3. Is there solid justification for regarding knowledge in the natural sciences more highly than another area of knowledge? Discuss with reference to the natural sciences and one other area of knowledge.

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I have always valued objectivity, truth, and clarity of knowledge, and I have therefore mostly gravitated towards natural sciences as a field of interest. When I chose courses for high school, I quickly settled on a schedule filled with math and natural science courses. I had been told on numerous occasions that the 'smart' students choose 'real' sciences rather than the 'easy' alternatives. Equally important, however, was the Norwegian government's emphasis on knowledge within the natural sciences. In Norway, you receive extra study credits for studying natural sciences, which indicates that the government believes natural sciences to be more important than most other fields of research. The threshold for information within natural sciences tends to be much higher than the human sciences. Thus, it can be more challenging for the average knower to gain a basic understanding of the natural sciences, thus contributing to the belief that natural sciences should be regarded more highly. The certainty of the knowledge found in natural sciences as well as the importance of many scientific innovations across time has led natural sciences to often be regarded more highly than many other areas of knowledge. In this essay, I will answer the question "to what extent is the notion that knowledge in natural sciences should be regarded more highly than human sciences justifiable?"

According to Jared Diamond, a decorated scientist within fields like biology, history, and geography, most educated people would describe "sciences" in a rather stereotypical manner that typically correlates to the natural sciences. He found that the typical description would likely include that they are done in a laboratory, and usually involve measurements with accurate tools. Furthermore, he believed that they would be described as repeatable experiments in which the scientists could vary one or more variables, the scientific method. These fields have been coined, rather flatteringly, the 'hard sciences', because of their objective nature with firm evidence and high accuracy (Diamond, 1987). The elements of the periodic table are the building blocks of the

world and therefore inherently central to the natural sciences. They showcase the usage of firm evidence and high accuracy within the fields. Scientists globally have proven empirically that the atomic mass of carbon (C) is 12.0107 ± 0.0003 U (Wieser & Coplen, 2009). This gives us an uncertainty of 0.0027%, which leaves little room for subjective biases and interpretations. Due to the high level of repeatability of the experiments that have been used, knowers can be confident that the atomic mass of carbon is both objective and certain.

According to most formal definitions, science is comprised of much more than test tubes and fancy machinery. Science constitutes the activity of gaining knowledge of and explaining the natural and physical world by continually testing theories against empirical evidence (Lexico, 2022). While there are many sensations natural sciences can help us understand, the world is also full of pivotal natural phenomena that cannot be explained in a laboratory. Much of politics, economics, and the rest of human sciences, fit this expanded explanation. These sciences are sometimes pejoratively named the 'soft sciences' due to their lower objectivity, certainty, and accuracy. Political instability, the wage gap, and the unemployment rate are a few examples of studies in human sciences that do not fit inside a test tube. They cannot be started or stopped, and many, if not most, of the variables, are uncontrollable. It is, however, important to also highlight the importance of human sciences to humanity and the high difficulty of the fields, which can sometimes be forgotten. These fundamental differences are often misunderstood by many people, who tend to quickly dismiss much of the knowledge in human sciences for being too inaccurate or imprecise.

Empirical evidence gathered from an experiment must be tested against the theories. To investigate a phenomenon, the scientist must first identify which factor to examine. It is unambiguous to know which property to explore when measuring speed and mass, but finding a metric by which for instance political instability can be measured is much more challenging. Thus, we could argue that

objectivity and certainty are perhaps more challenging to establish in human sciences than in natural sciences due to the nature of the studies. We know that the matter which is studied in most natural sciences tends to follow the unyielding laws of nature. Human scientists tend to study concepts that are less predictable and less repeatable. Humans, for instance, act differently based on the environment. Human scientists have investigated how pressure and stress influence the brain's ability to absorb information. They found that the brain becomes more sensitive to bad news while under pressure (Garrett et al., 2018). This specific investigation shows how human scientists can manipulate the variables to help find answers, but also highlights how the human brain does not act consistently regardless of the environment. Thus, research in human sciences can be inconsistent if all variables and conditions are not controlled perfectly.

Some researchers within human sciences, such as the Nobel laureate in economics David Card, have used methods that more closely resemble those used in natural sciences and thus utilized empirical evidence and methods "[...] in a way that resembles clinical trials in medicine."(Nobel Prize Outreach AB 2022). In 1994 for instance, Dr. Card and Alan Kreuger investigated the impact of altering the minimum wage. Contrary to popular belief among most economists at the time it was theorized that increasing the minimum wage would reduce employment. What Card showed through his empirical evidence, however, was a positive relationship between an increase in minimum wage and employment, the opposite result of what most economists theorized at the time. Card's work has influenced human scientists across the world (Willson, 2021), towards more objective, certain investigations, as real-life situations leave less room for subjective interpretations of theoretical concepts.

The concepts studied in the human sciences tend to be of the nature such that the average knower may fancy themselves to be sufficiently knowledgeable in the field, which is a problem in itself.

Anybody, scientist or not, may feel qualified to write about contemporary political or economic challenges or even offer their subjective criticism on the work presented by scholars. This could influence the perception that human sciences are less valuable than natural scientists like Rebecca Lodin. Let us consider one of the opening sentences in Rebecca Lodin's Doctoral Thesis in theoretical physics: "To be concrete, let us consider a supersymmetric gauge theory on the squashed three-sphere S_b^3 whose generating function is given in the form of a q-deformed matrix model." (Lodin, 2021). How many knowers would feel entitled to challenge these types of statements, or offer their own opinions about q-deformed matrix models? It is difficult to challenge much of the knowledge in natural sciences because of their methods, instruments, and language taxonomy.

A question like "how can a scientist measure the weight of a molecule; can they measure mass accurately?" would show a lack of understanding of the natural sciences. However, questions like "how do human scientists measure concepts like social frustration or political instability?" showcase a similar ignorance of the work of human scientists but are still accepted. Human scientists need to make assumptions, and factors like social frustration may not be as accurate and certain as the mass of carbon. Sociologists may wish to express the happiness level numerically. This would increase the accessibility of the knowledge, but knowers may see this as a drastic simplification and thus feel this is not a credible scientific approach. On the other hand, cornerstones of natural sciences are also assumptions. The standard model of elemental particles and gravity in physics is now proved not to be imperfect and inaccurate (Hossenfelder, 2021). However, it is still used by physicists around the world and has yielded vital results. Thus, accuracy and certainty cannot be the only factors from which natural sciences gain their reputation.

It is very difficult to compare the relative importance of natural sciences compared to human sciences. By which metric should knowledge be regarded, our species' survival? For our survival, it probably matters little whether we progress our understanding of Macdonald polynomials. However, the knowledge within natural sciences consists of much more than deformed matrices and pyramids. Medicine, green energy, and bionic limbs have already significantly increased our quality of life and will continue to do so. The objective results in natural sciences which are based on highly certain evidence provide the knowledge we can regard highly. The common notion is that the natural sciences have higher certainty and objectivity in their studies, and can accurately invalidate or prove knowledge claims. The human sciences, on the other hand, contribute to our understanding of the fundamental interactions in society. The human and natural sciences complement each other. Humanity is reliant on both fields for the best quality of life. The methodology in natural sciences is advanced and helps provide the knower with reliable, objective, and clear results. This leads most people, to view the knowledge in natural sciences more highly. However, the imperative knowledge human sciences provide about our species helps us understand how to optimize the structures of the world to increase factors like political stability, and unemployment rate and further evolve our understanding of human psychology, and should not be understated and undervalued.

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