis of autism (Rimland 1964). If autism could be thoroughly explained by psychogenic factors, then any attempt to find out biological and neurological causes would be futile:

> So long as the practitioners who actually deal with autistic children feel satisfied that the disease is largely or entirely psychogenic, biologically trained research workers will feel disinclined to concentrate their efforts on the problem. (ibid., 40)

Rimland also found that Kanner's theory had little scientific ground and much of the evidence Kanner relied on actually supported the biological account. Kanner explained that the withdrawal of a child from the mother is an act of seeking comfort in solitude (Kanner 1949, 425). Rimland challenged this explanation by citing animal experiments where if offspring are raised by indifferent mothers, then the offspring exhibit continued efforts to draw the mother's

attention, rather than turning away from the mother (Rimland 1964, 44–45). Rimland noted other features that called for biological explanation, for example, the higher frequency of diagnosis of autism in boys than girls. He believed that opening up a wide range of hypotheses is necessary to understand an ailment's etiology and to find treatments. It is no exaggeration to say that Rimland's analysis of the received view expanded the field of research.

Rimland held a firm belief that it is necessary to create a wide range of hypotheses to understand autism's etiology and develop treatments. To put his idea in action, he established the Autism Research Institute in 1967 under the slogan "Autism is Treatable." The institute began to fund biologically-driven "research in immune, gastrointestinal, metabolic, neurological, and sensory issues" and research aiming to find treatment for autism. It is clear that Rimland's analysis of the received view expanded the field of study to cover biological research.

As a parent of an autistic child, he was well aware of the difficulties faced by families with children suspected of having autism. During his time, many parents were perplexed at atypical behaviors their children exhibited, but unfortunately no guidance was available for the parents who wanted to know their children's atypical behaviors were symptoms of autism. To assist the parents, Rimland put great effort into developing rough criteria, the "Diagnostic Checklist for Behavior-Disturbed Children (Form E-1)." When the checklist was published as an appendix to Rimland's book, many parents with autistic children completed the list and mailed it back to Rimland for his records. It is said that some parents reported symptoms of their autistic children that were not recognized by practitioners at that time. With the help of parents who volunteered information about their autistic children, the list improved to become the "Diagnostic Check List (Experimental Form 2)," sophisticated enough to identify more than ten types of infantile autism. What is important to our discussion is that Rimland's primary

motivation in developing the criteria was not epistemic; rather, it is clear that he developed it out of sympathy for devastated parents (Rimland 1964 219). By incorporating value judgments, Rimland managed to draw the cooperation of parents with autistic children. Given the common belief that scientific research ought to be free from personal, social, political, and cultural values, it is noteworthy that how incorporating a researcher's values produced epistemically fruitful outcomes.

It is worth noting in passing that the case of infantile autism is similar to Carolyn West's research (2002) on intimate partner violence experienced by African American women which is cited in Janet Kourany's work (2010). West's research was explicitly committed to feminist egalitarian values, such as that the experiences of Black women matter and the right to live free from domestic violence. Kournay focuses on how West's research was able to break the culture of silence and thereby acquire relevant knowledge. This case is similar to the case of autism since a researcher's value commitment made the community sympathetic to the research and cooperated on providing information.

## 4. Objections: The Value-Free Ideal?

In the preceding section, I provided the case study of infantile autism to illustrate how value-driven inquiry can result in epistemically beneficial outcomes in demarcating a category. According to Griffiths and Khalidi, allowing non-epistemic purposes to shape scientific categories can be worrisome because these purposes tend to diminish the epistemic value of those categories. Contrary to that concern, the case study of infantile autism shows that serving non-epistemic purposes can have epistemically beneficial outcomes in delimiting a category. In the following, I will address some potential objections to my account. In doing so, I will make it

clear that Griffiths and Khalidi's concern is an endorsement of problematic assumptions of the value-free ideal of science.

The first objection proceeds from the perception that every researcher to some extent brings their values, biases, and beliefs into deciding what research to pursue. Values can legitimately influence the choice of research questions, but they do not and should not influence how theories are evaluated. The autism case only illustrates how strongly a researcher held his value judgments in choosing a research area and conceiving of hypotheses, which is irrelevant to the stage of inquiry where evaluating existing theories happens. In other words, the case study of autism does not show how value considerations directly affected assessing two competing theories—the psychogenic view and the biological view. The scientific community accepted the biological view over the psychogenic view and this theory choice involved purely epistemic considerations, such as which one is more empirically adequate. This objection is based on the so-called "context distinction," which separates the process of conceiving and developing a hypothesis (i.e., the context of discovery) from the process of justifying and evaluating the hypothesis (i.e., the context of justification). It is often argued that the influence of non-epistemic values in the context of discovery is innocuous, while in the context of justification such an influence amounts to the corruption of science. Note, however, that this objection suggests a more fine-grained distinction between contexts of discovery and justification than Khalidi assumes. What he takes to be problematic are the purposes that can divert the epistemic purpose of discovering natural kinds. He claims that "in order to identify [natural kinds] we must be guided by epistemic purposes and not be deflected by non-epistemic interests" (Khalidi 2013, 213). Here, Khalidi does not seem to care about the context distinction. His account suggests that scientific inquiry ought to be guided by epistemic purposes alone from the outset. If all the

purposes other than the epistemic ones are considered as distracting forces for the pursuit of natural kinds, it is no wonder that he wants to prohibit non-epistemic purposes from the beginning of scientific inquiry. Thus, he does not even consider whether the contest of discovery has values that are then weeded out in the context of justification.

Even if we grant that the distinction matters here, it is important to note that it has been challenged during the last few decades. Many philosophers of science have challenged the distinction by showing that the purported epistemic independence of the context of justification from the context of discovery cannot be maintained in practice (Okruhlik 1994; Bueter 2015; Elliott and Mckaughan 2016). According to Katheleen Okruhlik (1994), non-epistemic factors influencing decisions in the context of discovery have a significant impact on theory appraisal and the content of science by limiting the pool of available theories. For example, if a sexist bias is pervasive in the current scientific community, then it tends to restrict scientists' mindset in such a way that alternative (not sexist) hypotheses are inconceivable or even prohibited from being developed. Consequently, even if the best hypothesis is selected on purely objective grounds, the selected hypothesis can still contain sexist assumptions. Okruhlik's argument is not just about implicit bias. The general lesson we can draw from her argument is that once values enter into the context of discovery, methodological rigor in the context of justification does not guarantee elimination of values in science. Recall the consequences once non-epistemic value judgments entered into the context of discovery in Rimland's research about autism. His value judgment that familial well-being matters motivated him to investigate the disorder and enabled him to find shortcomings of the psychogenic view. More importantly, his value judgments functioned as a check on the background assumptions that supplement the gap between data and hypothesis. In the psychogenic view, the data that autistic children's excessive aloneness was

interpreted as withdrawal from the uncaring mother or even as an act of punishing her. Rimland's value of familial well-being enabled him to question the background assumptions of the psychogenic view and explore them with others. What Rimland did was to interpret the same data differently by making neglected aspects of the data salient and granting significance to such aspects.

Another concern one might have is that the autism case fails to dissuade scientists from following Khalidi's prescription: pursue epistemic purposes but exclude non-epistemic purposes altogether in the pursuit of natural kinds. In particular, it might be argued that Khalidi's prescription is an effective tactic to pursue given that scientific objectivity and integrity may be threatened by biased research. Think of the case of research funded by the pharmaceutical industry (Mirowski and Van Horn 2005). Arguably, that's the wrong kind of bias, and we should avoid it.

This objection is a familiar argument promoted by proponents of the VFI. If the VFI is appealed to, then both the psychogenic view and the biological view can be seen as examples of bad science because they are heavily influenced by values. The VFI is appealing given the prevailing worry that value-driven research might favor a conclusion that ends up serving interests of certain groups. Thus, it is commonly argued that by striving to the VFI, science can be impartial and objective. However, we should note that value influences cannot be completely ruled out from scientific inquiry. Value-laden considerations influence scientific inquiry in a variety of ways: by ascribing significance to certain aspects of data, research design, method (Longino 1990; Anderson 1995; Kitcher 2001), implicit bias (Okruhlik 1994; Bueter 2015), or background assumptions that are necessary to establish evidential relevance (Longino 1990). If there is no principled way of eliminating value influences from science, then what would be a

more plausible way to achieve impartial science other than promoting the VFI? According to Helen Longino (1990), scientific objectivity can be achieved to the degree that it allows the communitywide practice of critical examination and discussion, and scientific knowledge is a product of the social interactions among scientists.

Khalidi briefly remarks that social scientists can resist or correct any attempt to alter boundaries of categories according to non-epistemic considerations (Khalidi 2013, 197). Can we read him as promoting the same procedural method as Longino? I don't think so. Longino's most important insight is not found in Khalidi's account, namely, that the roles non-epistemic considerations play in motivating individual scientists to pursue diverse research programs and to critically examine their peers' work. Longino argues that "[o]nce propositions, theses, and hypotheses are developed, what will become scientific knowledge is produced collectively through the clashing and meshing of a variety of points of view" (1990, 69). The transformative interaction among scientists is possible by diverse perspectives laden with non-epistemic value judgments. This constructive role of non-epistemic values is not fully appreciated in Khalidi's account. Even if there are cases where commercial values threaten the integrity of science, the critical examination of such cases is only possible when scientists are motivated and willing to do so by appealing to diverse values.

## 5. Conclusion

Some scholars have been skeptical as to whether the social, psychological, and psychiatric kinds can be natural kinds, as their boundaries are at least partly shaped by non-epistemic considerations. Non-epistemic value considerations (e.g., the importance of family well-being) resulted in epistemically beneficial outcomes. They include: i) thorough scrutiny of

the received view in order to reveal its flaws and weaknesses; ii) expansion of the research field to include biology; and iii) creation of the first diagnostic criteria that further contribute to collecting relevant data. The change in scientific understanding of infantile autism, as a form of psychosis, caused by maternal lack of warmth to the modern understanding of it as substantially involving biological factors has been possible due to non-epistemic purposes.

By considering potential objections, I have also tried to show that the concern over value-driven modifications of natural kinds is motivated by the VFI. Given the various arguments against the VFI, we have reason to doubt the claim that value influence *per se* is harmful in scientific classification. Moreover, as shown in the case study of infantile autism, non-epistemic value judgments can be epistemically beneficial in scientific classification. Accordingly, treating all non-epistemic value considerations as problematic in scientific classification is not an effective tactic in producing scientific knowledge via natural kinds.

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