The importance of establishing incontrovertible facts is overestimated. Most knowledge deals in ambiguity. Discuss this statement with reference to two areas of knowledge.

Incontrovertible facts would refer to facts that are established to the agreement of everyone in a field or knowledge community. We generally assume that knowledge production has to be founded on incontrovertible facts, whereas ambiguity would hamper knowledge production because more factual grounding results in greater certainty of knowledge claims. However, there are doubts if it is possible to establish facts that everyone agrees with and to what extent it is necessary for knowledge production. This is because ambiguity is inevitable as it is possible to have multiple interpretations of the same set of data when deciding what to consider as fact. If we still consider ourselves to be producing knowledge despite the presence of ambiguity, then we have to consider how and when establishing incontrovertible facts for factual grounding is really necessary to knowledge production. Therefore, this leads us to question the extent to which gaining absolute certainty through incontrovertible facts is necessary for knowledge production.

Establishing incontrovertible facts is arguably overestimated as we do not always need facts to be established to everyone's agreement in order to produce knowledge. Generally, it is expected that one needs to establish facts to everyone else's agreement in order to produce knowledge because these facts will be the common basis for discussion which establish one's credibility and allow mutually acceptable justification to occur. However, this is not always necessary because in some AOKs like history, eliminating ambiguity is not of paramount impo1tance to knowledge production because the objective is not so much to gather facts as to explore interpretations of evidence or the past.

In History, even when there are a range of credible sources that are available concerning an event, even the facts of what happened may still be in dispute because individual historians evaluate the sources, decide what they mean, and compare them with information from other sources to create an account of what they think happened. The way historians evaluate sources is reliant on factors such as the prejudices of the historian's own time period, which will determine what facts are identified based on

those sources. Thus, what a historian extracts from a range of credible sources and considers to be fact can differ. For instance, historians are divided over whether German Anschluss with Austria was planned or opportunistic (Kershaw, 2008), showing that there can be disagreement over facts even though all historians attempt to evaluate all sources and reconstruct facts as best they can. Historical facts are therefore evaluative facts and will always contain an extent of ambiguity. We accept that a range of interpretations will always be regarded as valid based on the evidence, and that there will be no facts everyone agrees on that will determine just one interpretation to be solely right. Thus, the importance of establishing incontrovertible facts in history is overestimated because evaluative facts are naturally ambiguous and do not need to always be agreed upon to produce knowledge.

In the natural sciences, although there is a greater emphasis on the need for empirical evidence, some theories allow for certain types of facts to be essentially ambiguous. Based on such theories, we must accept that we can never truly know certain facts. Heisenberg's Uncertainty Principle states that the more precisely the position of some particle is detennined, the less precisely its momentum can be known, and vice versa ("Uncertainty principle", 2016). Scientists regard the principle to be true because it is explanatorily powerful and coheres well with existing known theories of wave and matrix mechanics. Hence, establishing incontrovertible facts in science is sometimes not possible but we still accept the theory as knowledge because the ambiguity is insufficient to outweigh its convergence. Since incontrovertible facts in the natural sciences are not essential to producing knowledge when a theory is explanatorily powerful, it is sometimes overestimated.

However, some agreed facts that the community puts beyond doubt are needed to get started with knowledge production. Generally, some facts like analytical facts have to be agreed upon by the knowledge community and not regarded to be in dispute, otherwise, there would not be a basis for discussion among the knowledge community. Analytical facts are facts that cannot be observed but are verified by linguistic usage and

are convergent with rules of a system. They fom1 the basis for valid knowledge constn1ction and therefore cannot be overestimated.

In the natural sciences, analytical facts in the form of definitions have to be agreed upon by the scientific community because the way a term is defined can affect the direction that scientists take to investigate it. For example, scientists are divided over whether to classify Chronic Fatigue Syndrome (CFS) as a physiological or psychological condition (Sykes, 2002), which affects whether they focus on biomedical or psychological research to find treatments. In this case, scientists need CFS to be clearly defined if it is either physiological, psychological or both because they need to establish a basis for discussion, from which they can then research for cures. Therefore, agreement on analytical facts like definitions in the natural sciences is not overestimated, as it is pivotal to the ability to produce knowledge.

In History, even where factual details of an event can be disputed, there is in general minimally a consensus among historians that some basic facts of the event must be true. If they do not agree on basic facts like what events happened, they will be unable to stait a discussion about the past because they cannot identify what they intend to djscuss about. An inability to conduct a rational debate about any question results in an inability for historians to cross-check, evaluate, scrutinjse and discuss their different interpretations, which is key to the method of producing valid perspectives in History. An example of this would be the case of David Irving, a Holocaust-denying historian. The occmTence of the Holocaust is regarded as a basic fact for historians to form a discussion about because of the overwhelming evidence and acceptance by the historical community. A reasonable historian will not defy the entire historical community and overwhelming evidence and risk being excluded from the discussion and knowledge production of the knowledge commuruty. Irving's refusal to acknowledge the Holocaust means that claims made by other historians will be of no value to him and vice versa (Evans, 2002). If historians do not agree on certain basic facts, , then no knowledge can be produced as there will not be a historical debate, which is how historical knowledge is produced.

Therefore, the importance of establishing incontrovertible basic facts in history cannot be overestimated.

But while the importance of factual grounding cannot be overstated, people often overestimate how certain we actually need to be about those facts because we are unable to prove them beyond reasonable doubt. No matter how certain we are about facts that we consider incontrovertible now, we cannot be fully sure that they will forever be accepted in future. Despite this, we still consider ourselves to be producing knowledge because if we do not, then no knowledge will ever be produced. Thus, the importance of establishing incontrovertible facts is arguably overestimated.

In history, a consensus can always be overturned subsequently by the discovery of new evidence. For example, early estimates by historians of the Nanjing Massacre death toll was approximately 40,000. (Timperley, 1938) However, after the International Military Tribunal of the Far East where new accounts and evidence was brought up, it was revised and estimated that approximately 155,000 were killed (Hata, 1998). This showed that what was considered fact before could be overturned when there is sufficient evidence to do so, implying that establishing facts to the agreement of everyone does not necessarily mean that the conclusion will be more correct. Hence, the importance of establishing incontrovertible facts in history is overestimated because conclusions can be overturned in light of new evidence.

In science, there is also a similar situation because new evidence can cause a conclusion that was widely accepted to be overturned, so establishing incontrovertible facts alone cannot show that a theory indisputably correct. For example, in the 1700s, the Phlogiston theory, which postulated that an element called phlogiston is released during combustion, seemed watertight and perfect to scientists as it was widely accepted and coherent with evidence available then. However, scientists later realized that some metals gained mass when combusted even though they were supposedly losing phlogiston. ("The Rise and Fall of the Phlogiston Theory of Fire", 2001) With new evidence, the Phlogiston theory was overturned despite its acceptance as an incontrovertible fact that was

established to the agreement of everyone in the field at one time. Therefore, this shows that establishing incontrovertible facts is not necessary because it can change and is hence overestimated in producing scientific knowledge.

In conclusion, due to the objective nature of the natural sciences, it is generally preferred that we have as many incontrovertible facts from experimentation as possible. Nonetheless, there are occasions where it is not necessary to have agreed factual evidence for a theory because it is explanatorily powerful and coherent with other proven facts. Incontrovertible facts are not as valued in history as in the sciences because the historical method allows for different interpretations as to what are considered facts. While widespread agreement on more facts would allow for greater accuracy, they are not essential to producing historical knowledge, not least because if we insisted on incontrovertible facts, much historical knowledge would not be produced at all. Nevertheless, whether in history or the natural sciences, facts that are regarded to be incontrovertible now may be disproven in future, suggesting that establishing facts to such a degree of certainty are ultimately not pivotal to knowledge production and progress. Hence, the importance of establishing incontrovertible facts is over-estimated.

(1595 words)

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