

Research on Instrumental Rationality

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Abstract: Holding a pessimistic attitude towards modernity and rationality, Max Weber believes that instrumental rationality gradually replaces value rationality as modernization accelerates. It means that people have gradually become a part of rational calculation, thus losing the value of human existence. The key to instrumental rationality lies in calculation, manifested as the process of mathematizing nature through geometric technologization or algebra, highlighting the process of achieving singular output while forgetting its original richness. However, undeniably, value orientation reflected by instrumental rationality is also one of the multiple values, and value rationality also has drawbacks. Nowadays, the fundamental reason for deep-seated social conflicts and divisions is not the neglect of value rationality, but the excessive emphasis on it. In response to this crisis, Habermas proposed the theory of “communicative rationality”, believing that the root of the crisis lies in “subjectivity” in traditional rationality, and hoping to use “intersubjectivity” emphasized by communicative rationality to achieve social consensus.

Keywords: Instrumental rationality; Mathematization; Communicative rationality

Since the European Renaissance, rationality’s evolution from an individual liberation tool to an instrument of control and oppression reflects the intertwined growth of science and technology, particularly during the industrial revolutions. The most important aspect of industrial production is to improve efficiency. This mindset of constantly pursuing higher efficiency and maximizing benefits with minimal cost has gradually penetrated into other fields, forming a social ideology that gradually erodes other value judgment standards, leading to a trend of being distorted into society’s only standard of judgment.

1. “Instrumental Rationality” and “Value Rationality”

By analyzing the reasons for this phenomenon, Max Weber divided human rationality into two categories, namely “instrumental rationality” and “value rationality”. Instrumental rationality focuses on pure rationality, that is, doing what rationality believes is right. Value rationality focuses on human beings and values. That is to say, doing what the individual believes is right. The key to instrumental rationality is calculating calculates costs and benefits based on established goals to find the optimal means. The evaluation of value rationality is more complex and subjective, and the key is value rather than rationality.

Undeniably, value orientation reflected by instrumental rationality is also one of the multiple values, and we are not denying the legitimacy of instrumental rationality. Instrumental rationality has its advantages, which emphasizes execution and efficiency, undoubtedly promoting the rapid development of modern society. The key to the problem lies in the fact that the thinking style adopted by instrumental rationality has objective standards that can be quantified and evaluated. By calculating costs and benefits, the optimal means can be found, which is not only easier to reach a consensus but also easier to replicate. However, the diverse standards of value rationality vary, and different individuals have different value judgments on the same issue, making it difficult to reach an agreement. As a result, with the process of modernization, the logic of instrumental rationality is becoming increasingly powerful, gradually penetrating into various fields of life, becoming a universal logical standard. The so-called instrumental rationality refers to a technological or scientific rationality that combines the inherent logic of technology with rationality. Therefore, when we question the inherent essence of instrumental rationality and the core of instrumental rationality (how this quantitative way of thinking emerges), we are questioning the essence and logic of technology.

Firstly, as a means of achieving the aims of human beings, technology views nature as a dualistic antithesis to subjectivity itself. Science, or technology, has developed under the technological a priori condition of conceiving nature as a potential tool and material for control and organization in this dualistic perspective. With the development of science and technology, a completely new concept

of nature centered on humans has gradually emerged. Human beings are the subject, and nature is the object. Through scientific discoveries, humans can make nature useful to themselves after mastering the natural laws. Instrumental rationality from this influence naturally focuses on means to achieve goals. Secondly, from the perspective of phenomenology, the essence of technology is a challenging way of revealing. It is revealing while obscuring the truth of existence itself. Although technology as a means of revealing can achieve a certain possibility of the object itself, it also loses the possibility of the object being complete in its original form. The challenging way of revealing is the result of calculation. This kind of calculation is manifested as the process of mathematizing nature through geometric technologization or algebra, highlighting the output while forgetting its original richness.

2. Quantify the Forgetfulness caused

Based on the dualistic antithesis between humans and nature, starting from Galileo, there has been a shift in the mathematical and idealized understanding of nature. The mathematization of nature is reflected in the precise description of natural laws through mathematical symbol formulas. Taking analytic geometry as an example, by setting a coordinate system, geometric figures can be transformed into algebraic equations. From then on, the concept of space and time has become a form of pure numbers, an algebraic construct.

However, as nature is constantly transformed into scientific formulas, the exploration of nature in philosophy has evolved into the discovery and argumentation of formulas in science. Many tedious deductions and proofs in science were gradually replaced by symbols. In algebraic calculations, people put the meaning of geometry in the second place or even abandon it; people only remember that these numbers should represent a certain shape after calculating. However, people are not doing “mechanical” operations in all kinds of calculations, but thinking and inventing, sometimes making significant discoveries, accompanied by subtle and imperceptible shifts in meaning, making it the meaning of the symbol. Therefore, algebra not only reveals the essence of technology as a product of technologization, but more importantly, it strengthens the thinking mode of calculational quantification. The development of algebra has given birth to scientific formulas that are crucial for science, and this transformation that can quantify natural objects truly realizes the use of nature as a potential tool and material. The requirement for scientific accuracy, which quantitatively describes natural phenomena, has gradually evolved from an initial possibility to an extremely important, even the only way to understand nature.

Quantitatively characterizing and describing nature means that what we know is a mathematized nature, a way for humans to deeply understand, comprehend, and grasp nature. Although we have achieved unprecedented results in this way, it is undoubtedly a forgetting of the richness of nature and human rationality. Therefore, instrumental rationality has become the best means to achieve a goal through rational calculation. Although this goal is chosen by value rationality, just like the forgetting of technology, the continuous expansion of instrumental rationality makes the pursuit of means exceed the pursuit of the goal itself.

In modern society, where everyone’s value orientation is diverse, people’s attitudes towards money are often consistent. It does not mean that modern people are all mammonistic, but according to the logic of instrumental rationality, money is the most common tool for everyone. Why do we make money? Undoubtedly, the premise of achieving poetry and distance requires material support, but if we only focus on calculating benefits and costs, the process of material accumulation will conversely transform us. People will only want to make money and hold that making money is enough for them, and the original means have become purposes. People are lost in the long journey to poetry and distance. Society holds an attribute like a machine, where humans are dehumanized and seen as the parts of machines. Machines only consider whether each component can function properly and whether the entire system can operate normally. While factors unrelated to function, such as individual personality, interests, values, etc., are ignored. Tears are not allowed because the screws stained with tears will rust. Weber regarded this social machine as a “modern iron cage”.

3. “Modern Iron Cage”

This “modern iron cage” is undoubtedly problematic, with two extremely obvious drawbacks:

Firstly, a one-sided social ideology has emerged. People are accustomed to using the logic of instrumental rationality to solve all problems, including those social problems that cannot be fundamentally solved using instrumental rationality methods. We can consider the following question: for universal measures to prevent problems such as food safety and counterfeit products, increasing their costs or treating them in a quantitative way may be acceptable. However, does it mean that ethics can be quantified, and as long as costs are paid, ethics can be destroyed?

Secondly, a one-sided social relationship has emerged. The relationship between people and organizations has gradually become a commercial “supply and demand”. The emergence of concepts such as “Human Resources” and “Talent Market” reflects this alienation - people have also become commodities, competing with each other in front of “buyers” and enhancing their value as commodities instead of the comprehensive and free development that humans should have to meet the demand of social machinery

for “high-quality parts”.

However, despite its sharp drawbacks, we still cannot easily break it, as it not only constrains us but also protects us. The iron cage ensures superior material conditions and the material civilization built upon it, ensuring the efficient operation of the entire social system, creating massive job opportunities, abundant material and cultural products, and solving problems that have disturbed humanity for thousands of years, like poverty, slavery, and disease on a large scale. As creating constraints and protections are the same thing, if people do not find a reasonable and feasible alternative but rashly break up the iron cage, people will get into a worse situation.

That is why Weber holds a pessimistic attitude towards this modernity and rationality, not only because instrumental rationality erodes value rationality, but more importantly, value rationality also has its defects. However, in Habermas’s view, Weber’s pessimism is simply due to a lack of proper use of rationality and awareness of the importance of language communication. In addition, he excessively emphasizes the instrumental essence of rationality, so its roles in communication are neglected. “Weber was trapped in traditional philosophy of consciousness, detached from language to study human action, and neglected the role of communication in consensus, which led to a pessimistic view of rationality and modernity.”

4. “Instrumental Action” and “Communicative Action”

Based on Max Weber’s distinction between “instrumental rationality” and “value rationality”, Habermas classified communication into “instrumental action” and “communicative action”. Instrumental action refers to an interaction between humans and the objective world, using instrumental rationality. Communicative action is an interaction among people, using communicative rationality. Although both of them are based on “rationality” as a premise and foundation, there are significant differences in their application of rationality. The purpose of communication is to enhance understanding, the purpose of understanding is to reach consensus, and the purpose of consensus is to pass on knowledge or truth, which emphasizes the necessity of “reaching consensus” - division and confrontation have no way out while cooperation and consensus are the goals we should pursue.

Communicative action, based on language, rationality, freedom, equality, and openness, is governed by communicative rationality, which emphasizes “intersubjectivity”. Through sincere, genuine, and legitimate language action, it enhances understanding and consensus between people. In *Theory of Communicative Action*, Habermas points out that the nature of communicative rationality can ultimately be reduced to argumentative discourse reaching consensus without compulsion, where different participants overcome their initial purely subjective concepts and establish the subjectivity of the objective world, identity, and intersubjectivity within the living context for the common and reasonable belief.

Habermas expects to construct the possibility and hope of achieving social consensus through intersubjectivity emphasized by communicative rationality. Although there are still many obstacles in applying the idea to reality and solving social problems, its proposal of rationality not only has the dimensions of judgment, choice, and balance, but more importantly, we can achieve consensus among subjects through its communicative dimensions. Undoubtedly, it has profound significance, allowing us to see the possibility and hope of using rationality to build a harmonious society.

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