

Change in Twentieth-century Epistemology

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This paper aims to illustrate the change epistemology has undergone in the twentieth century. In a previous paper,⁽¹⁾ I explained how the conception of knowledge in modern philosophy changed between the times of Descartes and Reid. I showed that the conception of knowledge became, by degrees, more flexible and naturalized. Moreover, I suggested that this change occurred because of the effect of newly introduced psychological considerations on epistemology. In this paper, I will argue that a similar phenomenon occurred in the twentieth century as well.

1. Sense-datum theory

I believe we can fairly say that Anglo-American twentieth-century epistemology started with Russell and Moore. The two philosophers rebelled against British idealism and adopted the methods of empiricists. Moore's way of thinking involved analysing concrete phenomena. For example, during a lecture, he told his students to look at a white envelope and their own hands, and he then examined what they were in his view. Experiments like this one led him to develop the now famous term: sense-data.

But now, what happened to each of us, when we saw that envelope? I will begin by describing *part* of what happened to me. I saw a patch of a particular whitish colour, having a certain size, and a certain shape, a shape with rather sharp angles or corners and bounded by fairly straight lines. These things: this patch of a whitish colour, and its size and shape I did actually see. And I propose to call these things, the colour and size and shape, *sense-data*, things *given* or presented by the senses—given, in this case, by me sense of sight.⁽²⁾

The concept of sense-data, which Moore began to use in an epistemological context was adopted by Russell. In fact, it was Russell who led to this concept's spread throughout the field of philosophy, and sense-datum theory became a mainstream, widely accepted idea among philosophers. As Moore's above quotation suggests, and as many philosophers came to acknowledge, sense-datum was thought to give our empirical knowledge a solid foundation. This is because sense-datum has a special feature in that its existence is unquestionable. In other words, sense-datum avoids the effects of illusion or hallucination, from which other

objects of experience are apt to suffer. For this very reason, many philosophers accepted it as the basis of our empirical knowledge. H. H. Price, a representative sense-datum theorist, explicitly describes the infallibility of sense-datum as follows:

One thing however I cannot doubt: that there exists a red patch of a round and somewhat bulgy shape standing out from a background of other colour-patch, and having a certain visual depth, and that this whole field of colour is directly present to my consciousness. What the red patch is, whether a substance, or a state of a substance, or an event, whether it is physical or psychical or neither, are questions that we may doubt about. But that something is red and round then and there I cannot doubt.⁽³⁾

Here, we can recognize a similarity between sense-datum theory and the ideas of the great modern philosopher Descartes. For example, Price seeks a solid foundation for knowledge that has certainty. In addition, other sense-datum theorists seek such a foundation through consciousness. However, a key difference between sense-datum theorists and Descartes is that the former group finds the basis of our knowledge in objects of their perception, while Descartes found it in the ego. There is another similarity of note between them: in seeking an epistemological basis, both sense-datum theorists and Descartes dismiss methods that do not reflect consciousness. That is, they do not rely on scientific knowledge at all because they find that doing so confuses the order of knowledge systematization. Rather, their aim is to ground the scientific system in their established basis. However, sense-datum theorists have complicated Descartes' methods. From the beginning, they would ground our empirical knowledge in particular objects. Moore continued to consider the relationship between the concept of material bodies and sense-data, but he could not reach a conclusive answer.

Sense-datum theory has been exposed to many critiques, and its theorists have tried to avoid the implications of the criticism by giving new meaning to their theories. Here, I offer the following example.

Ayer is a sense-datum theorist. However, he fully notes one problem with standard sense-datum theory. That is, the attempt to give a foundation to empirical knowledge has proven futile. In this respect, he cites Hume's analysis, which he acknowledged as a significant influence. Ayer asserts that all empirical statements are hypothetical ones. Their probabilities never reach certainty, and their justifiedness is measured by their consistency with other numberless empirical statements, namely, hypothetical ones. Moreover, he stresses that empirical statements have pragmatic value. This attitude sets Ayer apart from other sense-datum theorists. We can recognize both holistic and pragmatic aspects in his philosophy, but he is neither a holistic philosopher nor a pragmatist. Since he posits that the mission of philosophy is logical analysis, he is best defined as an analytic philosopher. He has asserted

that logical analyses of statements require the translation of such statements into other statements. Thus, Ayer interprets sense-datum not as factual, but as linguistic, and tries to analyse our ordinary language through sense-datum language. However, the approach Ayer takes has also been criticized by many philosophers. J. L. Austin may be his fiercest critic; Austin opposes the philosophical dichotomy by emphasizing the great variety of meanings in ordinary language.

2. Analysis of the concept of 'S knows that P'

The twentieth century is the age in which conceptual analysis developed. As scholars have pointed out, Frege and Wittgenstein brought about this trend. Moore and Russell applied the method of analysis to empirical phenomena, while Frege and Wittgenstein applied it to our language. They recognized language as the limitation of human thought, and therefore tried to draw boundaries around our thoughts by clarifying our conceptions. With this goal, philosophers tried to analyse the concept of 'S knows that P'. In doing so, they revisited the ideas introduced by the great ancient philosopher Plato. Plato presented three candidate definitions of knowledge in his *Theatetos*: (1) perception, (2) true opinion, and (3) justified true opinion. Plato eventually rejected all three of these, but modern philosophers have reexamined them. Sense-datum theorists have paid the most attention to the first, while the philosophers I examine in this section focus on the last.

The twentieth century's epistemologists widely agree that the necessary and sufficient conditions for 'S knows P' are as follows.

- (1) S believes p.
- (2) P is true.
- (3) S is justified in believing P.

They then seek to analyse the conception of 'justifiedness'. One philosopher who pursues this project is R. M. Chisholm. It is commonly known that Edmund Gettier's article dealt a hard blow to the epistemologists who tried to analyse knowledge as justified belief. In the short, three-page article, Gettier shows that even if the above three conditions are satisfied, we do not necessarily have any knowledge about P. Thus, these three conditions are not sufficient conditions of knowledge. Early reactions against Gettier's conclusion tended to offer more complex redefinitions of knowledge-conditions. The works of Clark (1963), Sosa (1964), and Lehrer (1964) are the most eminent examples of this. However, in spite of their efforts, the new conditions these scholars proposed were often refuted by counter examples.

We can say that the conception of knowledge as justified true beliefs has already been softened when compared to standard conceptions of sense-datum theorists. As previously mentioned, standard sense-datum theorists are foundationalists. Moreover, like Descartes, they seek certainty through determining the foundation of our empirical knowledge. However, justifiedness has a wider meaning that includes not only deduction but also rationality. We may say that someone's belief on certain epistemic enterprises can be accepted as rational, even if there is some possibility of it being erroneous.

Evidently, philosophers who think knowledge as justified true beliefs can also adopt the strongest criteria for justifiedness. That is, they may only assume belief-propositions are justified if they have certainty. However, most philosophers do not appear to take this approach.

Thus, the softening of the conception of knowledge began, and, in early responses, some thinkers cast doubt on the traditional conceptions of knowledge. For example, Clark writes the following:

I think that the revised definition illuminates the issue as to whether so-called incorrigible knowledge is to be counted as knowledge at all. If I can't (logically) be wrong, for example, as to whether I am in pain, then, it is claimed, it is not properly a question of knowledge. For knowing entails having found out, and finding out is something which I may fail to do.⁽⁴⁾

The softening of the conception of knowledge does not stop here. The problem of determining what knowledge is continued to change, becoming, at least in part, the problem of knowing how knowledge is produced. Naturalism sparked this movement.⁽⁵⁾

3. The evolution of naturalism

In 1967, Alvin Goldman's article entitled 'A Causal Theory of Knowledge' introduced a direction for epistemology that differs from that discussed in the previous section. In the article, Goldman tries to show how beliefs can be justified. He pays specific attention to the causal course by which our beliefs are generated. He admits that perception, memory, and inductive reasoning are reliable processes for justifying epistemic beliefs. Then, he suggests that examining and clarifying when and how these processes generate the correct beliefs is a scientific task.

His article marked an important departure from analytic philosophy in that his epistemological framework gave scientific research a function in epistemology. The role of

epistemologists like Goldman is to present frameworks for justification. However, the role of epistemology is to present candidates for a normative conception of knowledge. Epistemology's concrete mechanisms or contents are then revealed through scientific research. Thus, in epistemological research, philosophers began to work hand in hand with scientists. In his celebrated article about naturalized epistemology, James Meffie writes the following:

Naturalists are united by a shared commitment to the continuity of epistemology and science. Naturalists and non-naturalists divide over whether or not the continuity exists.⁽⁶⁾

This definition interprets the essence of naturalism only loosely. Clearly, naturalized epistemology encompasses a wide range, and respected articles provide us with some classifications of it.⁽⁷⁾ According to the authors of these articles, the point on which naturalistic epistemologists disagree each other is how they pertain to the normative aspect. Each epistemologist's position is classified according to how he or she analyses the norms of our knowledge.

The most radical positioning naturalism is often said to be descriptive naturalized epistemology, commonly represented by Quine. Quine, in his seminal article, writes the following:

Epistemology, or something like it, simply falls into place as a chapter of psychology and hence of natural science. It studies a natural phenomenon, viz., a physical human subject. . . . The relation between the meager input and the torrential output is a relation that we are prompted to study for somewhat the same reasons that always prompted epistemology; namely, in order to see how evidence relates to theory, and in what ways one's theory of nature transcends any available evidence.⁽⁸⁾

In this passage, Quine seems to suggest that the role of epistemology is to *describe* our epistemic enterprise, and he seems to leave no room for the normative aspect of epistemology. If we adopt this position, we must consider not what our conception of knowledge is, but rather how our knowledge is produced.

It is widely assumed that many epistemologists do not agree on this position. In fact, Quine himself is said to embrace the normative aspect of epistemology in his later work. This assumption seems to be partly right and partly wrong. I will further address this point in a later section.

Regardless of which position we adopt on naturalistic epistemology, it is certain that our concept of 'knowledge' must be softened. Naturalistic epistemologists do not try to establish a foundation that has certainty. Also, unlike Descartes, they do not consider knowledge to be

infallible.

Here, I want to point out that this change in the conception of knowledge in the twentieth century has something to do with the change that occurred in the modern period. In the modern period, Descartes proposed an infallible, certain conception of knowledge. But British empiricists—namely, Locke, Berkeley, Hume, and Reid—brought about a gradual softening in the conception of knowledge. Though each has a slightly different theory, all take a naturalistic approach. They present scientific achievements at the outset, and then build their epistemology on these. Additionally, Berkeley, Hume and Reid attempt to justify belief through considering our natural constitution.⁽⁹⁾

In my earlier article (2010), I noted that this transition occurred with the development of psychological studies in the seventeenth century. In particular, Berkeley and Reid vigorously tried to show how knowledge was produced. David Hartley, known as a founder of association psychology, advanced this line of thinking even farther.⁽¹⁰⁾ Of course we must be cautious when applying today's classification of philosophy to classical thinkers. But I believe we can safely say that their philosophies have some of the same naturalistic features as those of the modern era.⁽¹¹⁾ We can consider the naturalization of epistemology in the twentieth century⁽¹²⁾ as the reappearance of the naturalization of epistemology in the seventeenth century. Moreover, I want to address an additional similarity between the development of epistemology in the twentieth century and that of the eighteenth century: the ways in which psychology affected developments in philosophy.

4. Philosophy and psychology

In spite of Wittgenstein's diagnosis,⁽¹³⁾ philosophy and psychology have gone hand in hand, or have at least influenced each other. For example, in the early twentieth century, behaviorism spread in psychology as well as in philosophy. Many analytic philosophers or logical positivists adopted behaviorist ideas.⁽¹⁴⁾ The area of thought referred to as the philosophy of mind has been influenced by psychology and vice-versa.

Psychology is one of the empirical sciences and it enjoys the same benefits as other natural sciences.⁽¹⁵⁾ Psychology has also been changing gradually with the development of technology. Though cognitive study has flourished since the mid-twentieth century, it is computer science that had the greatest influence on that movement. Goodwin states as follows

Other events relevant to the cognitive movement took place in disciplines far removed from psychology. One of the most critical was the development of computer science, which accelerated in the 1940s due to the military needs of World War II, with its demands

for such things as automated radar-tracking systems.⁽¹⁶⁾

Moreover, the technology for medical imaging devices developed in the 1950s. Positron emission tomography (PET) appeared at that time, and later, in the 1990s, functional Magnetic Resonance Imaging (fMRI) also appeared. These devices represented a radical revolution not only for medicine but also cognitive sciences. Scientists became able to observe dynamic changes of our bodies, especially our brains. This encouraged cognitive scientists to examine the connection between our neural networks and various behaviors, including psychological ones, which also affected philosophy, particularly philosophy of mind.

Philosophy of mind was one of the most prevalent areas of study in the twentieth century. Philosophers tried to overcome the persisting influence of Descartes' dualism. To this end, behaviorism, already addressed in this paper, was an early approach. Also, physicalism has attractive to many philosophers working between the 1960s and today. The development of cognitive psychology has doubtlessly contributed to this trend. Early Australian physicalists, philosophers J. J. C. Smart and D. M. Armstrong,⁽¹⁷⁾ advocated reductionism, which is idea that our mental phenomena can be reduced to physical components or behavior—for example, thoughts or behaviors could be reduced to functions of our brains. Besides reductionism, physicalism has great variety today. However, they all have been profoundly influenced by developments in brain science.

Developments in brain science have led psychologists back to traditional problems of philosophy, though psychologists' tasks and goals differ from traditional approaches to philosophy of mind. Many cognitive scientists seem to be indifferent to solving the ontological problems of the mind—that is, the problem Descartes left to philosophers. Instead, they mainly endeavor to locate our conscious phenomena in specific areas or functions of the brain.⁽¹⁸⁾ However if we ignore this point, the border between philosophy and cognitive scientist become blurred. In next section, I address the implications of this blurring.

5. Descriptive epistemology or the philosophy of mind

Many scholars claim that most naturalistic epistemologists do not agree with Quinean naturalism. But I do not consider this analysis to necessarily be correct. If we take it into consideration all that has been discussed prior to this section, Quinean epistemology appears to be much more widely accepted than scholars assume.

It is a fact that naturalistic epistemology is not the only option philosophers have. In particular, traditional epistemologists do not accept a naturalistic approach as legitimate epistemology. For example, Chisholm, speaking from the internalistic and foundationalistic

view points, states, (19)

We must be on guard, however, in interpreting contemporary literature that professes to be about 'internalism' or 'externalism'. Some of those authors who profess to view knowledge and epistemic justification 'externally' are not concerned with traditional theory of knowledge. That is to say, they are not concerned with the Socratic questions, 'What can I know?', 'How can I be sure that my beliefs are justified?', and 'How can I improve my present stock of beliefs?' (20)

Chisholm asserts that some epistemologists are not legitimate. Descriptive epistemologists are probably among these. But Chisholm's view is not necessarily correct. We can indeed consider descriptive epistemologists as genuine. This is not a problem of fact but of definition. If some cognitive scientists or philosophers of mind can be correctly called epistemologists, descriptive epistemology is likely much more widely received than some scholars suggest. Whether this assumption is correct depends on how well we embrace epistemology. One example involves Paul Churchland, a typical eliminativist who deals with our cognitive faculties by means of cognitive science in his *The Engine of Reason, The Seat of the Soul: A Philosophical Journey into the Brain*. This book can unquestionably be categorized as belonging to philosophy of mind. But I argue that it can be also be categorized as descriptive epistemology. If this is indeed the case, many trials represented by Churchland can be regarded as belonging to Quinean epistemology. This is why I assert that the Quinean approach has spread much more effectively than is acknowledged.

In any case, the phenomena I describe in this paper reveal how the conception of knowledge became softer and more moderate between the early twentieth century and today. I suggest that two factors caused this change. The first is the deadlock of traditional epistemology and the other is the development of cognitive science as accelerated by technological advancement. Certainly, some traditional epistemologists may not admit that traditional epistemology has reached a standstill. However, if we consider naturalized epistemology more widely and approach cognitive science as a type of epistemology, it can be assumed that epistemology has changed considerably. More specifically, the change shows that our epistemological concerns have transferred from what knowledge is to how knowledge is produced.

6. Other aspects of twentieth-century epistemology

I have shown how the conception of knowledge has softened and epistemology has

changed in the twentieth century. But there are additional important changes to epistemology that I did not mention. These include the socialization of epistemology and the development of philosophy of science. These two issues are closely related to each other. Though I cannot discuss them due to lack of space, I will briefly mention them here.

Since Thomas Kuhn's *The Structure of Scientific Revolutions*, the debate on what our scientific knowledge is has become widely popular. In this celebrated book, Kuhn describes how scientific knowledge, which existed under a certain paradigm in an earlier age, shifts. When such shifts occur, an old scientific system is replaced by new one. Kuhn suggests that there is discontinuity between new and old paradigms and that a scientific system is not cumulative. His argument incited many reactions, leading to disputes between realist and anti-realist thinkers.⁽²¹⁾

In addition, Kuhn's argument caused another change in epistemology: it led to the socialization of epistemology. Traditionally, epistemology has paid attention to an individual's epistemic status. But Kuhn's relativistic argument influenced a shift in this traditional view.⁽²²⁾ Since the 1980s, many epistemologists and sociologists have begun to take part in this trend of examining the social contexts or conditions that provide members of any given community with justification.⁽²³⁾

These recent developments in epistemology suggest that the nature of the fact has become a serious problem. It is often assumed that an individual knows a fact with certainty when that person's epistemic enterprise is evaluated or justified. If traditional justification conditions—(1) S believes P, (2) P is true, (3) S is justified by believing P—are used, the evaluator must indisputably know a fact. But recent debates have cast doubt on this assumption. I argue that such debates were not seen in modern philosophy, and that they show how of the conception of knowledge has been still more radically softened.

7. Conclusion

I have surveyed the changes that have occurred in twentieth-century epistemology until now. These changes pertain to the conception of knowledge. This concept has gradually softened while epistemology has been naturalized. A similar change also affected epistemology during the seventeenth and eighteenth centuries.

Lastly, there is one other important factor involved in this change that I did not discuss fully: the influence of pragmatism. The tradition of pragmatism, furthered by many English-speaking philosophers, has certainly influenced changes in epistemology. However, I end this study here for the time being, and leave pragmatism to be addressed in the future.

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- (1) Toda (2010).
- (2) Moore (1962), p. 44.
- (3) Price (1964), p. 3.
- (4) Clark (1963). Cf. Saunders and Champawat (1964).
- (5) Besides the debate taken up in this section, a debate on the justification of perceptual beliefs recently occurred. It concerns whether our perceptual beliefs need other beliefs for their justification. The debate reportedly pits liberalism against conservatism. cf. Neta, 2010.
- (6) Maffie (1990), p. 281.
- (7) For example, see Goldman (1994) or Kitcher (1992). In addition to these, debates between realistic naturalists and unrealistic naturalists are described in Rosenberg's article (1996).
- (8) Quine (1969), pp. 82-83.
- (9) Their attention to our natural constitution did not entirely stem from scientific interest. Rather they seemed to justify human belief by appealing to the benevolence of God—that is, with the exception of Hume, who advanced a more naturalistic view. Locke may also be included on this list. However, Locke did not equate empirical beliefs with knowledge. He may be said to have taken over the Cartesian conception of knowledge, but he evaluated empirical beliefs much more thoroughly than Descartes.
- (10) Berkeley described how our beliefs are produced through sensation in his *An Essay towards a New Theory of Vision*.
- (11) In fact, many scholars today try to interpret modern philosophers as naturalists and, in doing so, expose their own naturalistic tendencies.
- (12) Kitcher (1992) accurately pointed this out.

- (13) Ludwig Wittgenstein, *Tractatus logico-philosophicus* ; *Tagebücher 1914-1916* ; *Philosophische Untersuchungen*, Suhrkamp (1995).
- (14) A representative work in this area is Gilbert Ryle's *The Concept of Mind*.
- (15) As has already been stated, naturalistic philosophers do not dislike receiving the benefits or acceptance of other sciences; in fact, they welcome them.
- (16) Goodwin (2008), p. 472.
- (17) See Smart (1963), and Armstrong (1968).
- (18) Nicholas Humphrey says, 'This idea, that what we should be looking for is the so-called neural correlate of consciousness, is coming to be widely accepted by philosophers as well as neuroscientists' (Humphrey, 2006, p. 76). In addition to Humphrey, we may consider many cognitive scientists who struggle with certain types of philosophical problems. See Ramachandran and Blakeslee (1998).
- (19) Naturalistic epistemologists are often said oppose naturalistic epistemology, and many naturalistic epistemologists, especially reliabilists, are not internalists but externalists.
- (20) Chisholm (1989), pp. 75-76.
- (21) For more information regarding this dispute, see Rosenberg (1996).
- (22) I will also take up Wilfrid Sellars as one of the representative philosophers who advanced this shift.
- (23) For example, see Cohen (1986). For more information regarding recent disputes in social epistemology, see Goldman (2004).